The Netherlands

1. Overview

- From 1995, the Netherlands prohibited the landfilling of combustible and biologically decomposable waste, as well as separated construction and demolition waste, if it can be reused, recycled or incinerated with energy recovery. The legislation specifies what wastes are deemed combustible or biologically decomposable by naming over 32 overlapping categories of waste, including household waste and household-like waste from offices, shops, services and industry (see appendix for full list).
- The overall rationale for the ban was to divert waste away from landfill, viewed as the least desirable method of disposal due to both the impact of methane emissions and the loss of the scarce resources embodied in waste. For some categories of waste, the ban was intended to act as a ‘backstop’ to other regulatory or fiscal interventions, whilst for others the ban was intended to drive investment in alternative treatment capacity.
- Exemptions in the early years of the ban were granted to municipalities if they could demonstrate that no alternative to landfill was available. Alternative infrastructure development was slowed by the export of large quantities of waste from the Netherlands to Germany, where a landfill ban was not enforced until 2005.
- The increasing landfill tax for combustible waste (it stands at approximately €90/tonne in 2009, one of the highest rates in the EU) combined with the removal of a moratorium on new incineration capacity in 2000 and measures to increase the competitiveness of the Dutch waste market, led to the expansion of incineration capacity from 2002 onwards. Such capacity was largely achieved through the expansion of existing facilities rather than an increase in their number.
- An incineration tax is enshrined in Dutch legislation, but is currently set at zero. Recycling operators argue that this tax should be increased but this looks unlikely.
- Implementation of the ban on organic waste to landfill has been reinforced by the mandatory separate collection of household organic waste since 1995.
- Responsibility for compliance with the ban rests in practice with the landfill operator, whose records are inspected by SenterNovem, the government’s waste management agency. A simple method is used to identify banned waste: waste that has an average density of above 1100kg/cubic metre is assumed to be largely inert and can be landfilled at a lower tax rate. Waste that is under this density limit is assumed to be combustible or biodegradable and can only be landfilled on production of an exemption, and then only at the higher tax rate. The landfill tax system is overseen by the Dutch finance ministry, which has resulted in high rates of compliance with the ban, except in the case of construction and demolition (C&D) waste.
- The ban on the landfilling of construction and demolition waste proved initially the most difficult to enforce, with an initial system of certificates, demonstrating that C&D waste was neither reusable, recyclable nor combustible, found to be open to fraud. Today however, nearly 97 per cent of Dutch building and demolition waste is recovered.
- The Netherlands’ combination of instruments has been successful in steering waste away from landfill towards alternative treatment, with only four per cent of total waste, five per cent of commercial and industrial waste and ten per cent of household waste landfilled in 2006, although the latter is an increase on 2004-2005.

2. Who did we interview?

- Herman Huisman, senior advisor and expert in waste management, Waste Management Department, SenterNovem (an agency of the Dutch Ministry of Economic Affairs, responsible for implementing environmental and spatial planning policy)
- Anne-Claire Collee, policy adviser, Ministry of Housing, Spatial Planning and the Environment (Ministry van VROM)
- Jeanne Kok, secretary to the Sustainable Landfill Foundation (Stichting Duurzaam Storten) and Association of Waste Management Companies (Vereniging Afvalbedrijven)
- Supplementary information was provided by Bas van Huet and Dr Adrie Veeken, SenterNovem.
3. Landfill bans – policy

i. Main provisions of legislation

The landfill ban was announced in 1992 in coordination with the Netherlands’ first ten-year waste programme, and enshrined in legislation by the Waste (Landfill Ban) Decree in 1995. The Decree prohibits the landfilling of combustible or biologically decomposable waste, and separated construction and demolition waste, if there is a possibility for reusing, recycling or incinerating it with energy recovery.

The 1995 Decree sets out 32 categories of waste that are banned from landfill (see appendix three for full list). Key categories include:

- Household waste and substreams originating from its separation and sorting
- Office, shop or services waste and substreams originating from its separation and sorting
- Industrial waste which comprises office, shop or service waste
- Paper or board
- Packaging
- Vegetable, fruit and garden waste
- Construction and demolition waste and residues originating from its treatment
- Waste from parks and gardens or green amenities

The original Decree acknowledges that the significance of the landfill ban depends on the waste in question: "For some waste a different method of disposal instead of landfill is already common practice and disposal is being steered in the right direction by instruments other than a landfill ban. The decree in such cases must be seen as a safety net. For other wastes, the material significance is greater because controlling the way in which they are disposed of will take place to a lesser or greater degree through a ban laid down in this decree." Decree of 27 June 1995, entailing a landfill ban within establishments for designated categories of waste (Waste (Landfill ban) Decree).

In 1998 the Decree was revised in advance of the 1999 European Council Landfill Directive 99/31/EC. The updated legislation specified 35 categories of waste to which the ban applied (see appendix section four), an increase of three from the previous 32 categories. The three waste streams added to the list of banned wastes were corrosive and explosive waste, liquid waste, and uncategorised waste (for example hazardous wastes from laboratories). In addition, waste from end-of-life vehicles was exempted from the ban, due to intense lobbying from operators of ‘shredding’ (vehicle disposal) facilities, who were primarily concerned by likely rising disposal costs and by the limited availability of disposal alternatives. Recently however, despite opposition, the landfill ban for end-of-life vehicle waste was reintroduced in January 2009, with shredder waste falling in the higher landfill tax category since January 2008.
Netherlands waste treatment chain before the establishment of landfill bans

Netherlands waste treatment chain after the establishment of landfill bans

Types of waste streams

- Untreated residual waste
- Separately collected waste materials (biowaste and recyclates)
- Recyclates (paper and cardboard, glass, metals, plastics, bulky waste, textiles, WEEE)
- Biowaste (food waste, garden waste)
- Treated residual waste
- High calorific fraction

Types of operations

- Disposal
- Treatment
- Recovery
- Treatment and/or Recovery

‘Composting’ also includes to anaerobic digestion and other biological treatment
ii. Motivation/rationale

The 1995 Decree describes landfill as the least desirable method of disposal because of the loss of scarce resources and the emission of methane, and goes on to say that it is important that the use of primary raw materials is restricted as much as possible by using waste as a secondary raw material.

Herman Huisman: “The Netherlands is a small country – space is very precious to us – and we are a flat delta with high groundwater levels that is not well suited to landfilling. We therefore don’t think of it as landfilling but as landraising! Landfills are also bad for the environment, from the local disamenity through to the impact of methane on the climate. Waste to landfill is also a waste of resources. A further motivation for the ban was the lobbying of NGOs for minimal use of landfill.”

Anne-Claire Collee: “VROM sees the landfill bans as an integral part of the whole waste management system in the Netherlands. In particular, they are the ‘net’ that ensures that waste does not go to landfill even if other regulatory or fiscal interventions have not had the desired effect. Their function differs for different categories of waste – in some cases the bans just act as an extra safety net, in other cases they have been fundamental in driving alternative treatment capacity.”

iii. Reactions of key stakeholders

A strong focus on interactive policy-making with municipalities and industry has been of real importance, and has meant there have been few real problems with stakeholder reception of the landfill ban and taxes.
4. Landfill bans – practicalities

i. Responsibilities

Although the National Environmental Management Act puts responsibility on the waste generator to ensure they only give waste to a licensed receiver, in practice this is a ‘duty of care’ and responsibility for complying with the landfill ban rests with the landfill operator, as detailed in the operator’s licence. Every month, each landfill operator must report its quantities of landfilled waste to the province, which then updates SenterNovem, also on a monthly basis.

Jeanne Kok: "inspections are not as frequent as they used to be because the landfill tax has been so effective."

ii. Exemptions, compliance and enforcement

Two significant exemptions existed in the original legislation:

- The landfilling of household waste, office, shop or services waste, or industrial waste that is similar to office, shop or services waste is allowed if a permit has been granted by the relevant province to the landfill operator, on the basis of lack of alternative capacity. Provinces check the eligibility of applications for exemption before passing them to SenterNovem, which investigates the possibility of alternative treatment for the specific waste. If alternative treatment to landfill were not deemed viable, then SenterNovem would make a declaration to the province in question, which would then grant a landfill exemption. The evolution of alternative capacity is discussed in section 4ii, below.

- Until 2001, construction and demolition waste that was unsuitable for reuse, recycling or incineration or non-reusable residues from the processing of C&D waste, could be landfilled by an authorised person with a mark or certificate (explained below).

Although construction and demolition waste was included in the original ban in 1995, prior industry pressure had led to the inclusion of a certificate system for C&D waste. Under this system waste shipments carried a mark accredited by the Stichting Raad voor de Certificatie (Certification Board) signifying that the waste had been inspected and found to be unsuitable for reuse, recycling or incineration. However, the resulting scheme was found to be open to fraud (the certificate was available online and easily copied), with banned waste falsely classified as C&D waste to evade the landfill ban. The regulation was amended to end the exemption for C&D waste, and this change became effective in March 2001.

The compliance system for the bans works in parallel with the landfill taxation system. All waste with a density over 1100kg per cubic metre, for example sludges, inert residues from recycling and contaminated soils that can’t be cleaned are eligible for landfilling and attract a lower landfill tax rate of approximately €15/tonne. Jeanne Kok: "using density to assess eligibility of waste streams [for landfill] has been key in enforcing the landfill ban."

Waste with a density below 1100kg per cubic metre is automatically assumed to be combustible or biodegradable waste and is thus banned from landfill, unless a permit is presented that demonstrates an exemption. In this case the higher landfill tax of nearly €90/tonne is charged. Landfill operators collect both the tax and the gate fee at the same time, and the system is overseen by the Dutch finance ministry. Landfill tax is collected by landfill operators, along with payment of the gate fee, and passed on to the Dutch finance ministry. According to Herman Huisman, the simplicity of this system means has resulted in close to 100 per cent compliance.
5. Landfill bans – implementation

i. Planning

Since 2002 waste policy and infrastructure planning has been the responsibility of SenterNovem, an agency of the Dutch Ministry of Economic Affairs. However during the late 1990s and the early 2000s when alternatives to landfill were scarcer, infrastructure planning was the responsibility of the provinces.

1994-2000

When the landfill ban was first implemented in 1995, a shortage of alternative treatment capacity was correctly predicted for the coming years: there was a 16 per cent surplus in incineration capacity in 1995, however this had reduced to four per cent by 1999. Consequently, landfill owners were able to apply for exemptions to the ban from 1995, if they could demonstrate that there was no alternative to landfill available. These exemptions were ratcheted down by the Waste Management Council between 1996 and 2004 and have been further reduced by SenterNovem - on behalf of VROM - since 2005.

The introduction of mandatory doorstep collection for household garden and food waste in 1994 was effective in stimulating the demand for composting infrastructure. There are now 23 composting plants in the Netherlands, and over 1.3 Mt of organic waste is now collected from households every year. A few years ago, the average gate fee for a composting plant was around €66 but could be as low as €35. In general, this figure is has been decreasing in recent years due to a combination of improved composting techniques, the end of the concession system in 2003 (see below) and long-term contracts with municipalities coming to an end, leading to increased competition.

2000-present

The Netherlands struggled to increase incineration and recycling capacity during the late 1990s and early 2000s due the export of over two million tonnes of residual household waste a year to German incinerators. Germany had not yet introduced a ban on landfilling or a landfill tax, and landfill gate fees in Germany were much lower than incineration gate fees. German combustible waste was being landfilled inexpensively, leaving incinerator plants with problems of over-capacity. As a result it was financially attractive for German waste incineration plants to use their free capacity with Dutch household residual waste, since they charged rates for incineration close to Dutch landfill rates but much higher than German landfill rates.

The implementation of the German landfill ban in 2005 put an abrupt halt to this practice and initially resulted in additional disposal to Dutch landfill sites. However, the increasing price of landfill appears to have provided sufficient incentive for the establishment of additional incineration capacity, and there is an expectation that sufficient infrastructure will be in place within the next two years, although Anne-Claire Collee comments “it is useful to have a bit of under capacity to have a healthy market.”

During the early 2000s, a number of other constraints to the expansion of incineration capacity were removed. Up until 2000, a concession system was in place, meaning municipalities had to use incineration capacity in their vicinity. In order to bring more competitiveness to the Dutch waste market this system was dropped in 2000.

In 1999 the association of waste incinerators (representing the eleven incinerators in the Netherlands), the Dutch government and SenterNovem signed a voluntary agreement to increase energy production from incineration plants. The goal of this agreement was to increase energy production from incineration by 23 per cent between 1997 and 2004, through fiscal incentives equal to half of those applicable to renewable energy generation. By December 2003, the net electricity produced from energy from waste had increased by 23 per cent, from 2200 GWh to 2700 GWh, and the heat supplied had increased by 13 per cent, from 3100 TJ to 3500 TJ.

Furthermore in 2000 a moratorium on the expansion of incineration capacity was removed. It is not entirely clear whether the original aim of this moratorium was to ensure that incineration did not crowd out recycling, or whether this was an indirect consequence of a system for
ensuring that expensive incineration infrastructure was not underused – or both. In 2002 Fred Knitel, managing director of Shanks Netherlands, commented: “Because of the high cost of incineration, there is always a fear that the asset might be under-utilised. That's why incineration capacity has been voluntarily kept under optimal capacity and this has de facto enhanced recycling.”¹ SenterNovem also notes that during this period the increase in energy efficiency of Dutch incinerators did not keep up with increases in their capacity.

In January 2007 the Dutch opened their borders for the incineration of waste (both household and commercial/industrial) and closed the borders for the landfilling of combustible waste. This action was taken to stimulate the construction of further incineration capacity in the Netherlands but so far there have been few significant quantities of cross-border trade in combustible waste. Jeanne Kok expressed a concern that “a predicted surplus of incineration capacity from 2011 could result in recyclable waste being incinerated.”

ii. Financing

The Netherlands has long had a system of local and direct taxation for waste management, and long-term (15-25 year) inter-regional municipal infrastructure development projects were common until relatively recently. These contracts reduced long-term financial risk by generating economies of scale and by sharing liabilities between as many as 20 municipalities. Such projects were generally established as not-for-profit entities and any profits generated are redistributed back to municipalities.

Waste collection and disposal costs in 2008 were approximately €1.76bn, which was met by an annual municipal waste tax of approximately €250 per household. The tax is ring-fenced and paid to each municipality to fully fund waste operations, including the development of waste collection, treatment and disposal infrastructure. As a result, public ownership of treatment infrastructure and landfill is still high: Dutch provinces, municipalities and government-run companies operate approximately 63 per cent of the incineration capacity, 86 per cent of landfill capacity and 75 per cent of composting and AD capacity.

However, now that most of the required infrastructure has been established, there is a general trend towards the privatisation of waste infrastructure in the Netherlands, which might well accelerate with the opening of the borders in 2007 to the movement of combustible waste. This might bring with it shorter contracts, and more competition and lower gate fees as a result. Jeanne Kok: “There is a long term trend towards privatisation, but mainly for infrastructure rather than collection services.”

Figure i: Organisation of municipal collection, 2001-2007

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¹ Creative Policy Packages for Waste, Green Alliance 2002
iii. Supporting instruments

- **Landfill tax.** The Netherlands’ landfill tax was announced in 1995 and came into force in 1996 at €13/tonne. Initially there was a single low rate for all wastes. Since 1998, the tax has been linked to the ban and has two rates: one low (€13/tonne) for inert waste that is not banned, and a much higher rate (now approximately €90/tonne) for banned waste that is landfilled with a permit. Since 2002 both tax rates have only increased by the rate of inflation. Figure ii shows the comparative cost over time for landfilling combustible and non-combustible waste in the Netherlands.
- **Incineration tax,** but currently set at zero. There is an on-going debate as to whether the incineration tax should be increased, with Dutch recycling operators arguing that incineration in the Netherlands is getting cheaper and recycling needs more financial incentives. If the Dutch government finds arguments for an incineration tax convincing, one could be introduced relatively quickly (by the end of 2009) as the provision already exists in law. However, Anne-Claire Collee made it clear that this is not something the government is likely to support.
- **Moratorium on landfill expansion and new landfills since 2000.**
- **Mandatory separate collection of household organic waste since 1994.**
- **Mandatory or incentivised separation of recyclables.** Just over one third of Dutch municipalities operate some kind of pay-as-you-throw schemes for household waste.
- **Producer responsibility** for end-of-life vehicles, paper & cardboard, WEEE, batteries, PVC window frames and piping systems, plain glass and packaging waste (since 2006).
- **Market development.** There are a number of initiatives to develop markets for recyclates, such as a minimum price for recyclable paper of €20/tonne, a compensation scheme for glass recyclers when market prices fall below €40/tonne, and guaranteed prices to plastics recyclers from a fund of approximately €115m drawn from revenues of packaging taxes.

Figure ii: Costs of treatment
6. Results

i. How successful the bans have been in achieving their objectives

All the stakeholders interviewed were clear about the value of the landfill ban, although all said that because the ban is only one part of a range of both fiscal and legislative measures to steer waste away from landfill, it is ‘almost impossible’ to determine what impact the ban has had in isolation from other measures. Jeanne Kok felt that the landfill taxes had a greater effect than the bans in isolation, but that both were important in reinforcing the signal sent by the other.

Dutch waste treatment statistics are problematic for this type of analysis because they use a broad category called ‘recovery’. In many cases this translates literally as ‘useful application’ and covers reuse, recycling and biological treatment. It also covers instances where waste replaces a primary fuel, such as in cement kilns. Incineration of household and household-like waste with energy recovery does not count as recovery in the statistics currently available, although stakeholders commented that this would change with the introduction of the new Waste Framework Directive.

Total waste

Figures iii and iv: Total waste treatment
At the time of the ban’s introduction in 1995, disposal of all waste to landfill had already halved in ten years, from 16 million tonnes in 1985 to 8 million tonnes in 1995. Between 1995 and 2000, ‘recovery’ kept pace with increasing waste generation, while incineration increased slightly and disposal to landfill decreased slightly.

Today, landfill capacity of around 55Mm³ remains, which Bas van Huet of SenterNovem estimates will be sufficient until 2021. The increases in landfill capacity shown in figure 1 between 2003-4 and 2006-7 were due to the use of more accurate techniques for measuring remaining landfill volume, in addition to some mining of landfills for secondary materials. Despite the moratorium on landfill expansion in 2000 and the landfill ban, around 2.6 thousand tonnes of banned waste still goes to landfill every year, under exemptions granted by the provinces upon the basis of a lack of alternative treatment capacity. This amount is rapidly decreasing due to the expansion of incineration capacity.

Stakeholders are clear that it was the combination of the landfill ban with an increasing landfill tax which was significant in bringing treatment capacity on-stream over the following few years. This has particularly been the case since 2002, when an increase in landfill tax to €75/tonne made landfill the most expensive method of waste disposal. Currently the combination of tax and gate fee means that it costs approximately €117 to landfill a tonne of waste, compared to around €100/tonne for incineration.
Figure v: Quantity and capacity of the Netherlands landfills

Sources: SenterNovem and Milieuennatuurcompendium. SenterNovem estimates that there will be 20 landfill sites in operation in the Netherlands by the end of 2009.

Figure vi: Waste landfilled in the Netherlands, 2003-2007
Household waste

Household waste recovery doubled between 1985 and 1995, but has increased at a slower rate since and has hovered at just over 50 per cent since 2003. The incineration of household waste has increased significantly both in absolute and relative terms since 1995 and now accounts for 38 per cent of household waste treatment.

Landfilling of household waste increased slightly in 2005 and 2006 to reach 10 per cent. It is not clear what the cause of this increase is and whether this is a trend that has continued into 2007-2008 due to the lack of available data for these years. Options under consideration by SenterNovem include a further increase in the landfill tax, the introduction of a landfill allowance trading scheme, or even stricter controls on the granting of exemptions from the landfill ban.

Figures vii and viii: Household waste treatment
ii. Where waste has been redirected

In the absence of data that breaks down the Dutch ‘recovery’ category into reuse, recycling, biological treatment and energy-from-waste processes, it is difficult to comment on the extent to which the landfill bans have encouraged each of these processes specifically.

Recycling and biological treatment

We do know that over 53 per cent of household waste is now separately collected in the Netherlands, and ambitious recycling targets for individual waste streams have been put in place for 2009 and most are close to being met. These include a 90 per cent recovery target for glass, 85 per cent for metals, 75 per cent for paper and cardboard, 55 per cent for organic waste and 50 per cent for textiles. Small scale hazardous waste and white and brown electrical goods both have 90 per cent recovery targets.

Fifty per cent of all municipal biowaste is now collected separately, and total composting capacity in 2008 was 1.7Mt. SenterNovem believes that separate collection and treatment of biowastes is now, in most cases, cheaper than MBT or incineration.
Incineration and other waste treatment capacity

At the end of 2008, the Netherlands had annual incineration capacity of 6.2 Mt, and Herman Huisman estimates that this will have increased to 7.8 Mt by 2011. Of this 1.6 Mt expansion, 550 kt is planned to come online in 2009, with a further 1.1 Mt due to enter operation in 2010. By 2010, SenterNovem estimates that five of the 11 major Dutch incinerator will meet the new criteria for recovery set out in the EU Waste Framework Directive.

Figure ix: Waste incinerated in the Netherlands 2003-2007

Figure x: Waste incineration characteristics and renewable energy contribution

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<td>Percentage of renewable energy</td>
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7. Key success factors

An important factor in the success of the Netherlands’ landfill bans has been the simple system of compliance and enforcement linked to the landfill tax. According to stakeholders, the density-based system makes the system relatively easy to enforce for most waste types.

The Netherlands also has a strong suite of supporting measures going back over a decade to the implementation of mandatory separation and collection of household food and garden wastes, including one of the highest landfill taxes in Europe and a strong tradition of producer responsibility.

8. Key challenges

Key challenges included the initial teething problems for construction and demolition waste which have now largely been overcome, and the export of waste to neighbouring countries during the late 1990s and early 2000s, particularly to Germany.

9. The future

There is currently a review of the landfill bans underway, which stakeholders expect will result in some fine-tuning, in particular to the C&D waste category classifications which can be unclear, and the system of exemptions. There is also some discussion about which materials should always be landfilled.

However, stakeholders do not expect the review to result in substantial changes. A tax on incineration looks unlikely, and the landfill tax will continue to be linked to inflation now it appears to have reached its optimum level for landfill diversion.

Herman Huisman: “The Treasury are aware that revenues from landfill tax will continue to drop however they are keen to keep the level of this income stream as high as possible. They are considering raising the lower tax rates for hazardous waste”.

10. Lessons for the UK

Herman Huisman:

“Don’t make exemptions, and be wary of voluntary agreements in particular. Make the system simple – don’t try and discriminate between waste streams. The density-based system puts a stop to disputes over waste types. This, and the fact that the Treasury collects landfill tax, makes the Dutch system very easy to enforce.”

“We found it effective to gradually increase landfill tax, every two years”

“It was decided to have lower landfill tax levels for hazardous waste – we would prefer that this goes to landfill rather being burnt”

“Avoid ring-fencing the landfill tax income; keep things as simple as possible”

Jeanne Kok: “Preventing certain waste streams from landfill is difficult as some categories are hard to identify or overlap, whereas the density-based system is hard to cheat.”
Appendix

1. The Netherlands at a glance

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<th>Size</th>
<th>41,526 sq km (land: 33,883 sq km, water: 7,643 sq km)</th>
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<tbody>
<tr>
<td>Population</td>
<td>16.47m (November 2008 estimate)</td>
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<td>Population density and degree of urbanisation</td>
<td>486 inhabitants per sq km</td>
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</table>
| Economic indicators (GDP per capita, GDP per capita in purchasing power standards) | GDP per capita: $35,900  
GDP PPP: $33,800 |
| Political organisation | Democracy, comprising central government with 13 ministries and local government with 12 provincial authorities and, since 1 January 2006, 458 municipal authorities. |
| Recent/current political complexion | The current Dutch coalition cabinet 'Balkenende IV' was installed on 22 February 2007 following the November 2006 election, which saw 80% turnout. The coalition is comprised of the Christian Democratic Appeal (CDA), Labour Party (PvdA), and Christian Union (CU). |
| Notable geographic context | Mostly flat coastal lowland and reclaimed land. Lowest point 7m below mean sea level. Prone to flooding. Flat topography with many roads and waterways results in low transport costs for transporting waste. |
| Notable cultural context | According to SenterNovem, the Dutch public appreciate and support the separate collection of organic waste. |

2. Competent waste authorities

- The Ministry of Housing, Spatial Planning and the Environment (VROM) is responsible for designing and implementing waste legislation and policy, and in 2002 was made responsible for waste management planning.
- Between 1977 and 2001, waste disposal was managed at a regional level.
  - Until 1977, municipalities were in charge of waste management. Each municipality had its own landfill.
  - In 1977, responsibility for strategic waste planning moved from the municipalities to the regions. Provinces were responsible for planning final disposal and for granting licences to large waste disposal and treatment plants. This transition was considered essential to ensure an expansion of the scale of infrastructure development as well as to encourage inter-regional cooperation between municipalities.
  - The Waste Management Council (AOO), created in 1990 through a cooperation agreement between government, provinces and local authorities, was responsible for drawing up national action plans for waste. The AOO included industry, NGO and cross-party representation. Ten-year plans were produced and revised every three years, which specifically focused on the planning of new disposal capacity.
- However, the overall management of waste has now been transferred to central government, together with most of the provinces’ regulatory powers.
  - The role of the AOO has been superseded by the Waste Management Department of SenterNovem, the government’s agency for sustainable development and innovation, which is part of the Ministry of Economic Affairs. Its responsibilities include implementing the National Waste Management Plan (LAP in Dutch).
  - In 2000, the inter-provincial barriers to the movement of waste (the concession system) were removed and national waste management planning was initiated.
  - The remit of strategic planning at national and provincial level extends to all waste streams. This has effectively integrated MSW management into a broader waste management framework. This was relatively easy to achieve given the historic municipal ownership of nearly all disposal and treatment capacity in the Netherlands.
However, responsibilities for the realisation of waste management structures are given to the local tier. Municipal authorities are still responsible for the collection and treatment of household waste, and can issue licenses to smaller companies to collect and treat waste on their behalf.

In 2007 the national borders were opened up so that combustible waste could move in and out of the Netherlands.

3. Main government waste/resource policy objectives

The decision to centralise responsibility for waste management was reflected in the Environmental Management Act 2002, which stipulates that the Minister for Housing, Spatial Planning and the Environment must draw up a Waste Management Plan once every six years. The plan must stipulate policy for the management of all waste covered by the Environmental Management Act, and the National Waste Management Plan (LAP) 2002-2012 is the first report that complies with this obligation. The Plan is being reviewed this year. In 2006 the plan predicted that sufficient landfill capacity would be available up to 2024.

The latest policy objectives for waste management are set out in the National Waste Management Plan 2002-2012. These are:

- To encourage waste prevention, so that the relative decoupling between GDP and total waste supply achieved in the period 1985-2000 is reinforced. This primarily involves stepping-up prevention by consumers and the trade services and government sector.

- To encourage waste recovery, particularly by encouraging waste separation at source and the post-collection separation of waste streams. Waste separation allows for reuse and recycling and use of fuel. The level of waste recovery must accordingly increase from 77 per cent in 2000 to more than 83 per cent in 2012.

- To optimise use of the energy content of non-reusable waste. With this in mind, more waste will be used as fuel in plants with a high-energy yield and the energy performance of existing waste incineration plants will be improved. This policy approach also makes an additional contribution to climate policy.

- To limit the quantity of waste to be disposed of in 2012 to a maximum of 9.5Mt. This is made up of two Mt of non-combustible waste (excluding uncleanable soil) that is landfilled, 5.1Mt of non-hazardous waste that is incinerated as a method of disposal in waste incineration plants, 0.1Mt of hazardous waste incinerated in revolving drum ovens and incineration plants and 2.3Mt of sewage sludge. Landfilling of surplus combustible waste must be ended within five years.

- Achieving a level playing field in Europe, promoting the operation of market forces and encouraging innovation in waste prevention and management.

4. The 35 waste types banned from landfill in the Netherlands since 1998

1. Storage batteries or accumulators
2. Batteries
3. Gas-discharge lamps and component parts
4. Mercury thermometers and component parts
5. Oil filters
6. Hazardous hospital waste named in EU regulations 2000/532/EG, 75/442/EEG, 94/904/EG and 91/689/EEG
7. Packages of chemicals
8. Other containers
9. Paper, paper cartons and cardboard
10. Separately collected vegetable, fruit and garden waste
11. Electrical and electronic equipment
12. A waste stream from steel production
13. Plastics from the plastic or rubber processing industries
14. Plastics from agriculture or horticulture
15. Tyres from motor vehicles and trailers as defined in article 1 of the 1994 road traffic act
16. Vehicle wrecks
17. Shredding waste from categories 11 and 16
18. Fly ash from an installation that incinerates municipal waste (households and similar commercial waste)
19. Construction and demolition waste and associated residues from sorting and separation
20. Filtration sand
21. Waste from sandblasting
22. Wood
23. Sludge from biological treatment of waste water
24. Polluted soil. Regulation for polluted soil in the Netherlands requires soil to be treated if pollutants in a given soil sample are measured to be above certain thresholds.
25. Biodegradable waste from agriculture or horticulture
26. Waste from auction halls
27. Waste from marketplaces
28. Organic waste from public gardens
29. Buoyant waste, for example plastic bottles, wood and other organic materials usually collected by treatment plants for surface water.
30. Households waste and associated residues from sorting and separation
31. Office, shop or service waste and associated residues from sorting and separation
32. Industrial waste and associated residues from sorting and separation
33. Liquid waste
34. Waste that is explosive, corrosive, oxidising or inflammable as defined in annex iii to directive 91/689/EEC of December 12, 1991 on hazardous waste.
35. Unidentified waste streams and new chemicals with unknown effects on health and environment

5. The 34 Dutch waste streams (each has a ‘sector plan’)

1. Residual household waste
2. Process-dependent industrial waste
3. Residual waste for trade, services and government
4. Waste from public spaces
5. Waste from water treatment and water preparations
6. Residual substances from waste incineration
7. Waste from energy supply
8. Waste from lighting
9. Organic waste
10. Specific hospital waste
11. Vehicle waste
12. Ships’ waste
13. Construction and demolition waste and similar waste
14. Packaging waste
15. White and brown goods
16. Corrosive and explosive waste and pressure vessels
17. Minor chemical waste/minor hazardous waste and chemical packaging
18. Paper and board
19. Plastic waste
20. Textiles
21. Metal waste
22. Severely contaminated earth
23. Waste containing oil
24. Waste containing PCBs
25. ‘Shredder’ waste (waste from processing end-of-life vehicles)
26. Cable residual substances
27. Industrial wastewater
28. Animal waste
29. Batteries
30. Accumulators
31. Solvents and refrigerants
32. Other hazardous waste
33. Acids, bases, wastewater streams containing metals
34. Photographic waste