

Waste Management in Iceland

Updated version, 20 February 2006

Geography and population

Iceland covers an area of 103.125 km² and has a population of 299.404 (December 2005). With an average population density of 2.8 inhabitants per km², almost two out of three Icelanders (62 per cent) live in the greater Reykjavik area. Abundant land space, a clean environment, renewable energy sources as geothermal heat and hydro-electricity, harsh weather conditions during a large part of the year and relative long distances between municipalities and to the European market are a few of the most eye-catching characteristics about Iceland.

Waste types and amounts generated

Until 2004 the amounts of waste generated in Iceland were roughly estimated, being based mainly on data from SORPA (www.sorpa.is), the biggest waste treatment facility in Iceland, servicing the capital area of Reykjavik and covering ca. 62% of the Icelandic population. In 2004 the amounts of waste generated in 2002 were assessed in a more detailed way, e.g. by using more concise definitions of waste streams and inclusion of more waste-types, such as agricultural waste, industrial waste and construction & demolition waste. It became clear that waste amounts were in fact significantly higher than previously estimated and therefore needed to be revised accordingly. In the table below the revised waste amounts for 1995 and 2002 are given.

Table 1 Generation and treatment of municipal and industrial waste in 1995 and 2004

Waste generation	1995	2004	Periodic change (% of total)
Number of inhabitants	267.806	299.404	+11,8
Total produced waste (<i>kilotons</i>)	391	488	+24,8
Produced waste in kg per capita	1.460	1.630	+11,6
Waste treatment methods			
Landfilling	80%	71%	
Incineration	1,2%	2,7%	
Recovery (<i>other than by incineration with energy recovery</i>)	12,5%	25,6%	
Other treatment methods	5,8%	0,8%	

Waste management in Iceland 1970-2004

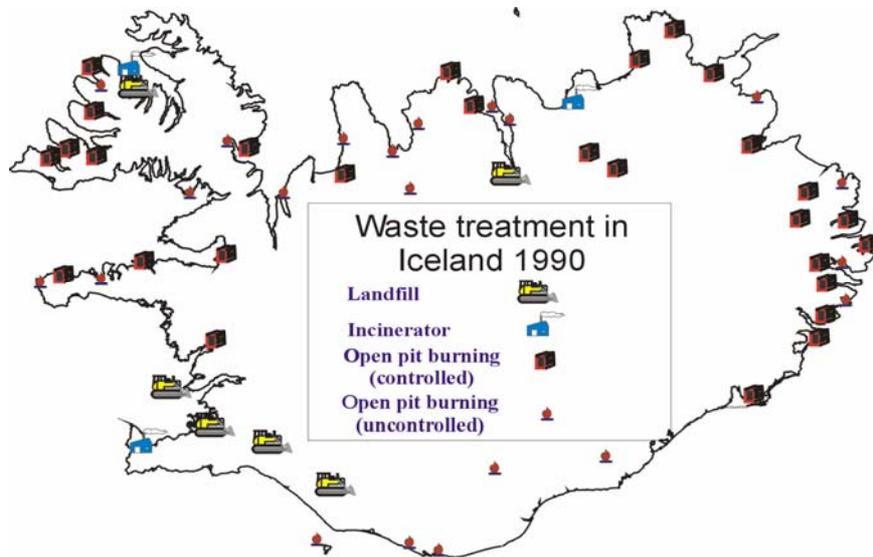
Since the 1970s Iceland has made considerable progress regarding waste management. The main treatment option in the 1970s was open-pit burning, resulting in many small open dumps on many places emitting smoke (*see figure 1*).

Figure 1 Waste management in Iceland 1970



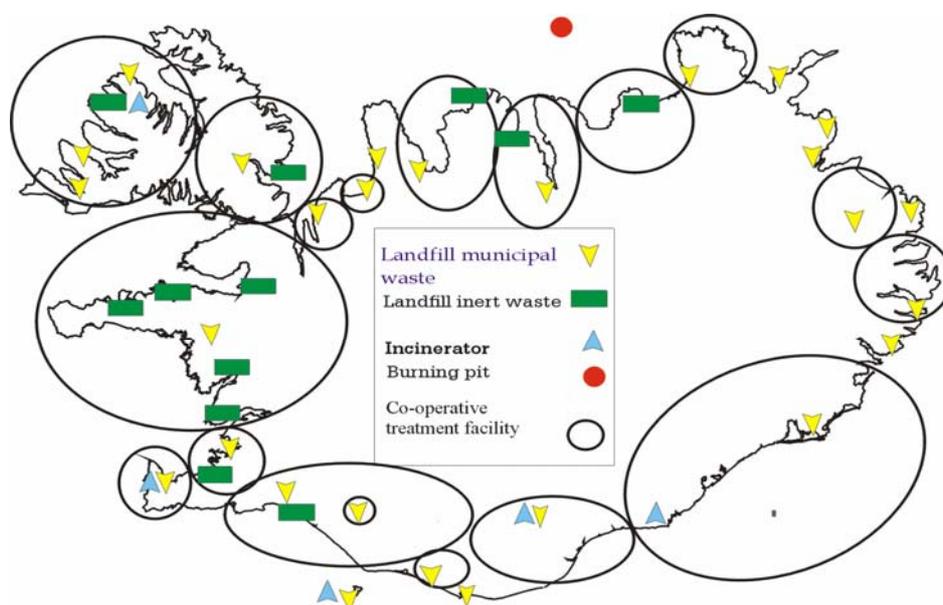
In the 1990's the obvious disadvantages of widely spread uncontrolled open-pit burning had been recognized. Therefore, many municipalities raised burning-cisterns, typically concrete "boxes", preventing waste to blow away, but still resulting in incineration at relatively low temperatures. At the same time landfilling became more common (see figure 2).

Figure 2 Waste management in Iceland 1990



In 2000 open-pit burning had gradually been stamped out as not being acceptable any longer. Instead, landfill became the most general way of final treatment, but also some (small) incineration plants were built, some of which boasted energy recovery. Furthermore, recycling options became more and more an option, as result of increased cooperation between municipalities (*see figure 3*).

Figure 3 Waste management in Iceland 2005



Waste treatment in Iceland in 2005 - Municipal waste

EPA Iceland CAM

Waste management in Iceland has gradually become a business activity. Establishment of collection systems and sites has created ways for public and business to dispense of their waste in a sound way.

Waste treatment facilities are now fewer than earlier and those remaining have increased in size, due to an increasing co-operation between municipalities. However, despite an almost two-fold increase in the recovery of waste over the past 10 years, the quantity of waste bound for permanent landfills has not diminished. Today around 70 per cent of municipal waste is still going to landfill, only around 3 per cent is incinerated with energy recovery, and 26 per cent is recycled or recovered by other means than incineration with energy recovery, meaning total recovery is around 28 per cent of the total generated waste.

New legislation

Law no. 55/2003 on Waste Management was set to address the more stringent demands on nowadays waste-management. The objective of the law is to decrease the quantity of waste by preventing generation of waste, increase recycling and recovery and reduce the quantity of waste deposited in landfills.

Based on law no. 55/2003, the following three new regulations were issued to implement the landfill directive (1999/31/EC) and the incineration directive (2000/76/EC):

- Regulation no. 737/2003 on treatment of waste,
- Regulation no. 738/2003 on landfill of waste,
- Regulation no. 739/2003 on incineration of waste.

The Waste Management Law no. 55/2003 and Regulation no. 737/2003 on waste treatment transpose the following EU targets into Icelandic law:

1. To reduce the total weight of organic household waste to be landfilled by 25 per cent by no later than 1 January 2009, by 50 per cent by no later than 30 June 2013, and by 65 per cent by no later than 30 June 2020,
2. To reduce the total weight of other organic waste, such as biodegradable organic waste to be landfilled, by 25 per cent by no later than 1 January 2009, by 50 per cent by no later than 30 June 2013 and by 65 per cent by no later than 30 June 2020,
3. To recover packaging waste by between 50 per cent as a minimum and 65 per cent as a maximum by weight, to recycle between 25 per cent as a minimum and 45 per cent as a maximum by weight of the totality of packaging materials contained in packaging waste, with a minimum of 15 per cent by weight for each packaging material, all on a yearly basis,
4. To reuse and recover end-of-life vehicles (*ELV*) by no later than 31 December 2005 by 15 per cent as a minimum, and to reuse and recover the average total weight of vehicles by 20 per cent as a minimum,
5. To collect and treat in an appropriate way an average of 4 kilos of Waste Electrical and Electronic Equipment (*WEEE*) per capita annually.

Regulation no. 737/2003 on treatment of waste makes the local authorities responsible for collection, handling and treatment of municipal waste.

In addition, the Regulation no. 738/2003 provides for the ban on landfilling of scrap metals including end-of-life vehicles, liquid wastes, hazardous waste, contagious and radioactive medical waste and tires.

The ban on landfilling of tires will take effect from 16 July 2006, but until then it is allowed to landfill shredded tires. By 16 July 2009, all landfill operators must either comply with the regulation or shut down their operation.

It is expected that in response to the new law and regulations on waste the costs of waste management will further increase. The law no. 55/2003 on Waste Management provides for the setting up of a special Coordination Committee to monitor the Implementation of Laws. The role of the Committee is, amongst other things, to monitor the compliance of the law, assess the cost-effectiveness of the programme and, if necessary, ensure funding for the programme in the future were needed.

Regulation no. 737/2003 on treatment of waste makes the local authorities responsible for collection, handling and treatment of municipal waste. In several municipalities there are operated cooperative (regional) waste treatment facilities. In the capital area of Reykjavik this is SORPA, a company owned by several municipalities (covering around 62 per cent of the total Icelandic population). SORPA also operates eight container parks and has bring-sites in city centres. The public and small operators can take a wide range of recyclable items to the bring sites free of charge. However, private individuals pay to drop off waste at the bring sites which is not collected by the municipalities, such as building waste, garden waste, rubbish arising during house

purchase, waste associated with vehicle repairs, waste associated with pets, etc. From the bring sites, the material is taken to the collection and baling centre of SORPA in Gufunes where it is sorted for either recovery or disposal, typically for landfilling in Ålfsnes. Larger companies may take their (bulky) waste directly to SORPA.

Companies that bring their waste directly to the sorting center in Gufunes have to pay a gate fee depending of amount and waste sorts, except for the items subject to the recycling fee, which can be dropped off free. The gate fees at Gufunes are as follows (effective 1 July 2005): ISK 3,65 per kg for newspapers and magazines, while it costs ISK 3.24 per kg to drop off graphic paper. The rate for mixed waste is ISK 9,11 per kg and for bulky mixed waste ISK 13,15 per kg. However, for economical and environmental reasons Sorpa pays the waste holder up to ISK 5,42 per kg for sorted corrugated cardboard ready for recycling and also for sorted plastic film up to ISK 12,45 per kg, depending on the amount brought.

It may be expected that in response to the new waste law and regulations the costs of waste management will increase. To visualise increased costs, law 55/2003 provides for the setting up of a special Coordination Committee on the Implementation of Laws. The role of the Committee is, amongst other things, to monitor the fulfilment of targets, assess the cost-effectiveness of the programme and, if necessary, ensure unimpaired funding for the programme in the future

National Waste Management Plan 2004-2016

Law no. 55/2003 on Waste Management stipulates that the UST must draw up a National Waste Management Plan (*NWMP*). The (first) NWMP was released in April 2004.

The main objectives of the National Waste Management Plan are:

- Compliance with the “polluter-pays” directive,
- Obligation on local authorities to submit annual reports on quantity and composition of treated waste,
- Compulsory management of asbestos, hazardous waste and contaminated soil,
- Managing waste within national borders where it makes economic sense,
- Creating the most cost-effective conditions possible for the recycling of waste.

The following is the timetable for the implementation of the Programme:

- From 1 January 2006, a minimum of 85 per cent of all ELVs must be reused or recovered (in addition, a minimum of 80 per cent of the average weight of the vehicles must be either reused or recycled),
- From 16 July 2006, ban on the landfilling of tires, both whole and shredded,
- From 1 December 2006, a minimum of 4 kgs of WEEEs per capita must be treated appropriately,
- From 1 January 2009, organic household and industrial waste going to landfills must be decreased by 25 per cent, compared to the amounts produced in 1995,
- From 1 July 2013, organic household and industrial waste going to landfills must be decreased by 50 per cent, compared to the amounts produced in 1995,

- From 1 January 2015, the reuse and recovery of ELVs must be at least 95 per cent (85 per cent of the average weight of ELVs must be either reused or recycled),
- From 1 July 2020 organic household and industrial waste going to landfills must be reduced by 65 per cent, compared to the amounts produced in 1995,
- The Plan also includes the new provisions of the EU Directive 2204/12/EC of 11 February 2004 amending Directive 94/62/EC on packaging and packaging waste: the Icelandic government has to make provisions for the implementation of this directive before 2013 and is expected to give its waste management operators up to 3 years to meet the new requirements

In order to meet the targets of the National Waste Management Plan, the recovery of organic waste, packaging waste and WEEE has to increase significantly. Although it is feasible to recover organic waste by means of energy recovery, if the 6 relatively small incineration plants in Iceland continue to operate on current efficiency levels, recovery of organic waste will have to be increased by other means, e.g. by composting or anaerobic digestion.

Regional Waste Management Plans

Based on the NWMP, local authorities have to draw up and activate local (or regional) waste management plans (*RWMP*) by 1 April 2005, elaborating on how the municipalities will comply with the objectives of the national plan.

Guidelines to local authorities for making their local plans were released in October 2004. The national plan and local programs will be reviewed every 3 years. The key factor in monitoring the success of the RWMP will be the collection of more reliable and accurate data on the quantity and quality of waste that is generated on a local (regional) level. Despite improvements in data collection over the past few years, there are big local differences in quality of data that hamper effective policy-making and regional co-operation. Therefore, the first regional waste management plans of 2005 would especially have to focus on data collection.

Icelandic Recycling Fund

The Icelandic government decided, at least for the time being, not to introduce landfill- and incineration taxes as has been done elsewhere in Europe, as these are thought to merely increase the overall cost of waste treatment and not have big influence on prevention, reuse, recycling and recovery of waste generated in the country. Instead, Law 162/2002 on Recycling Fees was passed, superseding Law 56/1996 on hazardous waste fee (and its amendments).

This was followed by setting up the Icelandic Recycling Fund (*Úrvinnslusjóður – IRF*, www.urvinnslusjodur.is), replacing the former Hazardous Waste Committee from 1996. A recycling fee is now being levied on the products recognized in the law, i.e. hazardous waste, end-of-life vehicles, composite packaging (drinking cartons), farm silage films and tires, in order to finance their collection sites, transport from the sites and recycling, recovery or disposal.

The IRF is responsible for collecting recycling levies and disbursing them. Its aim is to achieve the recycling targets for the products in question in the most cost-effective way possible. Funds levied will thus be used to improve efficiency in the recycling and disposal of the addressed waste types.

The IRF is independent organization managed by a board of five people, appointed for four-year terms. The Environment Minister appoints the chairman, and the others are nominated by the Confederation of Icelandic Fisheries and Agriculture, the Confederation of Trade and Industry, the Retailers Confederation, and the Association of Municipalities respectively.

The items and the levies are set out in annexes to the Law, and include:

- Lubricating and fuel oils,
- Photo chemicals,
- Organic solvents,
- Pesticides and herbicides,
- Isocyanides,
- Batteries and car batteries,
- Halogenated hydrocarbons,
- Solvent-based paint and printing ink,
- End-of-life vehicles,
- Used tyres,
- Farm silage film,
- Beverage cartons.

If waste arising from products subject to the recycling levy is exported out of Iceland for recycling, the exporter can claim back the recycling fee from the IRF. The IRF may also reach agreement with operators to refund the fee in case of independent recycling of own-waste

The introduction of a recycling fee on products will raise funds for treatment of these products when they become waste. The (recycling and/or deposit) fee is collected both from imported goods and produce in Iceland. The funds are payable for the transport and treatment (thus not the collection!) of those waste sorts that carry a recycling fee, providing the municipalities and waste treatment facilities with financial resources that are needed to meet the increased costs of waste management activities and enhancing recovery and recycling operations.

More precise rules for the operation of the Icelandic Recycling Fund were set out in Regulation no 1024/2005, superseding Regulation no. 531/2003.

On the basis of current trends, it is expected that even more waste types will be added to the list above in the future.

Deposit system on beverages and end-of-life vehicles

A deposit system on non-refillable aluminium, steel, plastic and glass packaging has been in place in Iceland since 1989 as stipulated by law no. 52/1989 and achieved a return rate of over 80 per cent for refillable and non-refillable bottles, and cans.

Law no. 162/2002 on Recycling Fees states that a recycling levy for non-refillable aluminium, steel, plastic and glass packaging will take effect on 1 January 2008 (but does not set levy rates for these). On that date, law no. 52/1989 will be repealed, i.e. there will no longer be a deposit.

The IRF has negotiated a contract with Endurvinnslan Ltd to operate the deposit system for non-refillable bottle and cans until 2008. Law no. 162/2002 allows that the IRF to reach an agreement with Endurvinnslan Ltd earlier than 2008 about switching from a deposit to the recycling levy.

Apart from a recycling fee, a deposit system for end-of-life vehicles is also in force in Iceland since 2003, according to law no. 162/2002.

The owner of a vehicle registered after 1980 has to pay a fee of ISK 520 per quarter, i.e. ISK 1.040 per annum. This fee is levied from the time the car is first registered until it is officially de-registered.

The vehicle must be formally de-registered at a testing station or vehicle registration office before the fee is no longer charged. For vehicles exempt from the vehicle registration fee this fee has not to be paid.

Packaging and packaging waste.

Recently data on the amounts of the different packaging waste sorts that arise in Iceland have been updated since the best rough estimates were dating back to 1995. Regarding Council Regulation 2150/2002/EC on Waste Statistics, a pilot study has been carried out to develop a methodology of monitoring packaging waste streams in Iceland, producing quantity-rows for the years 2002, 2003 and 2004 and making it possible to update data in the future in a reliable and efficient way.

The final report of the study was presented to the financier of the project, Eurostat, 15 October 2005. The amounts of estimated consumption, recycling and recovery of packaging are given in the table below.

Table 2 Consumption, recycling and recovery of packaging in Iceland in 2002

Consumption		Recovery				Recycling			
		Actual		Target		Actual		Target	
Packaging type	2002 (tons)	2002		2001	2008	2002		2001	2008
		(tons)	(%)	(%)	(%)	(tons)	(%)	(%)	(%)
Glass	6.452	3.476	53,9	-	-	3.476	53,9	15*	60*
Plastic	19.333	2.353	12,2	-	-	1.628	8,4	15*	22.5*
Paper/board	19.003	3.048	16,0	-	-	2.323	12,2	15*	60*
Composites	2.632	839	31,9	-	-	114	4,3	-	-
Metal	1.212	498	41,1	-	-	498	41,1	15*	50*
Timber	7.473	7.068	94,6	-	-	7.065	94,5	15*	15*
Total	56.105	16.558	29,5	50-65**	60**	15.104	26,9	25-45**	55-80**

* minimum

** average

For more information on waste management in Iceland, please contact:

Cornelis Aart Meyles,

Environmental Supervision Division

Environment and Food Agency of Iceland (Umhverfisstofnun, UST)

Sudurlandsbraut 24, 108 Reykjavik, Iceland

Phone: +354 591 2000

Fax: +354 591 2010

E-mail: cees@ust.is

Internet: www.ust.is