Waste Management

Background

Overview of current waste management

In 1970, the main method of waste disposal in Iceland was open-pit burning. Over 50 burning pits were in operation, close to one pit per municipality, and only three landfills. In 1990, six landfills and three incineration facilities were in operation and the burning pits were less than 50. But the biggest improvement came when Iceland joined the European Economic Area in 1994 and became obliged to implement EU legislation pertaining waste management. By 2003, open-pit burning had almost been eliminated, 29 landfills and seven incineration facilities were in operation, all of which by virtue of environmental permits. Since then, recycling and other ways of waste recovery have become more prominent. In 2007, about 583 000 tonnes of waste were generated in Iceland; thereof 177 000 of municipal waste, 343 000 tonnes of production waste, 10 000 tonnes of hazardous waste and 63 000 tonnes of other waste. Over 58% of that waste was recovered by various means, e.g. material recycling, composting and incineration with energy recovery, while 42% were disposed of at landfills. The proportion of the population that was served by collecting and managing waste was 100%.

Overview of current legislation

Icelandic legislation regarding management of solid waste is now in accordance with EU legislation. The legislation covers all solid waste situated onshore and its main objectives are to promote environmentally sound management of waste, prevent pollution of waters, soils and atmosphere, and to minimize the adverse impact of waste disposal on human health. Reducing the amounts of waste generated is the main priority of the waste hierarchy provided in the legislation. Second is re-use, third is recovery and the least favourable is disposal. All activities concerning waste management are subject to environmental permits and all waste that is generated shall be transferred to collection points or waste reception facilities where it receives environmentally sound treatment. It is the responsibility of each municipality to decide in which manner the waste is collected from households and businesses and they are responsible for ensuring that proper facilities exist for the management of all the waste generated. In dealing with the cost accompanying waste management, the polluter-pays principle is followed in general. The municipalities are authorized to charge inhabitants and waste holders a fee which covers the whole cost. Furthermore, operators of disposal facilities are obliged to charge the waste holders a fee which covers the total cost of disposal. In recent years, more elaborate schemes have been formed in order to adopt the polluter-pays principle and increase producer responsibility. A fee is imposed on beverage packaging during production or import and upon return of the packaging waste to a certified collection point, the appropriate portion of the fee is returned to the waste holder. The Recycling Fund, which was established in 2003, is meant to create economic conditions for re-use and recovery of certain types of waste, i.e. hazardous waste, end-of-life vehicles, packaging waste, used tires and used fishing gear, in order to reduce the amounts of waste that is sent for disposal, and to ensure the proper disposal of hazardous waste. The Fund charges manufacturers and importers a recycling fee, which is meant to cover

the cost of environmentally sound management of these waste types. The most recent addition is that manufacturers and importers of electrical and electronic equipment are now responsible for the collection and management of such equipment after use.

Specific measures regarding management of hazardous waste

The government policy regarding hazardous waste is aimed at ensuring that hazardous waste will not enter and pollute the environment. This policy is reflected by the main objective of a specific secondary legislation on hazardous waste, which was passed in 1999. The legislation commands that generation of hazardous waste shall be prevented as much as possible, and that re-use and recovery of hazardous waste that is generated nonetheless shall be promoted. The municipalities are responsible for setting up collection points where hazardous waste can be delivered to and for transporting collected waste for recovery or disposal at permitted facilities. As mentioned earlier, hazardous waste is one of the waste types the Recycling Fund deals with, promoting re-use and recovery. In order to ensure environmentally sound management of hazardous waste, all treatment facilities are subject to environmental permits.

The secondary legislation on hazardous waste commands activities that are subject to environmental permits and generate hazardous waste to keep inventories on hazardous waste production – quantities, types, treatment and disposal. Transporters and facilities that treat hazardous waste are subject to the same provisions. In 2007, 10 000 tonnes of hazardous waste were generated in Iceland. About 9000 tonnes were recovered domestically while just over 1000 tonnes were exported to other European countries for treatment. Hazardous waste is not exported unless it cannot be treated domestically in an environmentally sound manner. No hazardous waste is disposed of at landfills in Iceland since no landfills for such waste exist. In order to prevent unsupervised international transportation of hazardous waste, all such transportation is subject to permits and Iceland is a party to the Basel Convention on supervision of shipping of hazardous waste between countries. In addition, Iceland takes note of an OECD decision regarding the matter and does not export waste unless it is covered by this decision.

In 2005, the Environment Agency published a report on soil protection and remediation of contaminated sites in Iceland. A part of the study was to perform a preliminary survey of contaminated sites within the country. The result was that there are over 200 sites that are possibly contaminated.

Recent secondary legislation commands PCB phase-out by the end of 2010.

Specific provisions regarding management of radioactive waste

In Iceland there are no nuclear power plants or other sources of radioactive waste.

Heading into the future – policies and strategies

Government policy and general objectives of waste management plans

As can be gathered from the short overviews above, waste management in Iceland has improved enormously in the past few decades and is now well on the way of becoming recycling-oriented. However, more work is to be done in order to build a fully recycling-oriented society and to decrease the amounts of waste that are generated. In 2004, the Environment Agency of Iceland published a national plan for waste management. The plan covered the whole country and laid out the government policy regarding waste management. The government policy focused mainly on six tasks: 1) take note of the polluter-pays principle, 2) standardize yearly reports of quantities and types of waste, 3) treat asbestos, infectious waste and contaminated soil responsibly, 4) treat hazardous waste domestically if possible, 5) ensure that those who manage waste possess sufficient knowledge to do so, and 6) endeavour to provide economic conditions for treatment of waste. This policy has been incorporated into the Icelandic waste legislation. In addition to the government policy, the overall objectives of the national plan were to reduce the generation of waste in a targeted manner, increase re-use and recovery, and to reduce the waste proportions destined for disposal. The objectives were consistent with the waste hierarchy presented in the current legislation. In addition to the publication of the national plan, the municipalities prepared and published plans of their own. These were local plans that laid out the ways the municipalities had chosen to achieve the objectives of the national plan in their respective areas. These plans therefore affected planning and management of land resources, which are decisions made at the municipality level.

The national waste management plan is currently under revision and a revised edition will be published in 2010. During that process, various stakeholders and parties within the waste sector are consulted, e.g. the Association of Local Authorities in Iceland (the municipalities) and the Federation of Icelandic Industries. Revisions of the first editions of local waste management plans are also due, and many of the municipalities have started that process. In addition, the Association of Local Authorities has published a policy on waste management where the overall objective is sustainable management of waste. In the new edition of the national plan, sustainable management of waste will be the ultimate objective. The objective will thus be consistent with a forthcoming implementation of recent EU legislation, where promotion of sustainable use of natural resources will be incorporated into the Icelandic waste legislation. During the implementation, a new waste hierarchy will also be incorporated: 1) prevention, 2) preparing for re-use, 3) recycling, 4) other recovery, e.g. energy recovery, and 5) disposal. This hierarchy is similar to the current one but focuses more on material recycling than other means of recovery. As before, the objective of sustainable management will primarily be pursued by reducing the generation of waste and by increasing waste recovery, in agreement with the waste hierarchy. Emphasis will be placed on disconnecting the ties between economic growth and increase in waste generation, ensuring the recovery or re-use of waste and on utilizing methane produced through decomposition of waste at landfills. In addition to the revised

national plan, a waste prevention programme covering the whole country will be established before end of 2013.

The strategies selected to reach the objectives of the national waste management plan

The strategies that have been selected in order to reach the objectives of the national waste management plan will be laid out in the revised edition. The general strategies will be divided into four main sections:

1. Generation of waste should be decreased by:
    a. municipalities charging waste management fees that reflect the actual cost of the management.
    b. the Environment Agency setting up a web site where the public is informed about ways to re-use and prevent waste generation in households.
    c. promoting the production of goods which minimize waste generation after use.
    d. adopting more producer responsibility.
2. Material recycling and recovery should be increased by:
    a. making easier for consumers to return used goods and other waste to supermarkets and other vendors.
    b. promoting the use of plastic recycling identification codes and labels in order to make sorting and recycling of plastic packaging easier.
    c. increasing sorting of waste, taking into account environmental, technical and economical factors.
    d. municipalities increasing their level of service to the public regarding sorting of waste.
    e. promoting the use of products made from recycled materials.
    f. promoting the use of fuel made from waste.
3. Education of producers, the public and people who work in the waste sector should be increased by:
    a. the Environment Agency leading the way in cooperation between all parties participating in education within the waste sector.
    b. informing of the waste management hierarchy.
    c. informing of the advantages of recycling of waste
    d. promoting the use of eco-labelled products.
    e. promoting the use of less hazardous alternatives to hazardous chemicals during production of goods.
    f. encouraging companies and institutions to set up and follow an environmental policy.
    g. encouraging companies and institutions to set up a certified environmental management systems.
4. Legislation in the waste sector should be improved by:
    a. revising the Waste Management Act before the end of 2012. The focus should be on the waste management hierarchy.

b. revising definitions of terms.
c. defining the responsibilities of each party within the waste sector.
d. adopting polluter-pays principle in more areas.
e. improving the databases regarding quantities and types of waste that is generated and treated.

More direct strategies and numerical goals for eight different waste types will also be laid out in the revised plan:

1. Biodegradable waste:
    a. disposal of untreated slaughterhouse-waste at landfills shall be prohibited.
    b. home composting will be encouraged.
    c. by year 2013, no more than 36 100 tonnes of biodegradable municipal waste and 84 100 tonnes of biodegradable production waste shall be disposed of at landfills on a yearly basis.
    d. by year 2020, no more than 25 250 tonnes of biodegradable municipal waste and 58 900 tonnes of biodegradable production waste shall be disposed of at landfills on a yearly basis.
2. Packaging waste:
    a. consumption of tap water, instead of bottled water, shall be encouraged.
    b. re-use of beverage packaging shall be encouraged.
    c. by year 2011, at least 60% of packaging waste shall be recovered.
    d. by year 2011, at least 60% of glass packaging waste, 60% of paper and cardboard packaging waste, 50% of metallic packaging waste, 22.5% of plastic packaging waste and 15% of timber packaging waste shall undergo material recycling.
    e. the responsibilities of each party within the waste sector, e.g. municipalities, the Recycling Fund and the industries, regarding reaching the numerical goals will be clarified.
3. Waste electrical and electronic equipment (WEEE):
    a. by the end of 2010, 95% of producers and importers shall be members of a take-back system, covering 98% of the total market.
    b. at least 85% of WEEE in categories 1 and 10 shall be recovered, and component, material and substance re-use and recycling shall be at least 80%.
    c. at least 80% of WEEE in categories 3 and 4 shall be recovered, and component, material and substance re-use and recycling shall be at least 70%.
    d. at least 75% of WEEE in categories 2, 5, 6, 7 and 9 shall be recovered, and component, material and substance re-use and recycling shall be at least 55%.
    e. by year 2016, separate collection of WEEE shall be at least 65% of the electrical and electronic equipment placed on the market.
4. End-of-life vehicles (ELV):
    a. re-use and recovery of ELVs shall be at least 85% and re-use and recycling at least 80%.

    b. by the end of year 2014, re-use and recovery of ELVs shall be at least 95% and re-use and recycling at least 85%.
5. Construction and demolition (C&D) waste:
    a. by year 2020, at least 70% of inert C&D waste shall be re-used, recycled or recovered by other means.
6. Household waste:
    a. by year 2020, at least 50% of paper, metals, plastic and glass shall be re-used, recycled or recovered by other means.
7. Hazardous waste:
    a. through education of the public and businesses, generation of hazardous waste shall be decreased.
    b. collection of hazardous waste at collection points shall be safe, secure and performed in an environmentally sound manner.
8. Batteries and accumulators: by year 2012, at least 25% of small waste batteries or accumulators, which are not used in cars or industry, shall collected separately and recovered.
    a. by year 2016, at least 45% of small waste batteries or accumulators, which are not used in cars or industry, shall collected separately and recovered.

Icelandic Recycling Fund

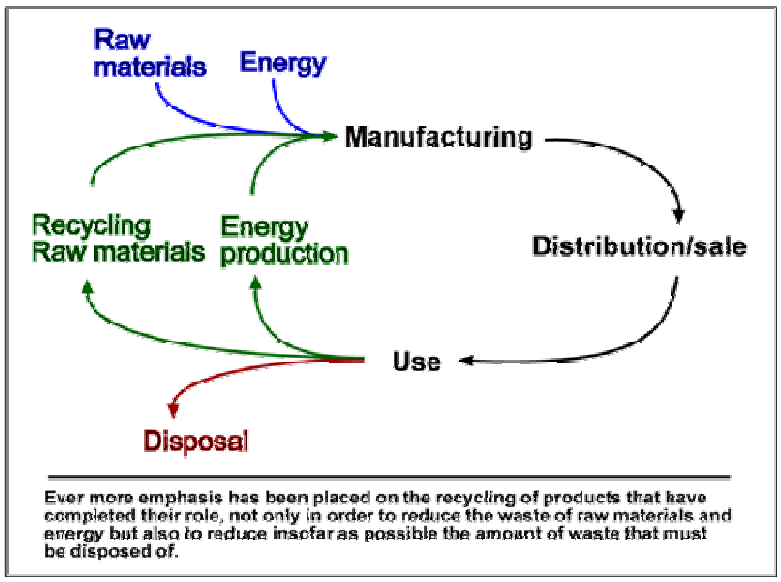
In recent years, understanding has increased of how necessary it is to gain control of the growing quantity of waste that has accompanied today's consumer society.

Demands are placed by individuals, municipalities and the commercial sector on systematic solutions for waste and on products not causing damage to the environment. At the level of the European Economic Area, rules with this objective have been set for the Area as a whole, as well as by the governments of individual member states.
These rules build on the "polluter pays principle", meaning that whoever causes waste should pay for its reuse, recovery or disposal. The trend is towards shifting responsibility to an ever greater extent onto those who put the product on the market, regardless of whether they are manufacturers or importers. This is referred to as "producer liability".
Iceland's authorities have set the goal of systematically reducing waste formation and channelling waste into reuse and recovery. The Act on Recycling Fees was passed in an effort to achieve this end, charging the Icelandic Recycling Fund with creating conducive economic conditions for reuse and recovery, lowering the volume of waste going into final disposal and ensuring the proper disposal of hazardous substances.
The Recycling Fund is a state-owned agency, responsible to the Minister for the Environment. In order to ensure the best possible outcome of agency activities, its Board is composed of the representatives of those who have the greatest interest in waste handling being as efficient as possible, i.e. representatives of municipalities and the commercial sector.

The five directors on the Recycling Fund Board are appointed by the Minister for the Environment for four-year terms. The Minister appoints the Board Chairman without a nomination, along with one director upon a mutual nomination by the Federation of Icelandic Fish Processing Plants and the Federation of Icelandic Fishing Vessel Owners, one director from the Federation of Icelandic Industries, one director from the Federation of Trade and Services and one director from the National Association of Local Authorities in Iceland.
The Fund applies economic incentives to establish practical arrangements for processing waste, which means providing the monetary prerequisites so that businesses in the market will realise the benefit of involving themselves in the processing programme. It is for this reason that the Fund contracts out waste processing, based on tenders or task contracts, and uses the recycling fee to pay the expenses.

Reasoning and strategy

Raw materials and energy for manufacture are often limited resources which we need to save as much as possible.



Ever more emphasis has been placed on the recycling of products that have completed their role, not only in order to reduce the waste of raw materials and energy but also to reduce insofar as possible the amount of waste that must be disposed of.

The acquisition of raw materials and energy for producing goods often exhausts natural riches, so that in recent years more and more emphasis has been placed on the recovery of products that have completed their role, not only in order to reduce the waste of raw materials and energy but also to reduce, insofar as possible, the amount of waste that must be disposed of. This is the mission of the Icelandic Recycling Fund.

RECYCLING FEES

To finance the tasks assigned to the Recycling Fund, a recycling fee is collected on each product before it goes on the market after its manufacture or importation.
The fee should pay the recovery cost on any waste remaining when the object's service life is over. As applicable in each case, the fee might cover the cost of handling sorted waste at a

collection point, transporting the waste from a collection point to a central accumulation point or recovery point, and recovering or disposing of the waste and paying the fee.
Those paying are domestic manufacturers and importers bringing goods subject to the fee to Iceland. The obligation of paying extends to every producer and importer, including individuals, associations, funds and institutions, municipalities and their institutions, the State Treasury, state agencies, foreign contractors and any other entities importing or producing goods subject to the fee.
Should a product subject to the fee be exported out of Iceland, so that no reprocessing occurs in this country, the exporter will receive a fee refund.
The Recycling Fund is authorised to negotiate fee refunding with businesses which recover their own waste.

Deciding the recycling fee amounts

The amount of a recycling fee shall be based on Recycling Fund estimates as to the cost of processing the waste.

Products covered by the Act on Recycling Fees are classified into several categories, for example tyres, paint, car batteries, etc., with the recycling fee amount collected within each product category being solely intended to support the expense of handling the waste originating in that category. This method prevents the transfer of costs from one product category to another and thereby ensures that the recycling fee for each product category reflects as exactly as possible the cost due to that category.

The Board of the Recycling Fund presents proposals to the Minister for the Environment on changes in recycling fee amounts as well as on the subjection of new goods to fee payment and the amount of the recycling fee for those goods. When the Board finds it necessary to subject products to a recycling fee in order to attain greater recovery, it submits a proposal on this and the fee amount to the Minister. When preparing the proposal on new products to subject to fees, the Board should show regard for government policy and obligations concerning waste.

Upon receiving a proposal from the Board of the Recycling Fund, the Minister for the Environment presents a proposal to the Minister of Finance on changing the amounts of recycling fees, imposing recycling fees, or subjecting new products to fees, as applicable. The Minister of Finance introduces bills to the Althingi on recycling fee amounts.

Products subject to the recycling fee

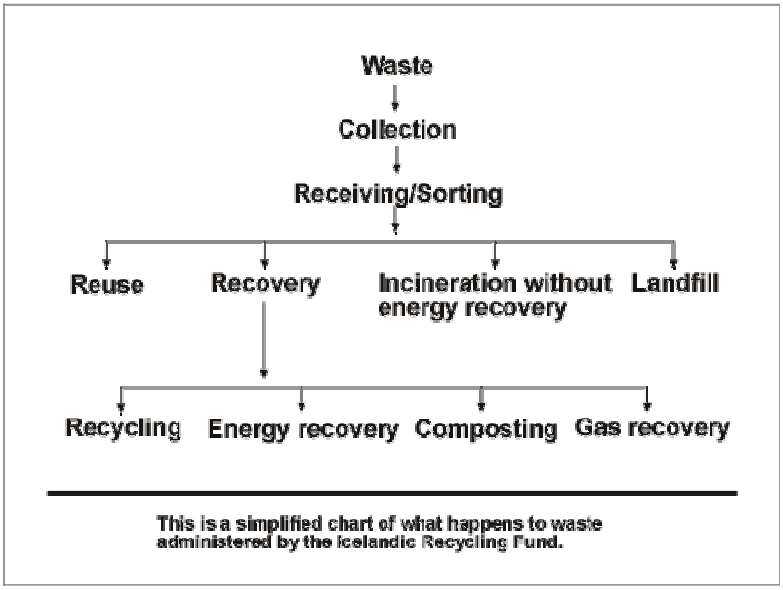
The recycling fee is imposed on a number of product categories.

Packaging: Includes cardboard, paper and plastic. The collection of transport packaging, i.e. corrugated cardboard and plastic film, starts on 1 April 2005, and the collection of sales packaging on 1 March 2006. A packaging collection system will be organised for such packaging in the same manner as previously occurred for tyres and plastic hay bale wrap.
(A recycling fee will be placed on single-use drink containers at the latest by 1 January 2008,

regardless of whether they are made of metal, glass, plastic or laminated paperboard. Until then, a return fee programme applies to single-use drink containers made of metal, glass or plastic but not to laminated paperboard containers, which are most common for milk products.
Plastic hay bale wrap: Accumulates in considerable quantities among Icelandic farmers. A collection programme has been organised for farmers to maximise the return rate to waste recovery.
Tyres: Some 5,000-6,000 tonnes of tyres are imported to Iceland each year. A specific collection programme has been organised to ensure their collection and recovery or disposal.
Vehicles: A recycling fee is levied on every vehicle, for a maximum of fifteen years. When the vehicle is scrapped and turned in at a collection point, the owner has the right to a return fee, in the amount of ISK 15,000, although vehicles registered before 1980 do not fall under this programme.
Hazardous substances: Many types of goods and substances are subject to a recycling fee, including refrigerants, chlorinated compounds, mercury products, organic solvents, photographic materials, paints, pigments, petroleum products, and car and other batteries. Hazardous substances are estimated to comprise about 4% of all waste, with the greatest accumulation of waste oil, vehicle batteries, developing chemicals and leftover oil-based paints.
Fishing gear made of synthetics: Due to Iceland's large fleet of fishing ships, a great quantity of fishing gear is discarded. As of 1 September 2005, a recycling fee will be imposed on fishing gear made of synthetics, unless prior to then the interested parties have agreed on their own collection programme.
Electrical and electronic waste: The most recent addition is that manufacturers and importers of electrical and electrnoic equipment are now responsible for the collecrtion and management of such equipment after use.

Measures for waste

Heavy emphasis is placed on the minimum creation of waste. For the waste that does occur, the Icelandic Recycling Fund seeks to ensure that as much as possible enters into reuse or, as second option, into recovery, and as little as possible into landfill. The means that the Recycling Fund is to arrange economic conditions in such a fashion that most parties see materials recovery rather than landfill as being to their advantage.



Procedures in dealing with waste

The recycling fee is used to pay for handling sorted waste at the collection points and for transporting, recovering, recycling or disposing of it, with or without a return fee. It is based on a system of collection points and central waste accumulation points, some of which are run by the local authority. Individual tasks are agreed with contractors on the basis of tenders and project contracts.

A collection point is a site or facility where waste from the public and/or smaller businesses is accepted. The waste goes from there to reuse or recovery, or is transferred to central accumulation points.

A central accumulation point *i*s a site or facility where waste is accepted and stored for varying periods of time, until being reshipped, sorted or handled in some other way. The waste is then transferred for disposal, reuse or recovery, or is disposed of on site.

The Board of the Recycling Fund decides how waste collection and disposal are to be conducted. Contracts are then concluded with businesses that wish to accept the task of collecting waste and delivering it for disposal, reuse or recovery by third parties, in accordance with laws and regulations.

Terms are issued for those desiring to take on responsibility for collecting waste and delivering it for disposal, and a list of rates is determined by which such firms will be paid. Also, the country is divided into geographical service areas, although there is nothing to prevent a firm from serving a number of areas nor more than one firm from executing this service in the same area.

According to an agreement with the Fund, no payment is made from the Recycling Fund to

those collecting waste unless a recognised party accepting the waste for recovery, reuse or disposal confirms its acceptance.