

4.1.6 Waste Management in Icelandic Urban and Rural Communities. Part 2

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Part 2 of the waste management in urban and rural communities of Iceland

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Is dedicated to an overview of solid waste management practices with a special focus on plastic waste and to the costs of waste management service on the population

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In 2021, 17 landfilling sites and one waste incinerator that accepts MSW are in operation. The main waste treatment facilities are quite close to the main road system. The largest landfill in the country, SORPA has license to operate by the end of 2023, while the others 2 large landfills by 2028 respectively 2026. As it can be seen marked red in the map, many waste treatment facilities have been decommissioned.

An interesting fact specific to Iceland is that incineration with energy recovery was not considered as an option because of large access to affordable hydropower electricity and geothermal energy

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Environmental and specifically waste legislation in Iceland follows the EU regulations.

The most common method to treat municipal solid waste in Iceland is still landfilling (just over 50%). 10% of the waste is incinerated while the remaining 39% is recycled. Another specific fact to Iceland is that currently there is no landfill nor incineration taxes, even though attempts to implement a so called Green Tax have been made.

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As mentioned before, over the last 10 years, 15 operating landfills and 5 incinerators were closed, primarily because they did not fulfil the requirements of the new regulations. All the decommissioned sites were outside the capital area; hence, waste from the affected municipalities must now be driven in trucks to one of the remaining landfilling sites, often hundreds of kilometers on small roads not built for the sort of traffic, leading to a deterioration of roads, rise in CO₂ emissions and increased pressure on the environment. For example, waste from the Northwest must be driven close to 350 km to the landfilling site in the West (adding up to 700 km driven for each landfilling event).

In Capital region, a new biogas and composting plant, scheduled for 2020, should be treating up to 40,000 tons of organic household waste, thereby reducing landfilling needs in the area and producing 3 mil. Nm³ CH₄ and 10-12 tons of soil amendment.

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By 2030, most of the existing landfills sites will be closed. Iceland has to fulfill an ambitious target to landfill just 10% of its municipal solid waste. It is still a matter of discussion whether to keep incineration only in the single waste incinerator in the country or to build small incinerators in various regions. In the first case, it would be close to where most waste is produced (the Capital Region produces around 73% of all burnable waste) and there would be a lower cost per tonne of waste for a large plant.

In the second case waste would, not have to be driven long distances, avoiding costs and environmental impact. Additionally the energy produced could increase energy security and heat houses where geothermal energy is unavailable, especially in remote places. Finally, since the municipalities can better estimate energy and incinerator needs accurately, cost and cost reductions can be spread more equitably. Most of the waste that is currently reported as recycled by Iceland is actually recycled in other EU countries.

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In 2020, approximately 63% of the population lived in the Capital region Area. Therefore, most plastic packaging (almost 70% including deposit bottles but without silage film) was collected in the capital area, whereas agricultural plastic packaging had higher shares in the Icelandic countryside. Plastic packaging consumption in Iceland exceeded 14,000 tons in 2020 composed of plastic packaging, silage film, and deposit bottles. Collected plastic waste is pre-sorted and sent to different European countries for recycling. Of the total plastic packaging waste, 31 % is intended for recycling. However, this recycling rate is primarily due to the high recycling rate of the single-variety silage film and deposit bottles. For deposit bottles, customers receive a refund when empty beverages are returned. This is also the case for silage film, giving the farmers the incentive to collect and hand in film for recycling.

At least for plastic waste, a recent life cycle assessment study has demonstrated that mechanical recycling, despite including the impacts of exporting the waste to different European countries, has more environmental benefits than landfilling the waste in Iceland.

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The cost of waste management is a very sensitive subject. For example, in Icelandic municipalities with 10,000 inhabitants or more the cost has changed very little since 2002, with about a 10.8% increase. For municipalities with 1,000 to 10,000 inhabitants, the cost per capita has increased by about 64%, and for municipalities with fewer than 1,000 inhabitants, the reported waste management cost has increased by 140% since 2002. The difference between the largest municipalities and the smaller ones is statistically significant for every year. The difference between municipalities with 1,000 to 10,000 inhabitants and with fewer than 1,000 has been significant since 2003, and between municipalities with 1,000 to 10,000 and those with over 10,000 inhabitants since 2008. One factor in this different costs between municipalities is the closing of landfills and incinerators in rural areas in the period 2002-2020.

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In this part we have learnt about waste treatment facilities in Iceland, and other relevant information on the waste management system. Thank you for your attention!