The state of food waste in Hungary

A report by the Agricultural Team of the Embassy of the Kingdom of the Netherlands in Budapest, Hungary

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Content

Terms and abbreviations

CE – Circular Economy

EC – European Commission

ECA – European Court of Auditors

EU – European Union

FAO – Food and Agriculture Organisation of the United Nations

GHG – Greenhouse Gas

HORECA – Hotels/Restaurants/Cafés

MÉE – Hungarian Foodbank Association

MS – Member States (of the European Union)

NÉBIH – National Food Chain Safety Office of Hungary

R&D – Research and Development

WRAP – The Waste and Resources Action Programme of the UK

Executive Summary

Dealing with food waste in Hungary – with Dutch knowledge

Food waste is a serious challenge in the 21st century. According to the FAO about one-third – or 1.8 billion tons - of all the food produced in the world goes to waste. In the EU alone 88 million tons of food is wasted annually.

If food waste was a country, it would rank as the third biggest greenhouse gas emitter in the world, after China and the USA. Furthermore, about one in nine people do not receive adequate amounts of food, while the economic loss generated is estimated to be around the 1 trillion dollar mark.

This report highlights the causes and facts of food waste and present initiatives in Hungary in the civil sector, the private sector and the government sector. It also provides recommendations for possible actions to tackle the challenge of food waste.

Hungary produces close to 2 million tons of food waste every year, which more or less aligns with the EU average. However, Hungary differs in the fact that most food goes to waste in the processing and production stages (62 per cent), while household consumption and retail amount for the remaining 38 per cent.

There are a number of initiatives in the civil and private sectors, and to a lesser extent the Hungarian government too. Some of the largest retail chains in Hungary are in close cooperation with national, regional and local charities, animal welfare organisations and the bioenergy industry. Other organisations work on increasing the awareness of Hungarian consumers about the environmental, financial and social impacts of food waste.

However, there is still room for improvement. The slow move towards precision agriculture and digitalisation means Hungarian agricultural is less resilient to unexpected weather patterns, and this in turn means much of the country's food waste is generated at the production stage. Underdeveloped logistics and processing sectors lead to a similar outcome.

Dealing with the topic of food waste also fits in well with the circular economy ambitions of the Embassy at large. Eliminating or minimising food waste is an integral part of a closed loop economy.

The Netherlands is a frontrunner when it comes to efficient and minimum-waste agriculture and has an advanced food waste R&D agenda. This puts the Embassy in a legitimate position to further pursue the topic. Possible actions include: a conference bringing together Dutch knowledge and innovation and the Hungarian retail sector and food waste organisations; a social media campaign (i.e. Food Waste Wednesday); and more.

Chapter 1 – What is food waste?

1.1. Definition

There is currently not one accepted definition of food waste. Different definitions are used by the EU, its Member States, the FAO, as well as other countries around the globe.

According to the **FAO**, food loss and food waste refer to

> *'the decrease of food in subsequent stages of the food supply chain intended for human consumption'.* [1]

A 2016 report by the European Court of Auditors notes that there is no overarching definition at the **EU** level and defines wasted food as

> *'any product or part of a product grown, caught or processed for human consumption that could have been eaten if handled or stored differently'.* [2]

NÉBIH (the Hungarian National Food Chain Safety Office) defines food waste as food not intended for human consumption, or food intended but unfit for human consumption. Their list includes[3]:

- Food remains from the HoReCa industries
- Foods that have passed their gone-by-date
- Foods that were damaged during packaging and pose a food safety threat
- Polluted unpackaged foods
- Waste as a by-product of food cleaning
- Used cooking oils

1.2. When is food waste generated?

Food waste is typically generated in four distinct stages of the food industry: in **production**, **processing**, **retail**, and **consumption**.

According to the general trend, in more developed parts of the world food waste happens more in the latter stages (i.e. in retail and consumption), while in less developed nations – where the share of income spent on food is higher, and therefore the individual value given to food is higher – this

[1] FAO http://www.fao.org/food-loss-and-food-waste/en/
[2] ECA https://www.eca.europa.eu/Lists/ECADocuments/SR16_34/SR_FOOD_WASTE_EN.pdf
[3] NEBIH https://portal.nebih.gov.hu/documents/10182/406632/5-6_Hullad%C3%A9k.pdf/9212493f-8b97-4fb2-a3e4-e9f9aa967b1a

happens more during production and processing. Another contributing factor can be that less developed countries often have underdeveloped or inadequate logistical supply chains, leading to higher wastage rates during transportation.

In the European Union, 70 per cent of food waste arises in the household, food service and retail sectors, with production and processing contributing to the remaining 30 per cent.[4] However, inter-EU differences in economic development mean that there can be significant variations between MS.

Production: before the harvesting stage wastage can be caused by crop failure due to severe weather events or pests and diseases. During harvest, the inability of machinery to make a differentiation between ripe and unripe produce can also cause loss. Furthermore, regulations and quality and appearance standards can also lead to selective harvesting by farmers.

Processing: waste during processing is mainly caused by pests and micro-organisms, especially in countries with high temperatures and high humidity levels.

Retail: inadequate transportation can lead to products being damaged or expiring before reaching stores. Furthermore, inconsistent or too early use-by-dates lead to the disposal of large amounts of products.

Appearance standards also lead to considerable quantities being wasted, although certain supermarket chains have started initiatives where they sell 'ugly' products.

Consumption: Most food waste caused by consumers is either because consumers buy more food than is actually needed; or because they do not consume their products before the best-before dates and are often unaware of the fact that many foods can still be consumed after these dates.

1.3. How much food is wasted?

Similarly to its definition, there are also various opinions and statistics when it comes to quantifying food waste.

In 2013, FAO published a summary report about the impact of food wastage on natural resources. The report suggests that about one-third – or 1.8 billion tons - of all the food produced in the world is wasted every year.[5]

[4] EC https://ec.europa.eu/food/safety/food_waste/eu_actions/eu-platform_en
[5] FAO http://www.fao.org/docrep/018/i3347e/i3347e.pdf

According to the European Commission, around 88 million tons of food is wasted annually in the EU. The economic impact of this is a net loss of around 143 billion euros.[6]

1.4. Why is food waste a problem?

Besides the enormous financial loss, food waste also has serious social and environmental impacts.

According to the Food Aid Foundation, more than 795 million people live in hunger. This amounts to approximately one in nine people.[7] While dying of starvation is a serious issue, undernutrition is a much more prevalent cause of food-related deaths. Receiving inadequate nutrition at a young age makes people more susceptible to infectious diseases, potentially turning it into a life-threatening situation.[8]

Furthermore, uneaten food has a carbon footprint of about 3.3 gigatons of CO^2, ranking it the third biggest greenhouse gas (GHG) emitter after the USA and China. These statistics exclude emissions from land use change. The consumption of groundwater and surface water for wasted food leads to a blue water footprint of around 250 km^3 – that is the equivalent of 130 times the water volume of Lake Balaton. Food that is not utilized also occupies 1.4 billion hectares of land, or about 30 per cent of the planet's agricultural area.[9]

The amount of people receiving insufficient amounts of food; the major environmental impact of unused land and water resources; growing GHG emissions; and enormous financial losses make food waste a serious and urgent issue to solve.

1.5. Food waste and Circular Economy

The Circular Economy Concept is the idea that creating sustainable production and consumption in a planet with finite resources requires a shift away from the traditional linear economic model. This linear economic model is based on the 'take, make, dispose' trinity.

In a circular economy resources are kept in use for as much of their life cycle as possible, and their maximum value is extracted whilst in use. Once

[6] EC https://ec.europa.eu/food/safety/food_waste_en
[7] FAF http://www.foodaidfoundation.org/world-hunger-statistics.html
[8] BBC https://www.bbc.com/news/magazine-22935692
[9] FAO http://www.fao.org/docrep/018/i3347e/i3347e.pdf

the resources cannot be used any longer, they are recovered and regenerated, minimizing the production of waste.[10]

Solving the food waste problem is a crucial factor in achieving a true circular economy. Hence, the European Commission's Circular Economy Package puts a strong emphasis on this challenge. The 2015 Package put forward a number of measures, including:

- the development of a common methodology to measure food waste amongst Member States
- the creation of a common platform to define and measure food waste, facilitate cooperation and share best practices
- the clarification of EU legislation related to waste
- the improvement of date-marking of products[11]

[10] WRAP http://www.wrap.org.uk/about-us/about/wrap-and-circular-economy
[11] EC https://ec.europa.eu/food/safety/food_waste/eu_actions_en

Chapter 2 – Food waste in Hungary

2.1. How much food goes to waste in Hungary?

According to a 2010 EC report Hungary produces close to 2 million tons of food waste every year. According to the Hungarian Foodbank Association, the country generates approximately 1.8 million tons of food yearly.[12] With a population of almost 10 million people, this breaks down to 180 kilograms of wasted food per person. This number is similar to the EU per person average.

However, Hungary differs in the fact that most food goes to waste in the processing stage (62 per cent), while in the EU generally 70 per cent get wasted at the consumption level. In Hungary household consumption accounts for 21 per cent; 11 per cent is lost in retail, and 6 per cent in trade. Although households are not the main source, they still account for an annual 400 thousand tons of food waste.[13]

The following examples focus largely on initiatives dealing with food waste created in the retail and consumption stages. There are numerous efforts in Hungary that aim at improving the efficiency of the production and processing sectors – indirectly leading to a decrease in food waste. However, mapping these initiatives is beyond the scope of this report.

2.2. Initiatives in civil society

There are a number of civil society initiatives targeting the reduction and/or redistribution of food waste.

I. **Hungarian Food Bank Association**
Magyar Élelmiszerbank Egyesület
www.elelmiszerbank.hu

Magyar Élelmiszerbank Egyesület

The MÉE is a non-profit organization aiming to connect the food waste generated in the country with people in need of food donations. It was founded in 2005 and is member of the Brussel-based European Food Banks Federation.

The organization is a good example of an initiative that simultaneously furthers social and environmental goals. MÉE receives all food free of charge and donates it further to those in need. They are a politically, religiously and ideologically independent organization.

[12] Magyar Elelmiszerbank Egyesulet https://www.elelmiszerbank.hu/hu/rolunk.html
[13] Hulladekbol Termek http://kornyezetbarat.hulladekboltermek.hu/hulladek/hulladekfajtak/olaj/

They have over 100 donating partners, including major supermarket chains like Aldi, Auchan, Metro and Tesco.

II. Budapest Bike Maffia

www.bbm.hu

BBM was founded by young cyclists in 2011 and has a number of running projects, a few of which directly deals with food waste. Generally the organization tries to combine volunteering, social causes and cycling culture.

Their **Night Watch** initiative collects food left-overs from donators, and accordingly distributes it for homeless people.
The **Vitamin Kommandó** project supplies people living on the street with sandwiches that are rich in the necessary nutrients that homeless people often have a deficiency in.

III. Responsible Gastrohero

Felelős Gasztrohős

www.gasztrohos.hu

This organization promotes a more sustainable and less wasteful food industry. They are active supporters of restaurants, cafés and bars that pursue environmentally friendly practices and have a certification that they give to such restaurants.

2.3. Initiatives in the private sector

There are a number of actors in the private sector who directly or indirectly target the reduction of food waste. Indirect actors are those whose primary goal is not aimed at the cause, but have programs or side-projects that try to tackle the issue (i.e. restaurants, companies with local sourcing, etc.).

I. BIOFILTER

www.bifofilter.hu

BIOFILTER is a company that specializes in bioenergy. The main profile of the company is supplying second-generation bio-energy sector, by providing the complex process of implementation of reverse logistics from the waste collected. The used cooking oil (UCO), processing and import of purified vegetable oils provides raw material supplies for biodiesel plants in Hungary and neighbouring countries.

The company also collects expired food and waste from the Horeca industry and turns this resource into biogas. Currently they have facilities to collect and process 100 per cent of the organic waste they receive, and 90 per cent of hazardous wastes.

They also sell animal fats for feeding and purified vegetable oils and fats for wholesale.

II. ReDinner

www.redinner.com

ReDinner is a new app-based platform that connects customers with restaurants selling their leftovers at the end of the day at a heavily discounted rate.

Although the app was launched in 2017, it hasn't achieved widespread usage (unlike the Danish *Too Good To Go)*, possibly because it is only available for Android-based devices and not Apple; as well as the general lack of awareness about food waste.

III. TESCO Hungary

www.tescomagyarorszag.hu

According to the large supermarket chain's website, in October 2015 Tesco announced that by 2020 it will donate all food that cannot be sold anymore but is still fit for consumption to local charities.

Hungary's food-saving program has been in place since 2013. At the end of each workday, staff collect bakery product, vegetables

and fruits and after strict quality checks prepare it for donations. Currently 140 stores participate in the program and 160 organisations pick up donation every day. By the end of April 2018, Tesco stores had collected and donated more than 12717 tons of food, equalling more than 31 million meals.

TESCO also introduced the 'Perfectly Imperfect' products, which are vegetables and fruits that do not conform to the regular shape and weight requirements but are still good quality. Currently 20 stores in Hungary sell these products.

IV. SPAR Hungary

SPAR Hungary is very active in dealing with the issue of food waste and does this on three levels:

1. Food waste donated as animal feed: the company is in collaboration with 101 animal-protection organisations and donates to them products that they are unable to sell, such as vegetables, fruits, bakery produce, milk- and meat products.
2. Food waste donated to charity: SPAR has been in a partnership for over two decades with the Hungarian Charity Service of the Order of Malta (Magyar Máltai Szeretetszolgálat) and donates consumable food waste to the organisation.
3. Food waste transformed into biogas: since 2010, food waste that isn't donated is utilized in a biogas facility. SPAR Hungary consists of 400 stores, 2 logistics centres and 2 food production factories. According to the company, this produces approximately 1900 tons of biologically compostable waste, which is transformed into approximately 1 330 000 kWh energy. This covers the annual electricity needs of about 300 households.

V. Auchan Hungary

www.auchan.hu

A 2017 article on the website of MÉE announced that the chain has 13 stores in Hungary that donates its remaining bakery-products at the end of each day to the food bank organisation.

VI. ALDI Hungary

ALDI Hungary is also cooperating with MÉE. Currently 63 of their stores participates in the program, with other stores continuously being integrated. Furthermore, ALDI also cooperates with various regional/agricultural organisations that take away leftover vegetables, fruits and bakery products. Due to privacy reasons ALDI didn't disclose information about these organisations.

2.4. Initiatives in the public sector

I. Maradék nélkül

Without leftovers

www.maradeknelkul.hu/en

Maradék Nélkül is a joint project between NÉBIH and the EU's LIFE program. The main aims of the project is to

1. Reduce food waste in Hungarian households through changing consumption patterns and behaviours
2. Increasing awareness of food waste amongst primary school pupils
3. Gathering best practices of international initiatives, and developing national guidelines for stakeholders of the food industry
4. Cooperation with initiatives in other EU member states, to further the implementation of the project's international features.

II. STREFOWA

www.interreg-central.eu/Content.Node/STREFOWA.html

STREFOWA (*Strategies to Reduce Food Waste in Central Europe)* is a project funded under the Interreg Europe funding scheme, under the EU's Regional Development Fund. The three year project aims to find the best solutions and innovations to solve the challenge of food waste.

One part of the project was a Food Waste Hackathon held in Miskolc in September 2017. The aim of such hackathons is to combine smart IT and social challenges to find the best solutions for these issues.

In 2018 there was also a call for tender for a #reducefoodwaste Project Award, looking for the best projects, start-ups, companies dealing with food waste.

Chapter 3 – Challenges and way forward

3.1. Challenges

Retail sector: The biggest challenge in the retail sector is that companies are unaware of the possibilities to deal with food waste. They do not know about the existence of MÉE, and other regional or local organisations, and/or the possibility to use food waste for the creation of biogas and biofuels.

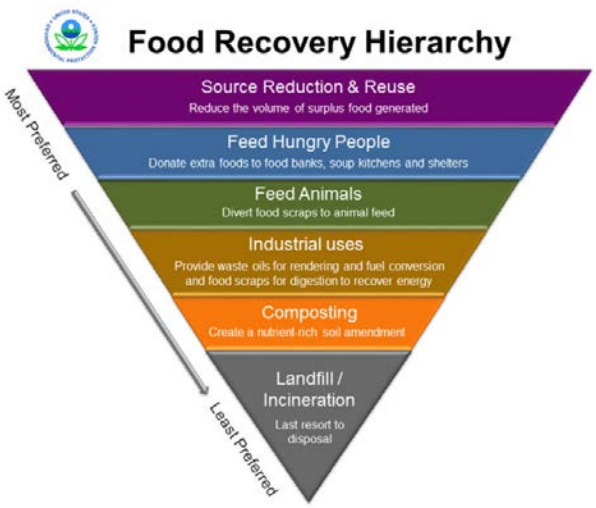
Consumer sector: Lack of awareness about the environmental and financial costs of food waste can be one of the biggest reasons for food waste at the consumer level. While Hungarians throw away less food at the household level than other countries, there is still a growing under appreciation of food, leading to less conscious food shopping.

Production sector: The slow development of robotisation and digitalisation in the Hungarian agricultural sector means that it is less resilient and prepared for unexpected weather events. Further developing precision agriculture and climate adaptation practices can lead to better yields, and less waste. Developing the food processing industry will also reduce the amount of food that is wasted due to logistical barriers.

3.2. Way forward for food waste

Justification for action:

Circular Economy: as mentioned in Chapter 1, the food waste issue fits in well with the circular economy theme. Developing closed loop systems ultimately result in the cessation or minimisation of waste, including food. This is represented well by the Food Recovery Hierarchy seen below.



Technology and innovation: Modernising Hungary's agricultural sector through developing precision agriculture will reduce food wasted at the production level. Furthermore, improving the innovative use of food waste to create bioenergy will reduce its generation at the retail and consumer level.

Generally, this is a theme where various sector stakeholders can be brought together and result in real social, economic and environmental improvement.

Recommendations:

- Facilitate sector cooperation
  In order to accelerate the reduction of food waste in Hungary, sector cooperation is vital. It's necessary to expand the retail sector's knowledge about options for donating their food waste, but also to simplify the process of donating, minimising resource input for retail companies. Simultaneously, organisations dealing with food waste donations should expand their outreach and intake capabilities.

- Facilitate and support food waste entrepreneurship
  All around the world start-ups targeting food-waste are emerging. ReFood Hungary is a great example of this. Facilitating entrepreneurship and creating a favourable start-up environment will enable further development of such ideas by social entrepreneurs.

- Raise awareness through (social) media campaigns
  To reduce waste at the household level, more awareness raising campaigns can have huge benefits.

- Further develop the waste management sector
  The use of food waste to create biogas and biofuels needs an efficient waste management sector that makes it easier for all stages of food production to transfer their food waste to these facilities.