

STREFOWA - STRATEGIES TO REDUCE AND MANAGE FOOD WASTE IN HUNGARY

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Abstract

Food waste and the food wastage are nowadays a major problem mainly in the developed countries because of numerous environmental impacts such as exploitation of the croplands, surplus production, carbon-dioxide emissions, waste problems etc. Food waste also represents the economic problems: it has a financial loading, which is mainly at the population, who purchase products and later they generate the waste from that. In addition to the environmental and economic issues, there is also social problem: hundreds of thousands of people live in extreme poverty and hunger, not only in Europe.

Within the STREFOWA project – which is supported by the European Union – the action has been undertaken in order to reduce the amount of food waste by implementing different innovative pilots in some countries of Central Europe.

In Hungary, the main actor of the pilot is the retail sector, which has the possibility to affect the population to reduce the amount of the food waste, influencing them to change wrong habits and consider the possibility of food donation for needy people.

1. Introduction

With continuous growth of population, the issue of the worldwide food loss and waste is classified as a highly important, since it has countless negative social, environmental and economic impacts. Global demand for food leads to overexploitation of resources used for the excessive food production and can also affect the increase in the effects of global climate change due to improper food waste disposal. Economically, wasted food directly represents an unnecessary cost for both farmers and consumers. But above all, food waste is primarily an ethical problem since many people live on the margins of hunger and food insecurity [1, 2, 3]. “Food loss” can be related to the reduction of edible food material predetermined for human consumption which can occur at any stage of the food supply chain as a result of agricultural process, technical limitations or marketing. On the other hand, food losses of good quality food which arise at the end of food supply chain are mainly defined as a “food waste” since the food suitable for consumption gets discharged. This phenomenon is related to behavioural issues such as negligence or conscious decision of consumers and retailers to throw food away [1, 2, 4].

The overall food losses and waste, according to The Food and Agriculture Organization of the United Nations (FAO), are estimated at nearly 1.3 billion tons/year, which represents 1/3 of the food produced in the world [1, 2]. The European Union generates about 88 million tons of food waste yearly which values around 143 billion EUR – according to the data derived from the Fusion EU project. As shown at figure 1, consumption stage generates the most of European food waste. The amount of food waste in Hungary is estimated to approximately 1.8 million tonnes per year with calculation of 400 000 tons annually from consumers, which is actually 40 kg per person.

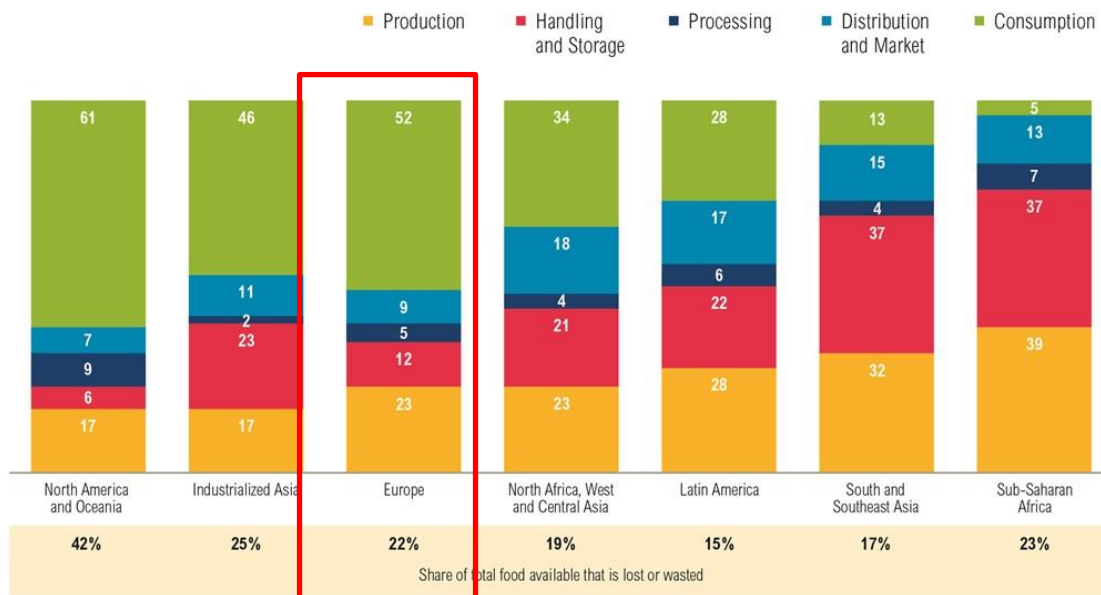


Figure 1: Share of total food wasted or lost

STREFOWA - Strategies to Reduce and Manage Food Waste in Central Europe (CE), is the Interreg CE project on natural and cultural resources for sustainable growth. The project's main objective is improvement in food waste management in selected CE functional urban areas by encouraging food waste prevention and treatment which is triggering reduction of environmental impacts. Achieved results of the project are contributing to raise the level of knowledge and improve implementation capacity on food waste management throughout whole food supply. Different pilot and demonstration actions are implemented in order to enable true reduction of food waste and optimisation in food waste treatment. Within the STREFOWA project, the aim of the Hungarian pilot actions is to raise the knowledge and consciousness of people while simultaneously working on the reduction of food waste arisen at the customers. Regularly repeated pilot actions should result in raised awareness and change of wrong habits.

2. Experimental

2.1 Data collection

The main aim of the research was to determine food waste amounts generated in small shops such as butchery, fruit/vegetable grocery stores and bakeries; to identify the root causes of food waste generation at retailers and to highlight some potential possibilities and good practices in terms of food waste prevention and management. This work focuses on two different types of retailers (hypermarkets and small shops) together with consumer sector.

For the purpose of research, short survey has been used as the main form of data collection and it was conducted in small shops by Bay Zoltán Nonprofit Ltd. for Applied Research. The inquiry took place in the area of Miskolc city (except Görömböly, Helyőcsaba, Majláth) and some of its surrounding settlements (Felsőzsolca and Onga). Altogether, 34 interviews had been filled out in shops – 16 in fruit/vegetable stores, 10 in bakeries and 8 in butchers. There were 6 different questions in each questionnaire and most of the personnel were willing to cooperate. The questionnaire covered following key elements:

- Qualitative and quantitative waste data – concerning type of waste, volumes and percentages
- Seasonal fluctuations in waste volume

- Food waste prevention measures and management – including good practices and ideas for further measures

Due to the sensitivity of waste data information the survey does not contain covering details about the company.

2.2 Data analysis

For the analysis and data comparison, also food waste data generated in hypermarkets and households were observed. The TESCO Co. published the data of their food surplus and waste, which was used in this work [5]. For the information about lost food in the households, data from the research conducted by NÉBIH (The National Food Chain Safety Agency) in 100 households during 1 week were used [6].

3. Results and discussion

The results are presented according to 2 key elements. First step includes overall comparison of food waste amount which is followed by the main food waste prevention measures and management plans.

Inquiry conducted in small retailers shows that the average amount of food waste is estimated between 0-10%. The lowest percentage can be found in meat shops, never exceeding 5%. As for qualitative properties of the waste, in fruit/vegetable stores, the percentage distribution is equal: 50% fruit and 50% vegetable; in bakery the most dominant are bakers' ware and bread while in butchers shop the main source of food waste are processing remains (bones, fat, etc.). Seasonal fluctuations are not recorded in bakery, while in butchers as well as in fruit/vegetable shops production of food waste is higher during the summer.

According to the data published by TESCO (2017) and as shown at Figure 2, the surplus food material generated in this company is estimated to be about 2% of the all sold products (in tons). Important share in those 2 percent belongs to edible part of food surplus – approximately 54.74% while inedible part makes 45.26%.

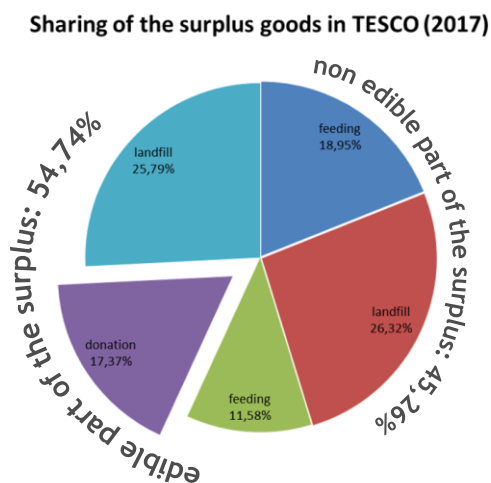


Figure 2: Distribution of the food surplus and waste in TESCO (2017) [5]

The amount of food lost in households estimates at 68.04 kg/capita/year which is equal to 30 000 Ft. As shown at Figure 3, the highest percentage of this amount makes avoidable food waste (48.7%), immediately followed by non-avoidable (47.13%) and at the end, only small share, 4.17% is estimated to be potentially avoidable food waste.

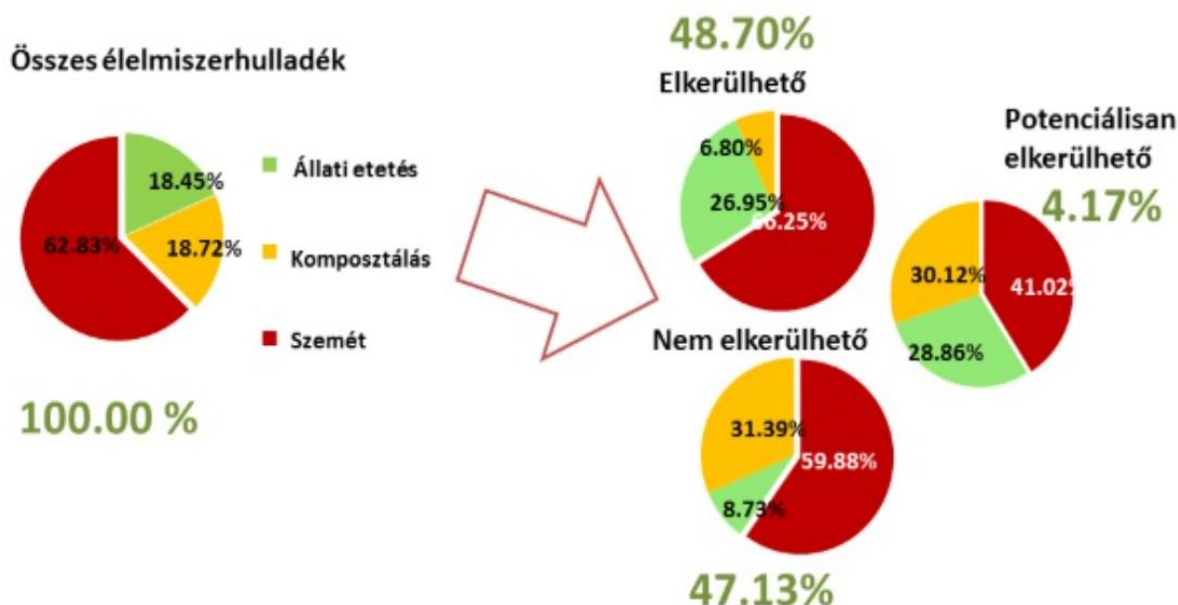


Figure 3: Share of total food waste generated in Hungarian households [6]

According to the survey conducted in small retail shops, the main practices for food waste prevention are the price reduction and quantitative/qualitative modification in the future orders. The most preferred waste treatment is communal waste, followed by donation for animal feeding and others. Same as in small shops, data published by TESCO shows that the biggest part of food waste end up at landfills (approximately 52%) while feeding and donation are less represented with nearly 31% and 17%, respectively. On this issue households don't differ from retail sector since food waste is primarily being landfilled (almost 63%). The rest of the food waste generated in households is either composted or donated for animal feeding (both approx. 18%).

4. Conclusion

This study was aimed to identify and compare food waste data from small shops, hypermarkets and households. The results revealed that main management practices in each observed category is similar, meaning that landfill is the leading practice. Even though donations, either for humans or for animals, are present in retail sector as a waste prevention measure, they are not enough to change the behavior and conscious of consumers. Therefore, one of the main roles in household food waste prevention belongs exactly to retailers. Due to closely connected relationship between retailers and customers, it is highly recommended that retailers influence their customers to prevent and decrease food waste in their households. These measures can be implemented in many different ways, such as pilot actions, promotions, educational material etc.

Acknowledgements

This research was conducted as a part of STREFOWA Interreg CE project funded by European Union.

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