Food waste reduction in public catering

FW in quick service restaurants

Technologické centrum AV ČR
Objective of the presentation

- To show results of measuring food waste
- To explain causes of food losses/waste
- To offer solutions
- To consider favourable conditions and barriers
Objectives of the presentation

• To show results of measuring food waste
• To explain causes of food losses/waste
• To offer solutions
• To consider favourable conditions and barriers

Actors’ views
Design of the research

- **Survey of losses (4 Critical Points)**
  - CP1 (2)
  - CP2 (6)
  - CP3 (3)
  - CP4 (1)

  ![Diagram showing the process from Inputs to Preparation, then to Bar (sale)j, and finally to Losses.]

- **Round tables with the management and employees of the selected QSR chains**
- **Stakeholder conference with workshops**
- **guidelines for food waste prevention**
Measuring food waste

- **Scope:** Quick service restaurants (QSR)
- **Autumn 2018**
- **3 QSR chains, 4 outlets each**
- **6 outlets in Prague, 5 out of Prague – various locations**
- **4 to 7 days = 63 days of surveying food waste**
- **Done by outsiders – volunteers (students) hired by the project**
Overall results

• During the survey: prepared 37.4 t of meals (25.7 t without drinks) for 70 thousand customers
  – 381 kg of prepared food without drinks a day
• Monitored almost 3 t of food losses/waste
  – 45.5 kg per outlet and day
  – 11.1 kg per 100 kg of prepared meals without drink
  – Suitable for donation between 1.8 to 24 kg per the outlet and day
FW relationship to the outlet size

![Graph showing the relationship between Food Losses (kg) and Prepared meals (kg/day). The graph includes data points for loss in kg/day, loss in kg/100 kg of prep. meals, lineární (Loss in kg/day), and lineární (Loss in kg/100 kg of prep. meals).]
Differentiated picture of FW

WF in kg/100 per kg of cooked food

12.04.2019
Differentiated picture of FW

Most consumed in cafeteria

WF in kg/100 per kg of cooked food

A lot taken away
Differentiated picture of FW

WF in kg/100 per kg of cooked food

Unavoidable

Orange peels (waste)

12.04.2019
# Unavoidable food waste

<table>
<thead>
<tr>
<th>Def</th>
<th>Most narrow</th>
<th>Extended 1</th>
<th>Extended 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tea bags</td>
<td>The most narrow +</td>
<td>Extended 1 +</td>
</tr>
<tr>
<td></td>
<td>Coffee dregs</td>
<td>Skins and scraps of</td>
<td>Flour for breading</td>
</tr>
<tr>
<td></td>
<td>Bones</td>
<td>vegetables and fruits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eggshells</td>
<td>Orange peels (wastes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cobs of corn</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste fryer grease</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste fryer oil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Chain Amount in kg per 100 kg of cooked meals without drinks

<table>
<thead>
<tr>
<th>Chain</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.68</td>
<td>0.52</td>
<td>4.91</td>
</tr>
<tr>
<td></td>
<td>2.39</td>
<td>1.10</td>
<td>4.91</td>
</tr>
<tr>
<td></td>
<td>2.39</td>
<td>1.10</td>
<td>6.89</td>
</tr>
</tbody>
</table>

## Chain The share of unavoidable waste on the total food losses/waste

<table>
<thead>
<tr>
<th>Chain</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12%</td>
<td>4%</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>41%</td>
<td>8%</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>41%</td>
<td>8%</td>
<td>62%</td>
</tr>
</tbody>
</table>
### Upscaling

#### Survey → year

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>kg</td>
<td>263</td>
<td>40599</td>
<td>73268</td>
</tr>
</tbody>
</table>

The share of survey on chain sales

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>16%</td>
<td></td>
<td>2.50%</td>
<td>5.93%</td>
</tr>
</tbody>
</table>

The chain losses (waste)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>2</td>
<td>1624</td>
<td>1236</td>
</tr>
</tbody>
</table>

### Upscaling to the QSR sectors

<table>
<thead>
<tr>
<th></th>
<th>Fast food</th>
<th>Cafeterias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>mil. EUR</td>
<td>1 740</td>
</tr>
<tr>
<td>Food waste</td>
<td>t</td>
<td>18338</td>
</tr>
</tbody>
</table>

The share of food waste on sales

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.05%</td>
<td></td>
<td>4.51%</td>
</tr>
</tbody>
</table>

Prezentace výsledků šetření

12.04.2019
Round tables

Causes

Possible solutions

Internal actors

Conditions/ barriers
Possible solutions

**Round tables**

**Causes**

1. Failure of humans + the rate of pre-processing and quality of inputs

2. Internal standards

3. Irresponsible consumer

4. Technology

Fast food restaurants

Cafeterias

Terms of contracts + meal size + regulation
Round tables

Causes

1. Fast food restaurants
   - Failure of humans + the rate of pre-processing and quality of inputs
   - Internal standards
   - Irresponsible consumer
   - Technology

2. Cafeterias
   - Terms of contracts + meal size + regulation

Possible solutions

- Training of employees
- Motivation of employees
- Pre-processing of inputs
- Revision of the contract
- Provision of information
- Education of consumers

1. Revision of the contract
2. Training of employees
3. Provision of information
4. Education of consumers
Round tables

Causes

Fast food restaurants

1. Failure of humans + the rate of pre-processing and quality of inputs

2. Internal standards

3. Irresponsible consumer

4. Technology

Cafeterias

Training of employees

Pre-processing of inputs

Revision of the contract

Donation/discount

Provision of information

Education of consumers

Investing in technologies

Possible solutions

- Technology
- Irresponsible consumer
- Internal standards
- Failure of humans + the rate of pre-processing and quality of inputs

Food safety
Round tables

**Causes**

1. Fast food restaurants
   - Failure of humans + the rate of pre-processing and quality of inputs
   - Internal standards
     - Terms of contracts + meal size + regulation
   - Irresponsible consumer
   - Technology

2. Cafeterias
   - Motivation of employees
   - Pre-processing of inputs
   - Revision of the contract
   - Provision of information

**Possible solutions**

- Training of employees
- Motivation of employees
- Donation/discount
- The civil society role
- Education of consumers
- Investing in technologies
- The will of QSR to change something

**Labour market**

- Food safety

**The society role**

- The will of QSR to change something
Conclusions – input in the debate

• Food losses are not big but also not negligible

• Level of unavoidable waste determines space for reduction
  – If the unavoidable high - should not be reconsider the system?

• Appeal on consumers
  – They need information
  – Consumption options
  – “Social contract-agreement”

• Responsibility of firms