Capacity building methodology

Circularity FoodShift: Engaging all stakeholders in circular food changes at municipal level

Interreg Baltic Sea Region
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CIRCULAR ECONOMY
Circular FoodShift

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INTRODUCTION

The importance of food in our lives is difficult to overestimate. As food is our daily source of energy, we spend much time and attention on food. Food is important not only for survival, but also for well-being, so through it you can see the world, local communities and our daily lives. Food helps to understand the connection between resources, processes and choices, between kitchen and the world.

People across the world are becoming increasingly concerned about climate change. The global food system: all processes in the supply chain— food production, processing, transport, retail, packaging – are responsible for one-quarter of the world's greenhouse gas emissions. And for that we do not yet have viable technological solutions. However, there is a growing awareness that our **diet and food choices** significantly impact our carbon footprint. And this is the most meaningful path to change.

In addition, as a result of unsustainable consumption, one-third or about 1.3 billion tons of food produced in the world is wasted, which is about 30 % of the produced food; 61 % of which came from households, 26 % – from food service and 13 % – from retail. About 17 % of total global food production may be wasted: 11 % in households, 5 % in food service and 2 % in retail[1]. In the EU, about 20 % or about 88 million tons of food is wasted every year, at a cost of 143 billion euros. This is unacceptable and unethical because every year 821 million of the world's 7.7 billion people do not have access to sufficient food.

Most of society and businesses base their food supply and food choices on a linear economic model that focuses only on economic growth as if the amount of natural resources in the world were infinite. Yet for all of us to live in dignity with equal access to quality food, it is important to **transform the food system from linear to circular** where food products are used and reused, nutrients recycled, by-products reduced and what remains is safely recovered or returned to the soil. Solving it is an interdisciplinary issue. Producer, caterer and consumer awareness, responsible food choices, mutual support and cooperation play a big role in improving the situation.

Circular food shift is the ambition of this project implemented in three Baltic countries – Estonia, Latvia, Lithuania. We are implementing this project with the aim to strengthen circular economy-based capacity in the field of food, increasing intersectoral cooperation, and creating an orderly and sustainable food region in Latgale, Tartu region and Vilnius region.

We hope that the project *Circular FoodShift* will promote circular food concepts and practices and to support circular food shift helping authorities in rural and peri-urban municipalities to transform food models with more responsible food choices and less food waste at schools, catering and food businesses.

Capacity building is crucial to implement the envisioned changes. Thus, we have shaped this capacity building guide that is based on values of circular economy and responsible consumption. For your inspiration we offer our capacity building story in six parts:

1. Circular economy as the heart of food production and consumption,
2. Global, regional and transnational circular food steppingstones,
3. Circularity entry points in Circular FoodShift project regions,
4. Circular food system community,
5. Municipalities as circular foodshift sites,
6. Circular food solutions.

[1] See: UNEP Food Waste Index report 2021, United Nations Environment Programme.

1. Circular economy as the heart of food production and consumption

Our planet is a closed system. It means that we live on a planet with limited resources. Industrial revolution and industrialization made it possible to produce consumer goods, including food, quickly, cheaply and in large quantities, and to transport them over long distances in a relatively short time. Therefore, total consumption has also increased significantly.

Currently for global consumption we use at least 75 % more natural resources than the planet can renew in a year. Thus, theoretically, global consumption would require an average of 1.75 globes[2]. OECD forecasts[3] show that global resource consumption will more than double by 2060.

With this, the **linear economic model** based on economic growth, production and consumption with a large amount of waste, which in turn creates environmental pollution and affects climate change and still is the dominant one, is not effective. Planet as a closed system needs the **circular economy model,** which is focused on recovering, reusing and recycling natural resources so that we can continue to use them for much longer. Yet this model is still underutilized.

The **circular economy** is a model of production and consumption that:

- determines the sharing, renting, reuse, repair, restoration, recycling of materials and products over the longest possible period, extending the product life cycle,
- practically means reducing the amount of waste to a minimum – when the end of the product's use comes, its materials are returned to the economy as much as possible,
- is useful, sufficient, local, clean and safe, sustainable, regenerative, slow and long-lasting,
- enable us to reduce environmental impacts: reduce our carbon footprint, prevent air, soil and water pollution, conserve raw materials, natural resources and ecosystems and protect our health and well-being.

The **development of the circular economy** is divided into three stages[4]:

- waste management – 1970-1990,
- ecological efficiency in the product supply chain – 1990-2010,
- preserving the value of resources during resource depletion – since 2010.

Circular economy **initiatives**:

- emphasize the **comprehensive value** of resources as opposed to the **economic value** of resources, so preserving value means preserving resources as close to their original state as possible,
- are based on **resource value retention hierarchy[5]** and **waste hierarchy**,
- are characterized by keywords of resource value retention starting with "re-" (from Latin: "again", "back", "again") that describe the nature of the circular economy,
- emphasize transition:
    - from resource linear to orderly production and consumption,
    - from waste generation to waste prevention and management of leftover resources.

Resource Value Retention Hierarchy[6] **includes** 10 approaches, known as R-strategies, that aim to achieve less resource and material consumption in product chains and make the economy more circular. They are ordered for priority according to their levels of circularity and adapted to food:

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[2] See: WWF (2022) Living Planet Report 2022 – Building a nature positive society. Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Eds). WWF, Gland, Switzerland.

[3] See: OECD (2019), Global Material Resources Outlook to 2060: Economic Drivers and Environmental Consequences, OECD Publishing, Paris, https://doi.org/10.1787/9789264307452-en.

[4] See: The circular economy: New or Refurbished as CE 3.0?

[5] See: Circular economy: Measuring innovation in product chains, Potting, J., et. al. PBL Netherlands, 2017.

[6] Adapted from Circular economy: Measuring innovation in product chains, Potting, J., et. al. PBL Netherlands, 2017.

- RV 0: **Refuse** – make redundant food with a high environmental impact by replacing it with another food with a lower environmental impact,
- RV 1: **Rethink** – make the use of food with lower environmental impact more efficient, more intensive,
- RV 2: **Reduce** – make the production or use of food more efficient by providing it in the required quantity or using it less often, thus creating less food waste,
- RV 3: **Reuse** – use the uneaten food rejected or unwanted by others but still is usable,
- RV 4: **Repair** – recook and use the recooked food,
- RV 5: **Refurbish** – renew, restore and modernize rejected or unwanted food,
- RV 6: **Remanufacture** – use parts of rejected or unwanted food in new food for the same function,
- RV 7: **Repurpose** – use the rejected or unwanted food or its parts in a new food for different functions,
- RV 8: **Recycle** – recycle food to produce the same (premium) or lower quality (low grade) materials,
- RV 9: **Recover** – regenerate or obtain energy from food that is not good to be consumed or used differently.

Examples of circular food initiatives are described in the part 5 “Municipality as a circular food shift area”.

The smaller is the number of resource value retention strategy (RV 0 to RV 9), the higher is the circularity of the product. A higher level of circularity of materials in a product chain means that the materials remain in the chain for a longer period and can be applied again after a product is discarded, preferably retaining their original quality.

The **waste hierarchy** is a principal waste management framework by which we can identify the actions that most likely would deliver the best overall environmental outcome. The waste hierarchy has been developed in the 1970s to prioritise waste management strategies. Since then, it has evolved and been adapted to food waste.

Food waste pyramid[7] ranks seven strategies that are sorted in three stages:

(1) AVOIDANCE – **green colour**:

1. **Refuse**:
   - Prevention of the causes of food leftovers in primary production (agriculture), production, supply and consumption,
   - Avoiding food leftovers: responsible shopping, smart storage, zero waste cooking, smart freezing,
   - Using of food leftovers: food leftover cooking
2. **Redistribution** – sharing or donating leftover food that is good for consumption to other people,
3. **Reuse** – donating leftover food that is good for consumption to feed animals,

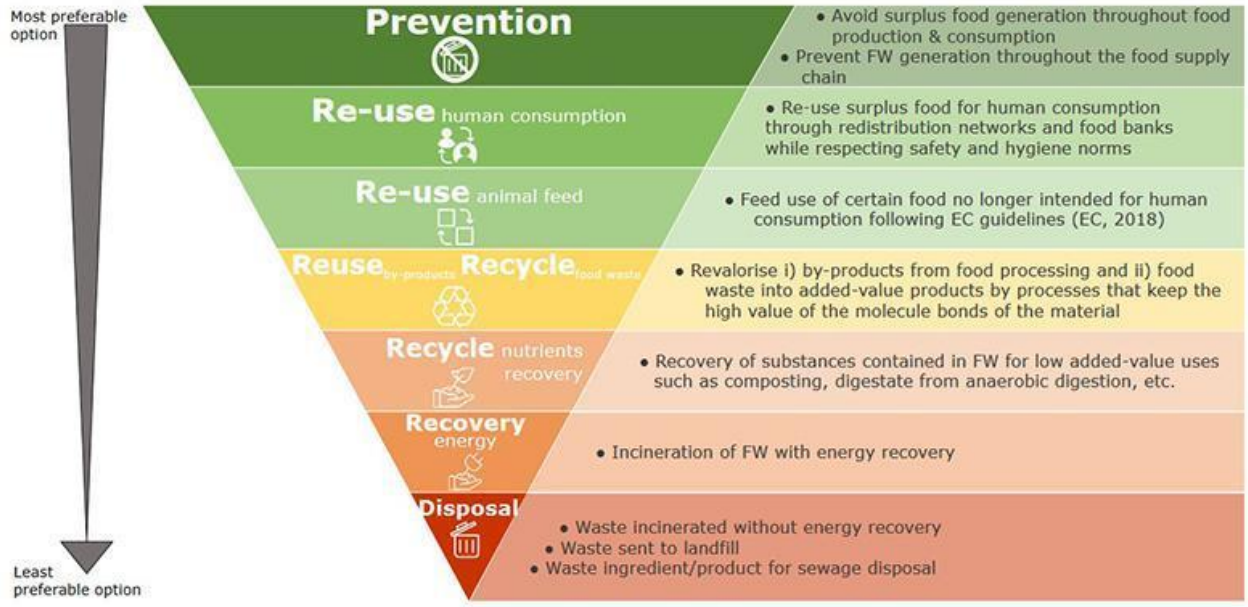
(2) RECOVERY – **yellow colour** and **orange colour**:

4. **Remanufacture** – processing of food waste or food by-products into other added-value products,
5. **Recovery of nutrients**:
   - Anaerobic composting or methanization to obtain biogas,
   - Aerobic composting for waste amount reduction and conversion into horticultural biomass,
6. **Recovery of energy**:
   - Burning food waste to recover energy,

(3) DISPOSAL – **red colour**:

7. **Throwing away**:
   - Burning food waste without energy recovery,
   - Disposal in landfills,
   - Disposal in sewage.

[7] See: Brief on food waste in the European Union, European Commission Joint Research Centre, 2020.



Three stages of the food waste pyramid highlight the most and the least preferable strategies of how to deal with food waste.

Based on all the above, our understanding of the key terms of the project is the following:

Circular food – food that is produced, distributed, prepared and consumed responsibly with the commitment to return the leftover food resources safely to the circularity cycle while retaining its highest value.
Circular food shift – **transformation of the whole food system** (from agricultural growing and production to food processing, packaging, distribution, preparation, consumption and food waste management) **from linear to circular** where its natural resources are used and reused, nutrients recycled, by-products reduced and what remains is safely recovered or returned to the soil.
Circular food system community – **a network of food and other sector stakeholders** that are collaborating with a common goal to increase circular food solutions, producing food sustainably, using food efficiently, reusing side and waste streams, and preventing food waste.

The project **Circular FoodShift** serves to promote circular food concept and practices and to support circular food shift helping authorities in rural and peri-urban municipalities to transform food models with more responsible food choices and less food waste at schools, catering and food businesses.

2. Global, regional and transnational circular food steppingstones

Global level

At the end of 2019, the United Nations General Assembly designated September 29 as the **International Day of Awareness of Food Loss and Waste** (IDAFLW). International Food Loss and Food Waste Awareness Days is a call to action for national and local government authorities, businesses and other private sector representatives, and civil society to strengthen efforts to reduce the amount of food grown and produced that is not consumed. This day also highlights that balanced food production and consumption, food safety and availability are particularly relevant during global pandemics, crisis and war.

The issues of food loss and food waste have attracted a lot of interest in recent years, as food waste has a significant **impact on the environment and people**. When food is thrown away, the growing and production of uneaten food unnecessarily depletes and wastes natural resources, endangers biodiversity and wastes energy derived from natural resources, as well as photochemical oxidants and greenhouse gases are produced as food waste decomposes. The **social impact** of wasted food manifests itself as a waste of energy and time invested by the labour force involved in food growing, processing, production, transportation and trade, as well as maintaining social and economic inequality.

Reducing food loss and food waste can benefit both the local community and society nationally and globally. By reducing food waste, we can:

- **increase the productivity of food production and consumption** – currently 1/3 or about 1.3 billion tons of all the food produced in the world is thrown away as waste, which is about 30 % of the produced food products. About 14 % of the food produced in the world is lost before reaching the market. In the European Union, about 20 % or about 88 million tons of food is wasted every year, at a cost of 143 billion euros.
- **increase the availability of food for those who lack it** – annually, 821 million of the world's 7.7 billion inhabitants did not have access to food in sufficient quantity.
- **reduce the consumption of land and water resources** – to meet the consumption needs of all people, the resources of one planet are no longer enough, the resources of 1.6 planets are needed. This year, the calendar date, called the Earth's resource overuse day, when the ecological footprint created by one person is greater than the human biocapacity (the amount of natural resources that the Earth can renew during the year) – was August 22 in the world as a whole.
- **reduce greenhouse gas emissions** – the food sector accounts for around 30 % of the world's total energy consumption and accounts for around 22 % of total GHG emissions. 57 % of human impact on the environment or ecological footprint comes from GHG emissions, and 8 % of all GHGs comes from food waste. If food waste were a country, it would be the third largest producer of CO2 emissions after the US and China. However, if 60 % of food waste were to be reduced by 2030 in Europe, it would prevent 84.3 million tons of CO2 emissions every year.

The International Food Loss and Food Waste Awareness Day is also related to the implementation of the UN Sustainable Development Goals[8]:

- **Objective 2**: Eradicate hunger, achieve food security and improved nutrition, promote sustainable agriculture,
- **Objective 3**: To ensure sustainable consumption habits and production models,
- **Goal 12**: Ensure sustainable consumption patterns and production patterns, especially with Goal 12 sub-goal 3: By 2030, halve the amount of food waste per capita at the retail and consumption levels and reduce food losses in production and supply chains, including losses after harvest,
- **Goal 13**: Take urgent measures to combat climate change and its effects.

The fifth International Day of Awareness of Food Loss and Waste was observed on the 29th of September 2024, with the theme "Climate Finance for Food Loss and Waste Reduction".

[8] See: https://sdgs.un.org/goals

The sources of inspiration for this day are also circular economy, social and solidarity economy, zero waste approach and good practice examples of global partnerships.

EU level

European Commission's ***Circular Economy Action Plan – for a cleaner and more competitive Europe***[9].

The Commission is committed to halving per capita food waste at retail and consumer levels by 2030 (Sustainable Development Goal 12, Target 12.3), and recently adopted EU strategies integrate food waste considerations[10]. The Commission plans to propose legally binding targets to reduce food waste across the EU using data expected from Member States as of 2022, as well as to integrate food loss and waste prevention into other EU policies.

The decisions included in the EU directives, which help to introduce the circular economy in production and consumption in all EU member states, determine[11]:

- for household waste – prepare for reuse and recycle 55 % by 2025, 60 % by 2030, 65 % until 2035,
- for packaging (plastic, paper, aluminium and other materials) – recycle 70 %,
- for disposal of household waste in landfills – reduce to 10 % by 2035,
- to calculate the accomplished: implement more accurate methods.

The European ***Farm to Fork Strategy***[12] also underlines economic and environmental benefits of the circular economy for farmers and other food stakeholders.

Food culture, values and needs of the Baltic region: Local, organic, sustainable and healthy food offer

Food culture of the Baltic region is shaped by the collective habits and experiences of how we buy, prepare and consume food. Food in Baltic countries is not just food or money. It is the way how we express ourselves, communicate with each other and pass on the cultural heritage of food.

The core food consumption values of the Baltic region:

- local sufficiency and short supply chains,
- sharing and not wasting,
- We eat together.

Food culture of the Baltic region can be characterized by products, types, attitude towards purchasing, cooking and eating food:

- Self-grown,
- Self-picked, gathered or collected,
- Seasonal,
- Bread, potatoes, seasonal vegetables,
- Wild herbs, berries and mushrooms,
- Salting, drying, smoking, pickling, drying, canning,
- Soups,
- Mild taste, natural aroma.

Food values of the Baltic region can be characterized by links between food, culture and traditions:

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[9] EC, Directorate-General for Communication, Circular economy action plan – For a cleaner and more competitive Europe, Publications Office of the European Union, 2020, https://data.europa.eu/doi/10.2779/05068

[10] EC, Bioeconomy Strategy (2018), new Circular Economy Action Plan (2020), Farm to Fork Strategy (2020), Biodiversity Strategy for 2030 (2020).

[11] See: EEB, When and what: A timeline for the implementation of new measures and recycling targets.

[12] See: Farm to Fork Strategy: For a fair, healthy and environmentally-friendly food system, EU, 2020.

- Local and self-sufficiency – I want to grow, produce, cook food,
- Short supply chains – I can trace the food, I know the growers,
- Sharing – from visits with treats,
- No waste – leftover cooking,
- Eating and sharing food together – joint meals of two, three generations.

Sustainable food is food with a low environmental impact. Food consumption is one of the four lifestyle areas – along with transport, housing and leisure – that create the largest carbon footprint.

Food consumption needs of the Baltic region can be characterized as responsible consumption offer and habits:

- Inclusive food: allergies, intolerances, diets,
- Balanced food offer, especially for children and seniors,
- Food with low environmental impact: less meat, more vegetables and legumes,
- Deposit containers: glasses, mugs, food boxes,
- Restaurants outside big cities: also offer for vegans,
- Food as a Tool for Public Education: Food Stories.

3. Circularity entry points in Circular FoodShift project regions

LATVIA, Latgale region

Policy and initiatives

The implementation of the circular economy in Latvia is promoted by policy documents:

- Action plan for the transition to a circular economy for 2020-2027[13]:
  - Determines the obligations for the implementation of circular economy-based initiatives,
  - Marks directions, the implementation of which requires the involvement of sectoral ministries, local governments, the private sector and society,
- Circular economy strategy for Latvia[14],
- State waste management plan 2021-2028[15].

Circular economy in municipalities is an important direction of development. It will be more successful if municipalities play a greater role in its implementation. In Latvia, the Action Plan for the transition to a circular economy for 2020-2027 determines the main directions of action for the introduction of a circular economy:

- transition from waste management to resource management,
- improving the productivity of resources in all sectors of the economy, promoting the development of research and innovation,
- creation of prerequisites for the secondary use of goods,
- promotion of transition from buying goods to services,
- improving materials, processes and waste management in priority sectors,
- strengthening the role of local governments in the implementation of circular economy principles,
- public involvement, information and education.

Based on this action plan, municipalities in Latvia can develop their circular economy action plans.

Qualitative data also play an important role in decision-making based on circulation, as well as cooperation between entrepreneurs, municipalities and researchers. In addition, the state and local governments must be ready to finance experiments that could allow the creation of a new infrastructure based on circulation. Therefore, supporting municipalities on the way to sustainable management, the Circular Economy Index[16] is being developed.

The purpose of creating the Index is to create a tool that would help municipalities see the current situation in the circular economy and understand what they need to improve for the well-being and well-being of the country's residents. The Index is based on three parts:

- self-assessment of municipalities,
- population survey,
- objective data (e.g. official statistics, results of Eurobarometer surveys, information published by municipalities).

By conducting a self-assessment, municipalities will receive recommendations in which areas improvements are possible and what the results are compared to other municipalities. The Circular Economy Index is also a platform that brings together circular ideas, good practice examples, field experts and also promotes public awareness of the circular economy in Latvia.

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[13] See: Rīcības plāns pārejai uz aprites ekonomiku 2020.-2027. gadam, MK rīkojums Nr. 489.

[14] See: Informatīvais ziņojums Aprites ekonomikas stratēģija Latvijai.

[15] See: Atkritumu apsaimniekošanas valsts plāns 2021.–2028.gadam, MK rīkojums Nr. 45.

[16] Its founder is CleanR Grupa – a group of leading companies in the environmental services sector in Latvia https://cleanrgrupa.lv/en/about-us/

Throughout Latvia, from 2024, biological waste must be disposed of in a separate container intended for it or composted on one's own farm. If a container for biological waste is not yet available. the service must be reported to your waste manager.

Regional challenges – food is an interdisciplinary field, but municipalities work according to monodisciplinary approaches, their department responsibilities do not overlap.

Possible solutions – These are not quick solutions, the impact of which could be seen after a shorter period of time. Awareness of the challenges and the way towards their solution could be approached by creating multi-stakeholder food partnership. And systemic approach should be used to achieve circularity foodshift.

ESTONIA, Tartu region

Policy and Initiatives

In Estonia, the global sustainable development goals are monitored and implemented under the long-term development strategy "**Estonia 2035**"[17], which aims to promote intelligent, active, and health-conscious individuals, as well as a caring, cooperative, and open society, and a responsible economy. Estonia was ranked 10th in the global sustainable development index table in 2021.

In shaping a sustainable food system, Estonia follows the EU strategy "From Farm to Fork"[18], which aims to make European food healthier and more sustainable. This strategy seeks to change current production and consumption methods, including reducing food loss and food waste. The "**Development Plan for Agriculture and Fisheries until 2030**"[19]aims to contribute to increased competitiveness and food security. This sector-specific development document is complemented by the private sector-initiated "**Estonian Agriculture and Food 2030**"[20], which outlines the strengths of Estonia's agriculture and food sector, such as consumer preference for domestic products, the growing small-scale production of local and specialty foods, and a rich variety of food products. Weaknesses include inadequate crisis preparedness in primary production, insufficient valorization of raw materials, limited horizontal and vertical cooperation, and low awareness of future challenges (e.g., climate change). Opportunities for development include the increased importance of bio- and circular economies and the development of short supply chains. The vision for the development plan is for Estonia's agriculture and food sector to be sustainable and competitive, utilizing agricultural land and the environment resource-efficiently, producing high-quality conventional and organic agricultural products for both domestic and export markets, with a goal of increasing added value by 50 % by 2030.

To reduce food waste and food loss, the "**State Waste Management Plan 2023-2028**" includes the "**Food Waste Prevention Plan**"[21]. The plan aims to reduce the generation of food waste and food loss throughout the food supply chain, including primary production, food processing and preparation, retail and wholesale distribution, catering, and households. This ensures savings in natural resources, economic resources, and reduces the burden on social systems. Actions derived from the waste management plan include:

- **Action 5**: Creating incentives for companies to prevent food waste.
- **Action 7**: Integrating food waste prevention into relevant development plans, documents, and guidelines.
- **Action 8**: Developing public-private partnerships to reduce food waste at various stages of the food supply chain.
- **Action 9**: Contributing to changes in eating habits and food waste prevention through the implementation of the EU School Program.
- **Action 18**: Conducting training sessions, workshops, and roundtables on food waste prevention to share best practices and promote collaboration.

[17] See: https://ringmajandus.envir.ee/et/ringmajanduse-visioon

[18] See: https://www.consilium.europa.eu/et/policies/from-farm-to-fork/

[19] See: https://www.agri.ee/pollumajanduse-ja-kalanduse-valdkonna-arengukava-aastani-2030

[20] See: https://epkk.ee/ept2030/

[21] See: https://kliimaministeerium.ee/sites/default/files/documents/2023-12/Riigi%20j%C3%A4%C3%A4tmekava%202023-2028.pdf

- **Action 20**: Raising awareness about food waste prevention in educational institutions and through educational programs.

Promoting circular economy solutions in the public sector, including raising awareness about food waste prevention, supports Estonia in achieving the UN Sustainable Development Goal 12.3, which aims to halve per capita food waste at the retail and consumer levels by 2030 and reduce food loss along production and supply chains.

The Ministry of Climate advocates for the expansion of circular economy principles[22]. The main development document in the field of circular economy is the "**Circular Economy White Paper**"[23]. It highlights that Estonia still has a lot of work to do in this area to transition to circular economy principles across different sectors, as environmental and circular economy behaviours in society are still low and circular economy is not yet embedded as a comprehensive framework. The roles of both the public sector and local governments are outlined. The public sector's role includes creating the conditions and legal framework for the functioning of the circular economy, while local governments are tasked with guiding community activities. One of the development directions is the responsible use of resources based on demand, ensuring that resource use is well-planned, and waste generation is minimized.

Guidelines for reducing food losses, as well as educational materials for educational institutions, citizens, and schools, have been developed. Several studies have been conducted, such as:

- "Study on Food Waste and Food Loss in the Estonian Food Supply Chain (2021)",
- "Study on Food Waste and Food Loss in Estonian Households and Catering Facilities (2015)",
- "Study on Food Waste in Estonian Retail and Food Industry Enterprises (2015).

In Estonia, various campaigns have been organized by both the public and private sectors to reduce food waste, primarily targeting households, but also addressing apartment associations and educational institutions. Examples include "Respect Food Completely!", "Consume Food Wisely", the apartment association campaign "Valuing Food", and the school catering campaign "Let's Cook Together!"[24]. Various organizations run educational programs, such as the Estonian University of Life Sciences in Tartu with its "Growing with Your Food"[25] and "Food Production and the Environment" programs, are among others. The campaign "Preserve Good Food"[26] by the Green Tiger Foundation is another example. The Green Tiger Foundation is a platform for environmentally conscious businesses aimed at helping reduce the environmental footprint in companies and society[27].

Active food-sharing platforms operate in Estonia. To consolidate information, promote food donations, and introduce charitable organizations working in this field, the Ministry of Social Affairs established a website in 2021[28]. **Foodsharing Tartu**[29] aims to reduce food waste by connecting consumers with surplus but still edible food. **FudLoop**[30] operates on the same principle. Both FudLoop and Foodsharing food cabinets are popular with donors and consumers. Even in the small town of Elva, with a population of just 5,692 (as of 01.01.2024), maintaining a food cabinet is highly beneficial[31]. The **Estonian Food Bank**[32] works on rescuing food from grocery chains with the goal of reducing food waste and fostering solidarity among people. Donated food from the Food Bank reaches those in need.

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[22] See: https://ringmajandus.envir.ee/en/node

[23] See: https://ringmajandus.envir.ee/et/ringmajanduse-visioon

[24] See: https://www.sei.org/features/kokkamekoos/

[25] See: https://kasvadesomatoiduga.emu.ee/

[26] See: https://rohetiiger.ee/hoiatoitu/

[27] See: https://rohetiiger.ee/

[28] See: https://toiduannetamine.ee/

[29] See: https://www.foodsharing.ee/tartu.html#about

[30] See: https://www.tallinn.ee/et/uudis/nutikad-toidujagamiskapid-nuud-mitmes-linnaosas

[31] See: https://www.foodsharing.ee/elva.html

[32] See: https://www.toidupank.ee/meist/meie-lugu/

Regional Challenges and solutions

One of the core principles in the **Tartumaa Development Strategy 2040** is sustainability, where all regional development activities are guided by a mindset of sustainability and principles of the green transition. Under the focus area "Living Environment," the application of circular economy principles is addressed as a distinct topic. Another focus area, "Entrepreneurship," highlights the implementation of the "From Farm to School" project and the execution of the food strategy in Tartumaa.

The Tartu County food strategy, "**Tartu County Food Strategy 2022-2030**"[33], identifies strengths in the local food sector such as the value placed on local ingredients and the presence of many active food sector participants. However, challenges include limited cooperation among small producers and finding new distribution channels. Another issue is that consumers prefer imported goods due to price, and there is room for improvement in reducing food waste, utilizing food waste, and more broadly, in sustainable management (e.g., joint logistics organization, reducing the so-called footprint). A key principle is the valorization of local raw materials in both the public and private sectors, across industries and catering. The strategy also emphasizes cooperation and co-creation, with food sector development occurring collaboratively among all stakeholders both within and beyond the county.

The vision for the Tartu County food strategy by 2030 is: Tartumaa will be recognized as a prominent food region in Estonia and Europe. Public and private sector caterers will predominantly use local raw materials. Food production, processing, and distribution in Tartumaa will be distinguished by scientific grounding and innovation. Residents of Tartumaa will value healthy and local food, and the food sector will be characterized by diverse and specialized businesses and organizations. The food sector's cooperation network will operate efficiently, encompassing all sectors and involving producers, caterers, and consumers.

Four strategic goals have been set, one of which states that residents of Tartumaa will be knowledgeable consumers of healthy and local food, with reduced food waste and sector footprint. Achieving this goal will result in:

- The benefits of local and healthy food being known to all consumers;
- Attitudes valuing local food, raw materials, food sector traditions, and sustainable consumption being systematically developed from early childhood education;
- Reduced food waste and local food being visible and accessible to everyone, with information about the sector reaching all target groups through various channels.

In 2024, the "**Tartumaa Circular Economy Roadmap 2030**" will include sustainable food systems as one of its focus areas. The goal is to establish a county with a circular food system. The outcome we aim to see is a significant reduction in the proportion of food waste in municipal waste, food wastage, and food losses in the food industry and catering services across the county. Central coordination will manage the reduction of food waste generation, support the use of innovative solutions, and promote more conscious food consumption habits. Local food consumption will be encouraged, particularly in schools and kindergartens.

The roadmap creators have identified several challenges in the "Sustainable Food System" sector:

- **High volume of food waste in municipal waste:** In 2021, food waste constituted 24 % of municipal waste, amounting to an estimated 9,434 tons. According to waste management legislation, there is a 100 % obligation to collect bio-waste at the source.
- **Food wastage and inefficient use of food waste:** There is a lack of long-term local community models developed to reduce food waste, and a broader deficiency in sustainable management practices (e.g., joint logistics organization, reducing the so-called footprint).
- **Insufficient promotion and valorization of local clean raw materials:** There is a need for additional development support for the county's primary sector, processing industry, catering, and related branches (e.g., tourism).

[33] See: https://tas.ee/arendusprojektid/tartumaa-toidupiirkond/

To achieve the goals and results outlined in the roadmap, an action plan has been created with the following activities:

1. **Reducing food loss in the production and supply chain and increasing the use of by-products/wastes:**
    - Developing collaboration and expert networks and enhancing sector-specific knowledge and skills.
    - Creating and implementing a regional development and support system model for the use of by-products and waste products in the food industry.
2. **Reducing food wastage and rescuing food:**
    - Coordinating food waste reduction at the county level.
    - Developing networks, spreading knowledge, and recognizing efforts. Amplifying the role of educational institutions.
    - Increasing demand for local food.
    - Adding criteria that encourage local food consumption in food procurement processes (in the municipal sector).
    - Promoting community-based food production.

The public sector plays a role in leading changes in the development of a circular food system. Local governments in Estonia, as education providers, can transition school catering from a linear model to a circular economy model, setting an example for the private sector and households.

LITHUANIA, Vilnius region

Lithuania – what is being done?

A measure to review existing legal basis in order to reduce food wastage is set up in the Governmental programme (2021-2023).

The National waste prevention and management plan (2021-2027)[34] includes food waste prevention measures:

- funding measures to support – food sharing or food donation initiatives, short food supply chains, development and implementation of innovative and environmentally friendly technologies;
- awareness raising campaigns;
- regulatory framework for obligatorily donation of food in accordance with good foreign practice.

The Ministry of Agriculture is currently preparing a draft Bioeconomy Strategy and draft actions and measures for the Strategic Provisions for the Development of the Bioeconomy[35]. **They integrate improving the regulatory framework by promoting sustainable circular food and feed systems, promoting sustainable circular food and feed systems**, promoting the consumption of products made from sustainable circular food systems, **and supporting research and analysis for the development and improvement of sustainable circular food systems.**

The waste management hierarchy is applied to all waste streams, including food waste. **Waste management law**[36] states that as of 2024, the separate collection[37] of household food waste will be mandatory. Separate collection of food waste from households has been successfully implemented in the Alytus region since the

[34] See: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/caef2783e1af11ecb1b39d276e924a5d?positionInSearchResults=12&searchModelUUID=5e15d9a6-5a7c-4d27-8063-a2d7abdbc8da

[35] See: https://ec.europa.eu/food/safety/food_waste/eu-food-loss-waste-prevention-hub/eu-member-state-page/show/LT

[36] See: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.59267/asr

[37] See: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.164386/asr

end of 2018. Other municipalities are carrying out pilot projects and are preparing for separate collection of household food waste[38].

Several good practice examples:

- **New food waste sorting instructions**[39] in Vilnius City,
- **Vilnius European Green City awards**[40]
- Vilnius residents are among the first in the world to implement the technology for food waste management, developed by the Dutch company "Amusca"[41].
- **Alternative farming** methods in the region are backed up by technological advancement in aggrotech[42]. There's also an increasing trend towards circular economy practices in agriculture, with an emphasis on waste reduction and resource efficiency. Some of Europe's leading companies in organic farming are actually based in Vilnius and Lithuania.

Circular Economy in Lithuania – where are we now?

Solutions for the transition to a CE were set up in the **National Waste Prevention and Management Plan for 2021–2027** (NWPMP) which will be integrated into the National Action Plan for the Circular Economy.

Circular economy policy element	Included in policy
Provide funding instruments to promote support charity food sharing or food donation initiatives (National regulation).	NWPMP Annex 2, Measure 1.3.6, 2023
Financing of food-saving initiatives in canteens in schools, kindergartens and workplaces promoting buffet-based catering.	NWPMP Annex 2, Measure 1.3.3, 2023–2027
Publicity measures promoting the prevention and reduction of food waste, as well development of food consumption skills of the population.	NWPMP Annex 2, Measure 1.3.4, 2023–2027
Promoting and financing short food-supply chains.	NWPMP Annex 2, Measure 1.3.5, 2022–2027
Requirements for large supermarket-chains, catering establishments and food production companies to donate food suitable for people in accordance with best practice in other countries.	NWPMP Annex 2, Measure 1.3.6, 2023

Circular economy targets implementing the strategic goal of the National Progress Plan for 2021–2030 to increase the use of recovered raw materials (circularity index) from 4.4 % in 2020 to the EU average of 12.8 % by 2025. The objectives of the National Waste Prevention and Management Plans are to promote the preparation of waste for recycling, an increase of its processing and the use of secondary raw materials to produce other products. Financing for this modernisation and development is planned. Priority is given to the recycling of food, other kitchen and green waste, textiles and plastics, as well as composite packaging, plant protection packaging and other waste.

The main future goals and ambitions in the waste sector are to expand separate collection of biowaste in 2024, textiles in 2025 and furniture in 2026); provide financial support for innovation and recycling; set producer responsibility and recycling targets for textiles, furniture and finally reach the EU's average circularity rate by 2025.

[38] See: https://www.delfi.lt/en/my-impact/alytus-region-has-been-sorting-food-and-kitchen-waste-for-five-years-is-there-something-to-learn-from-the-pioneers-95912585

[39] See: https://atliekuetiketas.lt/en/

[40] See: https://environment.ec.europa.eu/news/winners-european-green-city-awards-2025-2023-10-05_en

[41] See: https://energesman.lt/en/vilnius-residents-food-waste-to-be-processed-by-insect-larvae/

[42] See: https://vilniustechfusion.com/en/news/leafood-and-vilnius-e6-million-investment-in-vertical-farming-for-a-climate-neutral-future/

It is noteworthy that in 2022 50 % of all public procurement in Lithuania is GPP. From 2023 all public procurement will have been carried out in accordance with GPP requirements[43]. Food sector still has **one of the lowest percentages of green procurement at only 25 %** due to lack of expertise. Right now, public procurement is based on each organisation's understanding of green procurement and can vastly differ depending on the expertise and competence of staff. Meaning within the increased reported GP percentage, there is a high chance of greenwashing. Whether that would be intentional or not.

Challenges: not enough organic/ecological farms food in Lithuania to supply set quotas.

Why not focus on circularity then?

EU Green public Procurement criteria for food and catering – latest version 2019. And seems to be currently voluntary.[44]

Green Public Procurement Criteria in Lithuania

Overall, the innovation-based capacity building experience is more successful than the one related to the strengthening of GPP competencies. However, one of the main barriers for the implementation of CPP is the general lack of knowledge and expertise together with procurers´ preconceptions about complex circular economies.

Related production and service systems. To overcome this challenge, it is crucial to establish CPP oriented *capacity building measures* that would be based on think tanks and reach a large proportion of procuring organisations[45].

Green Procurement of Food – EU best practises and cases
Expert says: main barriers that hinder the systematic implementation of the circular public procurement (CPP) are general lack of knowledge and expertise, procedural and legal barriers, and shortage of advanced restoring and recycling processes that could prolong the life cycle of products. The Lithuanian Innovation Centre took a step forward and prepared a comprehensive **Regional guidebook on circular procurement in Lithuania** including Lithuania-specific overview and supporting material for the decision-makers, procurers and suppliers on circular procurement procedures and practices. The aim of the guide is to raise the awareness of the regional stakeholders regarding CPP and to provide tools and suggestions to them on how to implement the CPP in an effective and efficient way in the future also by boosting the involvement and participation of the regional companies in the circular procurement process.

WHY GREEN/CIRCULAR PUBLIC PROCUREMENT – Rationale and solutions

Circular or green public procurement refers to a specific approach in public procurement that focuses on integrating environmental and sustainability criteria into the procurement process. It involves considering the environmental impact and sustainability aspects of the goods, services, or works being procured, along with the traditional procurement factors such as cost, quality, and functionality.

The main objective of circular or green public procurement is to promote sustainable development, resource efficiency, and the transition to a circular economy. It recognises that **public procurement can play a significant role in driving market demand for more sustainable products and services, influencing the behaviour of suppliers and contributing to positive environmental outcomes.**

Key features of circular or green public procurement include:
1. Environmental Criteria

[43] See: https://www.eionet.europa.eu/etcs/etc-ce/products/etc-ce-products/etc-ce-report-5-2022-country-profiles-on-circular-economy/lithuania-ce-country-profile-2022_for-publication.pdf
[44] See: https://green-business.ec.europa.eu/green-public-procurement/gpp-criteria-and-requirements_en
[45] See: https://www.lic.lt/wp-content/uploads/2020/09/Regional-Guidebook-on-Circular-Procurement-in-Lithuania_final.pdf

2. Life Cycle Thinking
3. Sustainable Supply Chains
4. Innovation and Market Development
5. Collaboration and Knowledge Sharing

By integrating circular or green principles into public procurement processes, governments and public entities can leverage their purchasing power to promote sustainability, reduce environmental impact, and drive positive change in the marketplace. Circular or green public procurement not only benefits the environment but also contributes to economic and social goals, such as resource efficiency, job creation, and improved public health and well-being.

Circular public procurement can play a crucial role in promoting circularity within the food and agriculture sector. Here are some ways circular public procurement can be implemented in this context:

1. Sustainable Food Sourcing
2. Food Waste Reduction
3. Circular Packaging
4. Resource-Efficient Production
5. Promotion of Circular Economy Models
6. Innovation and Research
7. Education and Awareness

Regional authorities and municipalities play a crucial role in promoting and implementing circular food procurement at a local level. Here are some key aspects of their role and capacity building in achieving more circular food procurement:

1. Policy Development
2. Stakeholder Engagement
3. Capacity Building
4. Collaboration and Networking
5. Pilot Projects and Demonstrations
6. Supplier Engagement
7. Monitoring and Evaluation
8. Public Awareness and Education

Through their role in policymaking, capacity building, stakeholder engagement, and practical implementation, regional authorities and municipalities have the potential to drive transformative change in the food procurement practices of their jurisdictions. By adopting circular food procurement strategies, they can contribute to a more sustainable and resilient food system that minimises waste, conserves resources, and promotes healthier and more environmentally friendly food choices.

Challenges:

- **Food Waste:** Addressing the significant amount of food waste generated within urban areas, both at the consumer level and within the food supply chain.
- **Resource Efficiency:** Promoting efficient resource utilisation in urban agriculture, including water management, energy usage, and soil fertility.
- **Short Food Supply Chains:** Overcoming the challenges associated with establishing and maintaining short and local food supply chains in urban areas.
- **Land Availability:** Finding suitable land for urban agriculture initiatives and addressing potential conflicts with other land uses.
- **Waste Management:** Managing organic waste generated from food processing, restaurants, and households, and exploring opportunities for composting and anaerobic digestion.

Opportunities:

- **Urban Farming:** Utilising innovative techniques such as vertical farming, rooftop gardens, and hydroponics to maximise food production in limited urban spaces.

- **Circular Food Systems:** Developing integrated systems that enable the recovery and recycling of organic waste, transforming it into valuable resources such as compost or biogas.
- **Local Food Production:** Encouraging urban agriculture and local food production to reduce the carbon footprint associated with long-distance transportation and increase food security.
- **Circular Food Redistribution:** Establishing networks and platforms for the redistribution of surplus food from retailers, restaurants, and households to those in need.
- **Circular Business Models:** Supporting the development of circular business models in the food and agriculture sector, such as urban farming cooperatives or circular packaging solutions.

Overall, the challenges and opportunities in the circular economy for food and agriculture at the urban city or municipality levels require collaboration among stakeholders, innovative approaches, and supportive policies to create sustainable and resilient food systems.

Lithuanian national government has committed to increase green procurement in food. There is demand from schools and other institutions to adopt more of a sustainable and organic produce when public buying. However, despite the formal commitments, the number of organic farms is decreasing in the Baltic states.

4. Circular food system community

Circular food system community is a value based network that creates, implements and promotes practices and initiatives to transform the food system (production, distribution, and consumption) according to circular food values. The core value of this network is **food as a valuable resource not as a commodity**.

Circular food system community is a network of stakeholders from food and other sectors (e.g. circular economy, packaging, hospitality, education, media, policy) united by a common goal to increase circular food solutions, to produce food sustainably, to use food efficiently, to reuse side and waste streams, and to prevent food waste.

Circular food system stakeholders:

- Food supply chain
    - Food primary producers
        - **Farmers – target group of Circularity FoodShift project**
    - Food services and retail
        - **HORECA sector – target group of Circularity FoodShift project**
        - **Public sector kitchen chefs, including school kitchen chefs – target group of Circularity FoodShift project**
    - Households
        - Responsible consumers
    - Waste managers
- Legislators and policy makers
    - National food and circularity policy
    - Municipality level food and circularity regulations and strategies
    - Non-legislative measures and initiatives
- Awareness promoters and educators
    - Non-formal educators and civil society organizations
    - Formal educators
    - Media

Circular food system community is a solution how to redesign and improve the existing - unsustainable and industrial food systems that are not effective in ensuring a circularity of food at a time of rapidly increasing demand for food consumption and decentralization of food supply. For this to be successful, a circular food system must be:

- **local**, with a focus to shorten supply chains. It would lead to reduced food loss and waste, costs and emissions, and increased direct producer-customer trade, local jobs and economies, fair prices, and fresh food supply. Also, it would promote social equity and local community resilience.
- **biological**, with a focus to sustain health of soil and waters, biodiversity and ecological balance, health of nature and humans. It would lead to an ethical production, higher value of food circulation and wider application possibilities of sustainable products.
- **holistic**, with a focus on the food supply chain as a system. It would help to understand each stage of the supply chain as a unique part whose changes would directly affect other stages of the supply chain and the entire supply chain.
- **collaborative**, with a focus to create a network of stakeholders from diverse sectors: food, circular economy, packaging, hospitality, education, media, policy, etc. It would lead to broader understanding of challenges, innovative approaches to circularity solutions, and multi-stakeholder initiatives based on common resources as a main strategy point.
- **positive change driven**, with a focus to support all network stakeholders to ensure positive changes for all. It would increase local circular food initiatives and efficiency of circular food policy expanding the scope of its dimensions at the local level.
- **educational**, with a focus to shape any of the circular food sites (production, retail, catering, waste management) to serve awareness raising purposes for all network stakeholders and society in general. It would lead to reduction of circularity food shift barriers and ensure transition to circular food system.

Food primary producers

Circular food production can be ensured by regenerative agriculture[46] that is a responsible and adaptable approach to sustainable farming. Food farmers and food producers often face several circularity related food challenges connected with crop storage, agricultural by-products, and inflexible contracts with buyers. If not properly solved, these challenges can increase the amount of food loss at the farm level. In addition, it is difficult to even count the amount of food loss during the primary production stage.

The way towards solution of these challenges can start with the search for practical initiatives in the following areas:

- Optimisation of processes,
- Introduction of regenerative practices,
- Minimisation of waste streams,
- Creation new uses for food parts traditionally considered as waste,
- Collaboration among farmers to find new marketing channels, among other things.

Circular economy based product use at the farm, like renewable energy, biofertilizers, protein feed, waste streams, can contribute to forming and development of the circular food system in terms of new job creation, circular infrastructure development, and closer cooperation with other circular food system stakeholders.

Local farming and food production is the heart of the circular food system as it protects resources and supports biodiversity, soil and human health. It also can be an inspiring source of education, resilience and conviviality if included into a circular food system.

Some ideas to increase openness of food farms and food production sites to circular food system:

- connect with the public to build trust,
- invite other stakeholders to farms to increase cooperation,
- connection to other sectors and strengthening collaboration,
- cooperate with other farmers and food producers to develop bigger food cooperatives to increase competitiveness,
- educating society in general about circularity food system,
- creating and participating in circularity foodshift initiatives.

Food services and retail

Circular food systems at the consumption level can be supported by food services and retail. It would help to reduce a big quantity of uneaten food to become food waste.

The way towards solution of food waste challenges can start with the search for practical initiatives in the following areas:

- Providing the needed quantity of good for food buyers and consumers,
- Maintaining the quality of food products for as long as possible,
- Abandoning unnaturally aesthetic food standards such as size, shape or color,
- Reduction of the disposal of food due to ‘best-before’ labels considering safety regulations,
- Reduction of food waste caused by overcautious food expiration dates.

Also, food service businesses or catering industry should not only be assisted to make more informed decisions about the purchased food amount, relevant time and quality in order to reduce food waste, but also about:

- connection with the public to build trust,
- reaching out to other stakeholders and other sector representatives to strengthen collaboration,
- educating society in general about circularity food system,
- creating and participating in circularity foodshift initiatives.

[46] See Can regenerative agriculture replace conventional farming?

Food producers and entrepreneurs should increase their role in awareness raising of society about circular food shift and should base their business on circular food solutions.

HORECA sector

HORECA stands for Hotel, Restaurant, and Café/Catering and refers to the sectors of the hospitality industry that serve food and beverages and provide accommodations.

Circularity in HORECA sector is about responsible use of food, efficient food waste management, reduction of food waste and increase of food resource use. Circular initiatives in the HORECA sector also enhance profitability and competitiveness of the food company in the whole sector.

Questions that can help HORECA to evaluate if their food offer is **inclusive – suitable for different types of customers**:

- Is the food offer suitable to different types of consumers?
- What is the portrait of our customer based on your food offering?
- Which food allergy, food intolerance and diet customers can find a suitable offer on your menu?
- What is on your menu for senior balanced diet needs?
- What is on your menu for children's balanced diet needs?
- How rich is the network of cafes and restaurants in the region (outside bigger cities)?

Questions that can help HORECA to evaluate if their food offer is **environment and climate friendly – with low carbon footprint**:

- How far has each product item travelled?
- Which of the products grown further can be replaced by the local offer?
- What food products can be purchased from local farmers?
- What foods could you buy from local farmers but don't currently grow?
- How would it be possible to ensure that the food products used come more from local farmers?
- The production of which food products used has the largest carbon footprint?
- What lower carbon footprint products could replace them?
- What vegetable products could replace at least part of the animal products?
- Which food or leftovers are thrown in the trash the most? By what and how often is it determined?
- What is being done to reduce food waste? What is planned to be done to reduce food waste?
- Are food leftovers sorted separately? How are they managed?
- What do you do with prepared and ready-to-eat food after your place closes?
- How would it be possible to raise the awareness of your customers about the consumption of food that is more friendly to the environment and human health?

How to involve regional HORECA sector

Local authorities can involve HORECA sector businesses and establish dialogue with the representatives of HORECA. Two main issues are crucial for the communication: recognition and profit. Also, it is useful to begin collaboration with understanding the core of their business. It is sensible to use **service design principles** and introduce these concepts to businesses through training sessions.

- Local authorities can offer training, create discussion forums on the topic, organize study trips, and produce educational videos and materials. They can also reward and recognize businesses that have begun implementing circular economy principles by helping with marketing or providing other forms of support.
- On a national level, legal changes can be made to encourage businesses to adopt circular economy principles and create support measures to help fund necessary investments in companies.

Vocational education institutions and centres

Vocational education plays a central role in spreading and promoting the principles of the circular economy, both in municipal educational institutions and in HORECA sector businesses. Students and adults who study culinary arts at vocational education institutions or centres gain knowledge and awareness of the implementation of the circular economy model through their coursework. Thus, vocational education institutions need to understand their role as promoters of the circular economy. To achieve this, it is essential to bring vocational educators together and collaboratively reflect on the importance of circular economy principles. The application of these principles should be integrated into every subject in the vocational education curricula.

Some of the suggestions for vocational education in connection to circularity foodshift:

- Integration of circularity principles and practices in the curricula of vocational education institutions;
- Application of circularity principles and practices in teaching;
- Application of circularity principles and practices during students' internships;
- Providing feedback from kitchens of HORECA sector businesses and municipal educational institutions;
- Ensuring that interns are observing the implementation of circular economy principles in the company and how these learnings are being applied.

Collaboration with vocational education institutions is also beneficial — students can complete internships at food businesses. As part of their internship, they could analyze the company's operational model to assess if circular economy principles are applied, what conditions are in place, and how aware the employees are of these practices. During the analysis, students can prepare proposals for implementing circular foodshift.

In this regard:

- Encourage cooperation between vocational education institutions to share best practices in integrating the circular economy model into curricula;
- Train teachers on circular economy topics;
- Incorporate the application of circular economy principles into everyday teaching practices;
- Introduce a separate section in the internship guidelines that includes an analysis of how circular economy principles are applied in the institution. In addition to the analysis, recommendations should also be made for improving the implementation of the circular economy.

Food service of educational institutions of municipalities

In Estonia, the public sector, including national institutions and local governments, manages educational institutions, hospitals, prisons, and care homes, all of which are involved in catering on a daily basis. Therefore, the public sector plays a significant role in contributing to the reduction of food loss and food waste. The public sector operates based on nationally established requirements and the legal framework in place.

The "Circular FoodShift" project focused on changing the catering management in educational institutions managed by local authorities.

In educational institutions, there are multiple target groups that are not located within the same building. The organization of catering services in educational institutions requires close cooperation between different institutions and among various target groups. It is important to understand that developing the organization of catering services in educational institutions involves coordinating multi-level collaboration. The institutions involved include (this is not a final list, as it depends on the existing operational models of the project partners): educational institutions, parent councils, student representatives, local authorities, companies involved in food production and processing, research institutions, and government agencies. The central target groups within the educational institution are: the institution's management, teachers, financial officers, students, parents, kitchen staff (both in-house kitchen staff and staff from catering service providers), and specialists and procurement officers from local education authorities. As the levels of cooperation are diverse, it is important to carefully consider the management structure.

Circular FoodShift project encourages:

- Management of the catering of educational institutions at the county level, appointing a project manager to a suitable development organization for this purpose.
- Organize a cross-municipal steering group, consisting of representatives from each municipality who are involved in the local management of educational institution catering or the coordination of educational institution operations.

At the county level, the project manager's role is to plan collaborative activities in cooperation with the steering group.

The role of the project manager is to:

- Work in collaboration with the steering group;
- Stay informed about changes at the national level;
- Involve the steering group in providing input for national-level activities;
- Engage various target groups across the county through seminars, workshops, and focus group interviews to gather input;
- Publicize activities more broadly in the media;
- Collaborate with research institutions;
- Collaborate with other development organizations both within the county and across counties that operate in the same field;
- Manage various communication channels (such as email lists, social media, websites, press, etc.);
- Plan development activities and secure funding for them;
- Develop cooperation with foreign countries for the purpose of exchanging experiences and knowledge.
- Organize public engagement events: seminars, conferences;
- Organize recognition events, training sessions, and study trips for target groups;
- Provide sector-specific input for county development documents;
- Serve as the spokesperson and advocate for topics within the sector.

The role of a steering group member is as follows:

- Communicate with target groups on-site to stay continuously informed about their needs and perspectives;
- Gather various local target groups (such as educational institution chefs, procurement specialists from municipalities, financial managers of educational institutions, etc.) and conduct focus group interviews to obtain input for development work;
- Organize meetings for different target groups, such as educational institution chefs or home economics teachers, and create opportunities for participants to exchange experiences with each other;
- Manage communication channels for different target groups (such as email lists, social media, etc.).

Addressing food waste generation and reduction in educational institutions must be managed by the institution. This is underscored by a seminar held in Tartu County on November 23, 2023, which highlighted the importance of chefs feeling like integral team members, and the need for management and teachers to acknowledge the issue, provide honest feedback to kitchen staff, and lead by example as consumers.

To achieve this, the organization should collectively develop the strategy and agreements on measures to reduce food waste. This requires integrating food education into curricula, development documents, and creating and implementing an action plan for promoting food education in collaboration with all target groups.

An example can be given of the activities of a large-scale caterer: Baltic Restaurants Estonia provide catering services at 182 locations in Estonia, including 86 schools and 59 kindergartens. Reducing food waste is a key focus for the company[47]. They participated in an SEI Tallinn study which revealed that Estonian schools and kindergartens waste 1900 tons of food. Of this, 80 % is left on plates and 20 % is excess food prepared in the kitchen.

[47] See: https://www.daily.ee/ee/jatkusuutlikkus/

The following initiatives will help to reduce food waste:

- Menu planning,
- Self-service lines,
- Awareness campaigns targeting the audience,
- Information exchange between the kitchen and school management,
- Satisfaction surveys and sharing feedback with kitchen staff,
- Accurate reporting of absences,
- Ongoing monitoring and feedback.

Baltic Restaurants organizes an annual **Environmental Month** in school canteens in Estonia that involves awareness activities, video lectures, weighing food waste, and inter-school competitions focused on reducing waste. In 2020, the average food waste per child was 27 grams, but by 2023, this had decreased to 18 grams per child.

5. Municipalities as circular foodshift sites

Municipalities matter because they are areas of our daily lives with their own distinct food systems. Thus, municipalities have a crucial role in driving circular food shift transformations, and they **should become the centres of the circular food system**.

Municipalities are smaller scale territories that could therefore enable coordinated actions across circular food sector rather efficiently. Shortening of food supply chains, supporting direct trade initiatives, enabling sustainable choices and ensuring circular food initiatives that serve local community are rather realistic to be done in municipality level. Also, awareness raising about environmental, economic, cultural, and ethical benefits of circular food system can be initiated by municipalities.

Stakeholder engagement and building networks is one of the most efficient initiatives that can be initiated and sustained by municipality:

- Stakeholder networking – regular meetings where representatives of each food system community group can meet on the regular basis, learn from each other, strengthen cooperation and jointly implement various circular food initiatives in the municipality.
- Circular Food partnership could be established as a result of networking and legally strengthened with the aim of ensuring information exchange and cooperation.
- Circular Food Council – a coalition of circular food stakeholders that advocates for more and better local foods, from farm to table and from dock to dish.

There are many different circular food initiatives that have been successfully implemented in many countries around the world and have already started to be implemented in the Baltic region as well. Their main goal is to reduce the amount of food ending up in waste by harmonizing the food waste situation with the needs and priorities of the municipality.

Circular food initiatives are organized by the goal of resource value recovery:

- **Refuse food waste and Rethink food waste:**
  - Food waste audit – regular tracking of type of food, reason for loss, date of loss and amount at your institution and creating recommendations based on its results to the caterers on reducing the most uneaten food products.
- **Reduce food waste:**
  - Zero Waste cooking – a culinary lab where cooking is done in such a way that all the raw materials of fruits and vegetables necessary for cooking are used maximally and in a variety of ways and that there are no leftovers.
  - Food waste reduction workshops – to develop responsible food consumption skills: “How to shop responsibly”, “How to store food smartly”, “How to freeze food thoughtfully”.
- **Reuse food waste:**
  - Community food fridge or pantry – a cupboard or refrigerated shelf in a local neighbourhood where anyone can share food to avoid food waste, either by bringing food to leave in the fridge or by taking food from the fridge to use themselves.
  - Last minute food market – initiative that helps food producers and retail to reduce food waste and sells food suitable for consumption (unsold food left at the end of the day or food with a last-minute expiration date that would otherwise be thrown away) at a reduced price at the end of the day.
  - Food rescue volunteer network – social movement that engages volunteers to transfer fresh food surpluses from local businesses to social service agencies serving the food from landfill.
- **Repurpose food waste**:
  - Food leftover cooking – a culinary lab where cooking is done from food that has been left from previous cooking process or previously cooked and not eaten food. Example: okara-vegetable balls made from soybean pulp (okara) that remains after making soy milk.
  - Disco Soup – a public culinary lab for cooking and enjoying together a meal of fruits and vegetables that, for various, most often visual, reasons, would otherwise be thrown away.
- **Recycle food waste and Recover food waste:**

- Community compost – type of composting in the local neighbourhood, where the organic or bio waste generated in the households (of multi-apartment buildings) is composted and used by the residents themselves.
- Community compost making workshop.

For the **planning and implementation of circular food initiatives in municipalities**, it is important:

- to base the development of the municipality on circular not linear economy,
- to improve municipal waste management system and infrastructure to effectively collect and recycle biological waste,
- to use Green Public Procurement for municipal procurement,
- to create a consistent, predictable, integrated policy (e.g. development strategies, binding regulations, tax incentives) for the implementation of circular initiatives,
- to avoid the systematic influence of vested interests, including the use of fossil fuels,
- to support circular initiatives at the municipal level developing and implementing economic drivers and including environmental impact in cost prices,
- to promote the development of circular business (e.g. support industrial symbiosis, sharing, sharing, repair, recycling and other initiatives),
- to mainstream circular food, sustainable consumption and sustainable lifestyle initiatives, to develop and implement their measurement,
- to ensure the transparency and availability of the resources available in municipality for the purposes of the circular economy and to prevent inequality of power in their use,
- to integrate the knowledge and skills of a healthy lifestyle into the content of formal and informal education both in educational institutions and youth activities.

6. Circular food solutions

The transition to a circular economy, or more specifically, a more efficient return of materials into circulation, requires[48]:

- **innovations**:
  - in technological solutions:
    - the most performed resource value preservation directions R3 – R7 in connection with product recycling,
    - new technological innovations are not always carried out, mostly existing solutions are adapted to the quality requirements of the specific product,
    - radical technological innovations are easier to monitor than incremental ones, because new innovations are more visible than adaptations of the existing system,
  - in product design,
  - in revenue solutions,
- **socio-institutional changes**:
  - to be carried out:
    - in regulatory documents,
    - in the unwritten rules,
    - in habits and beliefs,
  - the greater the degree of circularity in the direction from R9 to R0, the more difficult it is to perform changes in each subsequent degree are more challenging.

The **circular economy in practice** is focused on:

- preservation of resource value,
- increase of material circulation,
- transition from linear resource consumption to zero waste cycles,
- narrowing of product life cycles: local scale and short closed material circulation loops,
- using waste as a resource,
- implementation of circularity-based actions in their lifestyle.

Both innovative solutions and socio-institutional changes are important in implementing change, as both types of change complement each other. Directions for implementing changes:

- **innovations in technology or design**, social-institutional changes play a secondary role, but they help new technologies settle into society, an example is the replacement of disposable plastic straws with others,
- **socio-institutional changes**, innovations in technology or design play a secondary role, an example is the transition to shopping in stores without packaging,
- simultaneous **innovations in technology or design and social-institutional changes**, an example is the transition to sharing economy solutions: carpooling, sharing, etc. c., which requires both new technological solutions (applications, shared resource centres or storages) and changes for consumers to use these solutions.

However, implementing technological innovations requires spending a lot of financial and natural resources. Therefore, promoting public awareness, changing consumption habits and supporting regulatory documents for the introduction of a greater number of sustainable services and products create a wallet- and nature-friendly basis for the transition to a circular economy.

[48] See: Circular economy: Measuring innovation in the product chain, 2017.

Conclusions

Circular food shift is the ambition of this project. We are implementing this project with the aim to strengthen circular economy-based capacity in the field of food, increasing intersectoral cooperation, and creating an orderly and sustainable food region in Latgale, Tartu region and Vilnius region.

Capacity building is crucial to implement the envisioned changes. Thus, we have shaped this capacity building guide that is based on values of circular economy and responsible consumption. We hope that it will promote circular food concepts and practices and support circular food shift helping authorities in rural and peri-urban municipalities to transform food models with more responsible food choices and less food waste at schools, catering and food businesses.

DEFINITIONS

Circular food – food that is produced, distributed, prepared and consumed responsibly with the commitment to return the leftover food resources safely to the circularity cycle while retaining its highest value.

Circular food shift – **transformation of the whole food system** (from agricultural growing and production to food processing, packaging, distribution, preparation, consumption and food waste management) **from linear to circular** where its natural resources are used and reused, nutrients recycled, by-products reduced and what remains is safely recovered or returned to the soil.

Circular food system community – **a network of food and other sector stakeholders** that are collaborating with a common goal to increase circular food solutions, producing food sustainably, using food efficiently, reusing side and waste streams, and preventing food waste.

Food – A processed, partially processed, or unprocessed substance or product intended for human consumption, or reasonably expected to be consumed by humans. The term "food" includes beverages, chewing gum, and any other substances, including water, which are intentionally incorporated into the food during production, preparation, or processing.
Source: Regulation (EC) No 178/2002 of the European Parliament and of the Council.

Food Waste – Food as defined in Article 2 of Regulation (EC) No 178/2002 that has become waste. Food waste includes both food loss and inedible parts of food.
Source: Directive (EU) 2018/851 of the European Parliament and of the Council.

Food Loss – Any food initially intended for human consumption that is removed from the food supply chain or households due to economic or aesthetic reasons, or due to exceeding its expiration date. Food loss includes all food ingredients that could have been consumed if they had been used earlier or preserved or handled differently.
Source: Ministry of the Environment of Estonia. 2021. Food Waste Prevention Plan.

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