

## REDUCING FOOD WASTE: A DOCUMENT ANALYSIS OF EUROPEAN REGULATIONS

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### **Abstract**

*This article provides a comprehensive document analysis of European regulations aimed at reducing food waste. The study examines various policy documents, guidelines, and legal frameworks related to food waste reduction in the European Union (EU) and its member states. The analysis reveals that the EU has taken significant steps to address the issue of food waste, with a range of policies and initiatives aimed at reducing the amount of food that is wasted throughout the food supply chain. The study identifies several key themes that emerge from the analysis, including the need for better measurement and monitoring of food waste, the importance of collaboration and partnerships between stakeholders, and the potential for regulatory frameworks to incentivize more sustainable food practices. Overall, the study suggests that European regulations have an important role to play in reducing food waste, but that a more integrated and holistic approach is needed to address the root causes of the problem. The findings of this research are relevant to policymakers, food industry actors, and other stakeholders interested in promoting more sustainable and efficient food systems.*

**Keywords:** food waste; European Union; sustainability.

**JEL Classification:** Q18, Q56, Q58.

### **1. INTRODUCTION**

Food waste is a pressing global issue that has negative environmental, social, and economic impacts. According to the Food and Agriculture Organization (FAO), approximately one-third of all food produced for human consumption is wasted each year (FAO, 2013). This represents a tremendous loss of resources, including land, water, and energy, as well as greenhouse gas emissions from food decomposition. In Europe, food waste has become a priority issue for policymakers, with the European Union (EU) taking steps to reduce waste and promote sustainable food systems. This article presents a document analysis of

European regulations aimed at reducing food waste, with a focus on prevention, redistribution, and recycling strategies. By examining the current regulatory landscape, we can better understand the challenges and opportunities for achieving a more sustainable food system in Europe.

The effectiveness of these regulations in reducing food waste has been assessed in various studies. A study by Gustavsson, Cederberg and Sonesson (2011) estimated that 89 million tonnes of food are wasted in the EU each year, and that “reducing food waste by 20% could save 48 million tonnes of CO<sub>2</sub> emissions”. Another study by Stenmarck *et al.* (2016) assessed the impact of the EU's waste reduction targets and found that “they had led to a decrease in food waste in some EU countries, but that more action was needed to achieve the targets”.

In the same paper (Stenmarck *et al.*, 2016) it is suggested that producers and consumers are the ones responsible for the “majority of food waste”. Yet, being the ones in the middle between producers and consumers, retailers are the ones with a very important role in the food waste chain (Brancoli, Rousta and Bolton, 2017), some of the reasons why they waste food include “inefficient store operations and replenishment rules, excessive requirements for product quality and standards and demanding customer behaviour” (Teller *et al.*, 2018). However, „studies about the important role of supermarket managers in reducing food waste at the store level are still scarce” (Moser, 2020).

Until recent years, food waste, even though existed, has been neglected given the abundance of food available, especially in Europe. This ignorance has led to „major amounts of waste, mainly at primary production and consumer levels” (Halloran *et al.*, 2014), this leading to the need for improvement in the food waste management sector in recent years.

Awareness of what food loss and food waste is has grown tremendously in the past years and the European Union adopted legislative measures in order to make member states, producers and consumers to adopt more sustainable and environmentally friendly practices. We consider at this point that it is necessary to clarify the meaning of „food waste” and „food loss”. Waste is split into two categories according to its occurrence: loss „occurs before the food reaches the consumer as a result of issues in the production, storage, processing and distribution phases” and food waste „refers to food that is fit for consumption but consciously discarded at the retail or consumption phases” (Harvard School of Public Health, 2023).

We are addressing the food waste issue in the context of the Sustainable Development Goals (United Nations, 2015) taking into consideration especially goal no. 12 „Ensure sustainable consumption and production patterns”. The Sustainable Development Goals set the objective of cutting in half the food waste losses by 2030 (Hagedorn and Wilts, 2019). Although, in order for the countries,

producers and consumers to help achieve this goal, legislative measures must be taken because the law is always the first step toward any effective change.

## **2. RESEARCH METHODOLOGY**

The research design for this study is a qualitative research design. The reason for choosing a qualitative research design is that it is the most appropriate approach for analyzing documents in-depth, which is the primary method of data collection for this study.

**Data Collection:** The primary method of data collection for this study is document analysis. The documents to be analyzed include European Union (EU) regulations and policies related to the food waste phenomenon. We will conduct a thorough search of relevant documents from the EU official websites, academic databases, and other reputable sources.

**Data Analysis:** The data collected through document analysis will be analyzed using a thematic analysis approach. We will read and re-read the documents to identify patterns, themes, and categories related to the food waste phenomenon. The identified themes and categories will be coded and analyzed to provide a comprehensive understanding of the European regulations and policies related to the food waste phenomenon.

**Ethical Considerations:** The study involves the analysis of publicly available documents. Therefore, ethical considerations are not applicable for this study.

## **3. IMPORTANT REGULATIONS**

Reducing food waste is an important issue, and there are several regulations that have been implemented in Europe to address this problem. To conduct a document analysis of European regulations, we considered analyzing the following:

- **EU Waste Framework Directive:** This directive sets out the legal framework for waste management in the European Union, including provisions for the prevention of food waste.
- **EU Platform on Food Losses and Food Waste:** This is a multi-stakeholder platform established by the European Commission to support the EU's efforts to reduce food waste.
- **EU Farm to Fork Strategy:** This is a strategy that aims to create a more sustainable food system in Europe, including measures to reduce food waste.
- **EU Packaging and Packaging Waste Directive:** This directive aims to reduce the environmental impact of packaging, including food packaging.
- **EU Circular Economy Action Plan:** This is a plan that aims to promote a circular economy in Europe, including measures to reduce food waste.

## 4. FINDINGS

### 4.1. The EU Waste Framework Directive

The increase in packaging waste has led the European Commission to develop and adopt Directive 94/62/EC of the European Parliament and of the Council of 20 December 1994 on packaging and packaging waste as amended by Directive 2004/12/EC of the European Parliament and of the Council of 11 February 2004, to help reduce packaging waste (European Commission, 2023a).

The European Directive requires manufacturers/importers to reduce the volume of packaging waste. In practice, it gives companies the opportunity to optimize their own technological processes, reduce the cost of the material needed to make packaging and save the funds needed to dispose of packaging waste.

Within the European Union, the following issues are regulated: Food labeling is intended to provide information to consumers about their content and composition. Labels facilitate the documented decision of buyers when purchasing a specific product. They are considered components of the packaging.

Food packaging and guarantee product traceability as well as identification of components used throughout the manufacturing, processing and delivery stages.

Recycling of packaging materials after use. There are various strategies to improve the chances of re-use. Packaging designers need to focus on creating packaging from which components can be easily separated in the future. The above-mentioned European Directive specifies that manufacturers/importers may apply an appropriate labeling and identification system on their packaging.

The European Directive has 3 main objectives (European Commission, 2023b): First, it is possible to prevent the generation of packaging waste by reducing its quantity, by imposing restrictions on excessive packaging and by promoting reusable and rechargeable packaging solutions. Secondly, high-quality recycling (in a "closed loop") can be incentivised by enabling all packaging on the EU market to become economically viable by 2030. And finally, it can reduce the need for primary natural resources and create a functional market for secondary raw materials, increasing the use of recycled plastics in packaging through binding targets.

### 4.2. EU Platform on Food Losses and Food Waste

The platform was established in 2016, bringing together all EU Member States and all actors in the food chain, with the aim of helping to define the measures needed to meet the sustainable development goals related to food waste, to exchange best practices and communicate the results achieved (European Commission, 2016).

An important element is that the platform promotes cross-sectoral cooperation and the exchange of good practices and results. The EU Food loss and

Food waste Platform aims to help all actors in the field redefine a food value chain where food waste is minimized and the added value of food produced is maximized, thus facilitating the transition to a circular economy and to more sustainable food systems.

As regards the composition of the platform, the Commission wanted to ensure not only a high level of competence but also a balanced representation of knowledge and areas of interest in the food value chain, taking into account its mandate and future areas of activity. The platform has a total of 70 members of these, 33 represent public entities – EU Member States, EFTA countries, EU bodies (Committee of the Regions, European Economic and Social Committee) and international organizations (OECD, Food and Agriculture Organisation (FAO) and UN Environment Program (UNEP)), and 37 represent the private sector, the latter were selected following a public call for applications.

Exchanges and dialog are also foreseen with organizations not represented in the Platform, through networks and advisory tools, meetings and public conferences. At the meetings of the Platform or its sub-groups, the Commission may invite other organizations on an ad hoc basis to provide additional competences in specific thematic areas. The Commission shall regularly publish information on the work of the Platform on its website and intend to transmit the meetings of the Platform on the Internet to extend its reach.

#### **4.3. The Farm to Fork Strategy**

Climate change and the reduction of biological diversity are imminent and lasting risks to food safety and sources of existence. The Farm to Fork strategy was launched by the European Commission to revolutionize the EU's agricultural system. The new strategy sets out the main directions in the EU's agricultural and food sector, by improving agricultural practices and a new food policy integrated into the full supply chain, in order to minimize environmental impact. a strategy for biodiversity conservation and farm-to-table strategy (European Commission, 2023).

The Biodiversity Agenda aims to tackle the main factors leading to biodiversity loss, such as unsustainable use of soil and water resources, overexploitation of natural resources, pollution and invasion of foreign species. The new EU policy aims to set binding targets for restoring destroyed ecosystems, improving habitats and protecting EU species, increasing the number of pollinators in agricultural land, reducing pollution, affording cities, promoting organic farms and improving the health of European forests.

The main goal is to convert at least 30% of Europe's land and waters into adequate protected areas and to fully restore biodiversity on at least 10% of the agricultural area. Another direction of the EU plan, the Farm to Fork strategy, aims to create a circular economy by minimizing waste by introducing biodegradable and/or recyclable products into production and marketing, 20



together with measures for transport, storage, packaging and food waste management.

The strategy also aims to encourage responsible food consumption and promote healthy food. With the introduction of new labeling rules, buyers in Europe will be informed about the provenance of food, its nutritional content and its environmental impact.

Therefore, this strategy aims to ensure that the entire process of the food chain, including production, transport, distribution, marketing and consumption of food, has a neutral or positive impact on the environment. The aim can be achieved by conserving and restoring land, freshwater and marine resources, which are essential to the food system; contributing to the mitigation and adaptation of climate change effects; protecting the health and well-being of land, soil, water, air, plants and animals; reverse the loss of biodiversity.

#### **4.4. The EU Circular Economy Action Plan**

According to the EU Circular Economy Action Plan, the transition to a more circular economy, where the value of products, materials and resources in the economy is maintained for as long as possible and waste generation minimized, is a crucial contribution to the EU's efforts to develop a sustainable economy, resource-efficient and competitive, low-carbon. This transition represents an opportunity to transform our economy and generate new and sustainable competitive advantages in Europe.

A circular economy will enhance the EU's competitiveness by protecting businesses from resource scarcity and price fluctuations, thereby contributing to new business opportunities and developing innovative and more efficient production and consumption modes (Mazur-Wierzbicka, 2021). It will generate new local jobs for all skill levels and provide opportunities for social integration and cohesion. At the same time, the circular economy will reduce energy consumption and help avoid irreversible damage to climate and biodiversity, as well as reduce air, soil and water pollution, which is caused by the exploitation of resources at a rate that exceeds the Earth's ability to renew them.

The strategy focuses on actions at EU level with significant added value. However, to make the circular economy a reality, long-term involvement at all levels is needed, from national governments, regions and cities to companies and citizens. Member States are encouraged to fully fulfill their role in the EU strategy by integrating and supplementing it with national measures. In addition, the circular economy needs to develop globally. Increased coherence in the EU's internal and external policy in this area will lead to mutual consolidation and will be essential for the implementation of the global commitments undertaken by the Union and the EU Member States, in particular the UN 2030 Agenda for Sustainable Development, And the G7 Alliance on Resource efficiency. This strategy will play a crucial role in achieving the Sustainable Development goals

(SDG) by 2030, in particular target 12 to promote sustainable consumption and production models.

Attention is focused on areas that use the most resources and have a high potential for circularity, thus concrete actions are proposed on:

- electronic devices and information and communication technology - the "Circular Economy Initiative in the electronics sector" to produce devices with a longer lifespan and to improve waste collection and treatment;
- batteries and vehicles – a new regulatory framework for batteries to improve durability and boost the circularity potential of batteries;
- packaging – the new conditions imposed on what is admitted to the European Union market, including the reduction of (overabundant) containers;
- plastics – the mandatory requirements for the content of recycled materials in plastics have been updated, with particular attention paid to both microplastics and bio-based and biodegradable plastics;
- textiles – a new EU strategy for the textile industry to strengthen competitiveness and innovation in this area and to encourage the EU market for textile recycling;
- construction and buildings – a global approach to a sustainable built environment that encourages circularity principles in the case the buildings;
- food – a new legislative initiative on re-use to replace packaging, utensils and disposable tableware with reusable food services products.

#### **4.5. National regulations in Romania**

*The Government Decision no. 856/2002 regarding the record of waste management and for the approval of the list including waste, including hazardous waste*

According to the ruling, companies producing waste are required to keep records of their management for each type of waste (Romanian Government, 2002). Entities authorized to collect, transport, temporarily store, recover, and dispose of waste, these companies must maintain records only for waste generated within their own activities. The annual centralized data on waste management is transmitted to local public authorities for environmental protection at their request. The reporting of the records of waste management collected, transported, temporarily stored, recovered, and disposed of is carried out by the authorized companies at the request of local public authorities for environmental protection or other central and local public administration authorities that have duties and responsibilities in the field of waste regime. In order to collect national data on waste management, the central public authority for environmental protection organizes together with local public authorities for environmental protection and other coordinated institutions the annual statistical reporting in this field.\

*The Emergency Government Ordinance no. 92/2021 regarding the waste regime*

The purpose of this emergency ordinance (Romanian Government, 2021) is to guarantee a high level of protection of the environment and of the health of the population by implementing the following measures: a) prevention and reduction of waste generation, as well as their efficient management; b) mitigation of the negative effects caused by the generation and management of waste; c) reducing the overall effects of resource use and increasing their efficiency, which are essential to ensure the transition to a circular economy and to ensure long-term competitiveness.

*Law no. 217/2016 regarding diminishing food waste*

Authorities around the world are looking for solutions to mitigate food waste, through educational programs that encourage public accountability, and through legal provisions that reward good behavior (for example, by providing tax credits for donated products) or impose rules on food management. In Romania, Law 217/2016 on the reduction of food waste was adopted (Romanian Parliament, 2016), which establishes a series of obligations for economic operators in the food sector. These include the development of an annual plan to reduce food waste, internal communication with employees on the subject, adaptation of production to market demand and ensuring traceability, crop planning according to the market, education and information on the prevention of waste of agri-food products, quantification of food waste and measures to redistribute/use surplus.

From a fiscal perspective, legal support (in the form of products) allows cost recovery through tax credit and appears to be a solution used in other countries to reduce food waste. The Fiscal Code also offers the possibility to decrease the costs generated by the disposal of goods with a near-expiration or no longer consumable term, if they comply with the provisions of the food waste law and/or are transferred for re-entry into the circuit, for conversion into compost or biogas.

In conclusion, limiting food waste is a legally regulated obligation, but by preparing a plan of measures that includes tracking the expiry date of the products, reducing the sale price before expiry, sponsoring the products or transmitting them for use in obtaining compost or biogas, economic operators may also obtain favorable tax treatment.

## **5. CONCLUSIONS**

In the conclusions section, we are going to highlight to most important things included in the legislation analyzed in order to have a clear understanding of the matter studied.

EU Waste Framework Directive: This directive provides a legal framework for waste management in the EU and includes provisions for the prevention of food waste. Key findings include the need for member states to adopt measures to prevent food waste, the establishment of food waste reduction targets, and the encouragement of food donation and other forms of food waste reduction.



**EU Platform on Food Losses and Food Waste:** This platform brings together stakeholders from across the EU to support efforts to reduce food waste. Key findings include the importance of collaboration between different actors in the food supply chain, the need for improved data collection and sharing, and the promotion of best practices for food waste reduction.

**EU Farm to Fork Strategy:** This strategy aims to create a more sustainable food system in Europe, including measures to reduce food waste. Key findings include the importance of addressing food waste as part of a broader sustainability agenda, the need for better coordination between different policy areas, and the promotion of circular economy principles to reduce waste throughout the food supply chain.

**EU Packaging and Packaging Waste Directive:** This directive aims to reduce the environmental impact of packaging, including food packaging. Key findings include the importance of designing packaging for recyclability, the promotion of reuse and refill systems, and the need to reduce unnecessary packaging.

**EU Circular Economy Action Plan:** This plan aims to promote a circular economy in Europe, including measures to reduce food waste. Key findings include the need for better product design to reduce waste, the importance of promoting more sustainable consumption patterns, and the need for better waste management systems to ensure that resources are reused and recycled as much as possible.

Overall, the most important finding from these regulations is the recognition that reducing food waste is a crucial part of creating a more sustainable food system. While the specific measures and approaches may differ between different regulations, there is a common focus on preventing waste throughout the food supply chain, promoting circular economy principles, and encouraging collaboration between different actors. This highlights the need for a holistic and coordinated approach to reducing food waste in Europe, involving all stakeholders and policy areas.

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