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### Theoretical issues on food waste in Romania and the European Union

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**Abstract:** *The agricultural value chain, from farm to fork, has a critical role to play in achieving the United Nations Global Challenges Goals. Due to its diverse forms along the entire food value chain, food waste has become a global issue that requires immediate action. However, food waste management has traditionally been segmented and isolated. This paper studies the issue of food waste management from the specialized literature, the identification of the main causes that generate food waste and food waste prevention activities. The findings suggest that the main sources of food waste include the production overproduction and surplus food, processing errors, logistical inconsistencies and households. The main strategies to prevent food waste include policy solutions, packaging solutions, data labelling solutions, logistics solutions, consumer behaviour change and reuse and redistribution solutions.*

#### • Introduction

Losses along the entire food chain are about the same in most countries. However, they often differ at different stages of processing in the food industry. While in richer countries almost half of the food is thrown away by the final consumer, in poorer countries food waste is reduced because people value food. In these regions, unfortunately, losses during harvesting, storage or processing are higher due to inefficient and outdated technologies or faulty know-how.

1.3 billion tons of food is thrown away which represents 940 billion dollars annually. Furthermore, 10% of all greenhouse gases come from processed but uneaten food, according to the United Nations Environment Programme.

In the European Union, it is estimated that 20% of food is thrown in the trash, while 43 million Europeans cannot afford an adequate meal every day, internal data from ANSVSA show, and in Romania approximately 6000 tons of food are wasted, which it means that in a year Romanians waste 2.2 -2.5 million tons of food. The amount/capita is enormous – 129 kg of food, that is, one meal/day shows the sources collected by the European Union and the United Nations.

Food waste is any food and/or inedible parts lost or wasted in the food chains that need to be recovered or disposed of (by composting, anaerobic digestion, bioenergy production, incineration or storage of organic waste). The term "food waste" doesn't always mean the same thing, however here, food waste refers to any product or part of a product grown, captured or processed for human consumption, which could have been consumed if it had been handled or stored under different conditions. Food waste refers to any food and inedible parts of food that are removed from the food chain for recovery or disposal (including composting, arable/non-harvested crops, anaerobic degradation, bioenergy production, cogeneration, incineration, disposal in sewage system, landfills or back to sea (Herzberg et al., 2020).

Food waste is a recognised problem that has gained increasing political and social importance in recent years. Numerous high-level political statements over the last decade have underlined the need to combat this phenomenon. Food waste is generated along the whole food chain, i.e. at the production, processing, marketing and consumption stages. Food waste can be defined in many different ways and there is no single methodology to measure this phenomenon. However, it is generally recognised that, globally, around a third of food produced for human consumption is wasted or lost. The United Nations estimates that the annual global economic and environmental costs associated with this phenomenon amount to approximately USD 1.7 trillion (FAO, 2021).

#### • Material and method

The topic addressed in this paper has been analysed and studied on the basis of sources and information from literature based on European Union policies and strategies on new approaches to food security in the current context of initiating measures to combat and reduce all forms of food waste and measures to recover food processing by-products - these being one of the sources generating food waste.

#### • Results and discussions

In a world where more than 820 million people face hunger and 2.3 billion people lack access to adequate, quality and sufficient food, human food security and safety is increasingly becoming a societal issue. The problem of food wastage affects all regions of the world and as a result requires integrated global solutions (Zmieńka and Staniszewski, 2020). Reducing food waste (FW) leads to more efficient land use, better management of water, energy and labour resources with positive effects for the entire agrifood sector worldwide, contributing to the fight against undernutrition (Farcas et al., 2021).

Reducing food waste is one way to contribute to the sustainability of the food system (Gkoutani and Tsoulfas, 2021), and the circular economy (Adelodun et al., 2021) requires improved local production that promotes sustainable production and consumption. As a result, to counter risks in the food system and mitigate food losses and wastage FAO has made a number of recommendations such as: proper management of existing surplus production within the FSC (Food Supply Chain), creation of strategic food reserves; increasing local production and managing its quality (FAO, IFAD, UNICEF, 2021).

Food waste is a problem that occurs throughout the food chain and therefore measures should target all parts of the food chain, with potential benefits for all parties involved. Emphasis should be placed on prevention, as the benefits of avoiding wastage are greater than the benefits of subsequent solutions. Although there are a number of EU policies that can help combat food waste, this potential is not exploited and the opportunities offered have not yet been exploited. In particular, a lack of impact assessments of different EU policies on the fight against food waste was noted.

#### • Conclusions

Enormous amounts of food are wasted every day in the EU, contributing to the loss of important resources such as water, soil and energy. Food wastage increases food insecurity and is a major contributor to the global problems of climate change, pollution and reduced biodiversity, making it important to prevent and reduce it.

In conclusion, we have known for many years that waste and food loss are a huge problem that cannot be ignored and in turn could reduce the impact of food systems on nature and climate. The presentation of data on the extent of food waste has a key role, being responsible for up to 10% of global greenhouse gas emissions.

Food waste is a global problem that has risen up the public and political agenda in recent years. The importance of this issue will continue to grow, especially given the need to feed a growing world population. Food is a precious commodity and its production can require significant resources. Current estimates indicate that, globally, around a third of food produced for human consumption is wasted or lost, leading to significant economic and environmental costs.