

RECYCLING FOOD WASTE

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Abstract

The unprecedented quantity of waste supply of global supply chains draws the attention of more strongly on it, because of the impact on the environment, social and economic. All the specialists in the field of waste-food analyses the limits of food and feed the excess waste, waste supply avoidable costs and unavoidable, as well as the modes for the prevention and management of packaging waste of food. This study suggests that the first step toward a more sustainable settlement of the matter concerning the waste of food is the adoption of an approach to the sustainable production and consumption and the approach of the excess of waste in the food chain and global food supply. We will examine the factors which generate waste supply within the framework of the food supply chain and propose a framework to identify and prioritize the most suitable options for waste prevention and management. The proposed framework interprets and applies the hierarchy of waste in the context of the waste-food. It considers the three dimensions of sustainability (environmental, economic and social), providing a more comprehensive approach in an approach to waste-food. The hierarchy of waste proposes that prevention, by minimizing the excess food and waste-food that can be avoided, be the best and attractive option. The second option would be the distribution of food to the groups affected by the poverty of food, followed by the third option that would be the conversion of waste-food in the food for animals. Although the hierarchy proposed by the management of the waste-food requires a fundamental reassessment of practices and existing systems, this has the potential to provide substantial benefits from an ecological point of view, the social and economic.

Key words: recycling, food, surplus, waste hierarchy, environment impact, ecologic, economic

INTRODUCTION

Approximately 88 million tonnes of food are wasted annually in the EU, costs being estimated at 143 billion euros (FUSIONS, 2016). The loss of food is not only a matter of ethics and economic, but also deplete the environment with natural resources are limited. All the actors in the food chain have an important role in the prevention and reduction of waste, from those who produce and process foodstuffs (farmers, food producers and processors) to those who make food available for consumption (Hospitality Sector, retailers) itself.

The objective of the centre of the EU policy on food safety is to protect both the health of humans and animals. (10) We do not compromise these standards, but, in cooperation with Member States and interested parties, looking for any opportunity to prevent waste of food and in order to strengthen the sustainability of food system. The problem of waste is a hot topic both for industry, as well as for the mass-media. However, in spite of the debate continue, it seems to me that there is a significant difference

between the action to be taken by the manufacturers, distributors, retailers and households and what they do in fact.(Papargyropoulou, E. et al, 2014)

This does not mean that all organizations related to the food rejected the role it plays. Indeed, many companies, large and small, work hard to trace the lines of waste and to keep more valuable resources of food. (Lundie, S., Gregory M.P., 2005) And when certain levels of waste cannot be avoided, such undertakings shall think carefully to the principles of the waste hierarchy, in order to determine the next best option for operating surplus food. (Featherstone P., 2014)

However, the efforts of the industry are fragmented, although it should be noted that this surplus food is not always the fault of the manufacturer. Factors such as consumer behaviour and initiatives of the government, and seemingly contradictory also have the role to play. (Aschemann-Witzel, J., et al 2015) However, as long as there are approaches and attitudes disproportionate to the waste supply, it will pass some time before to recognize the real progress.

MATERIAL AND METHOD

The world population growth, the decrease of resources, and the environmental impact of the current model force agri-food industry to consider a change towards a more productive system. The figures evidence the extent of the challenge. Every year around 1.3 billion tonnes of food are wasted across the globe, which means about 650 million dollars in terms of production costs and consumption of natural resources, according to FAO.

In the strategy it was found that, in each year at least 90 million tonnes of food are wasted on the whole Community. To put this in perspective, it has been found that if 15 million tonnes of waste supply from Great Britain threw himself on the year this represents a financial loss for at least 5 billion pounds per year. (8) Also, the carbon impact of waste supply at world level is equivalent to twice the global emissions of gases with greenhouse effect of all road transport in the USA. (9)

Fortunately, the U.E. report does not only revealed shocking statistics, as often happens with research in the industry but also gave a few suggestions valid for what will he do in the near future: communication on the scale of such information and suggested better governments to support the efforts of the industry.

We cannot forget, after all, all the more pressing target to reduce to half of the edible food waste until 2020 and the ultimate objective of the European Union for the disposal of waste in the supply of waste deposits.

The European Commission addresses the serious problem of combating waste-food. The reduction of waste supply has an enormous potential of reduction of the resources that we use to produce foods they act.

It would be much more effective for us, men, to save money on food consumption and thus to reduce the environmental impact of both production and consumption of food.

Preventing the occurrence of waste-food is an integral part of the new concept of circular economy, which will stimulate the global competitiveness, sustainable development and create new jobs.(Griffin, M., et al 2009) The EU with all the Member States undertake to meet the objectives of sustainable development (SDG), adopted in September 2015, which include the reduction to half of food consumption per capita both at the retail level of trade and in the interests of consumers and by 2030 the reduction of losses supply both along the production and supply of food.

Ellen McArthur Foundation, an organisation born to accelerate the transition towards the circular economy, defines this model as a system that preserves natural resources and reduces environmental risks by keeping materials and products at their highest utility during the whole production process, from the farm to the consumer. The first step is improving farming practises, for instance, by using organic fertiliser and making storage and packaging more efficient. Then, the manufacturing process must be optimised in order to reduce food loss and resources waste. Food Drink Europe shows how some examples of this optimisation could be redistributing non-sellable products, using by-products as animal feed and turning waste into fertiliser. But consumers also play an important role on the way towards circular economy. Their motivation and conviction in re-using and regenerating are essential to the change.

Aware of that, the EU has built its own action plan to prevent food waste. A package of measures that is expected to boost competitiveness, promote sustainable growth and create new jobs. They have created the platform on Food Losses and Food Waste involving both Member States and stakeholders from the food value chain, to improve the cooperation and value sharing.

RESULTS AND DISCUSSIONS

Every year, over 2.2 million tonnes of food are to be disposed of at the cart only in Romania, our country is so prepare surveys, on the place of the new at European level. The European Commission has shown that, on average, a European citizen glanced at 179 kilograms of food every year. A Romanian throw garbage annually at about 129 kilograms of food, while 4,74 million of our fellow Romanians live at the limit of its poverty. The sociologists shall bring the phenomenon of wasteful consumption and on account of the „communist heritage”.

At the same time, it is found that the man row is the largest wasteful - 49%, then those in the food industry - 37% - 7% of the retail sector, catering - 5%, respectively in the agricultural sector - 2% apparent from the data provided by the representatives of the Ministry of Agriculture and Rural Development (MADR). It is found that the food wastage is a phenomenon often encountered in town residents because only to block the food is not to be used by anyone else!

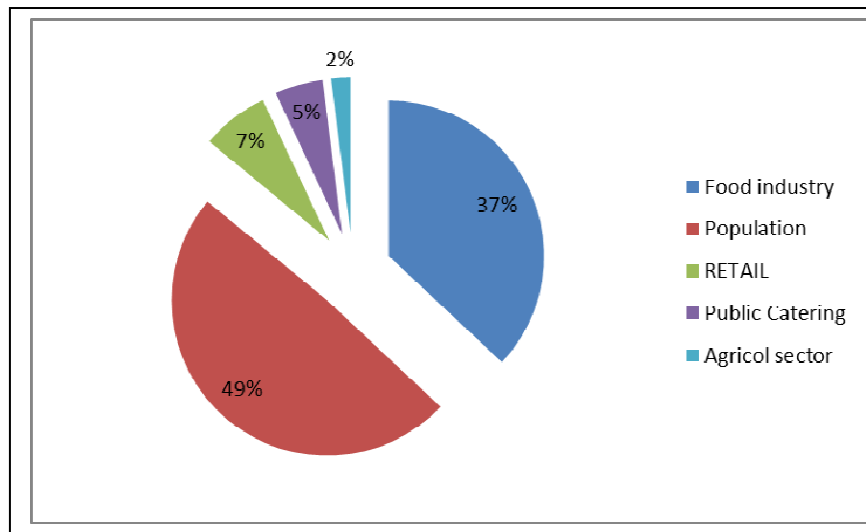


Fig. 1 Waste of food in different sectors

Food waste is carried out in 5 stages:

- Agriculture
- Power Consumption
- Post-harvest
- Processing
- The timing.

The Romanians claim that the main reasons which are to throw the food in the waste bin are rapid degradation (26%), an estimate of the misuse of the quantity of foods that are consumed at a table (21%), but also the shopping in excess (14%), shows a survey conducted by InfoCons grids and Trade Association in Romania (A.M.R.C.R.).

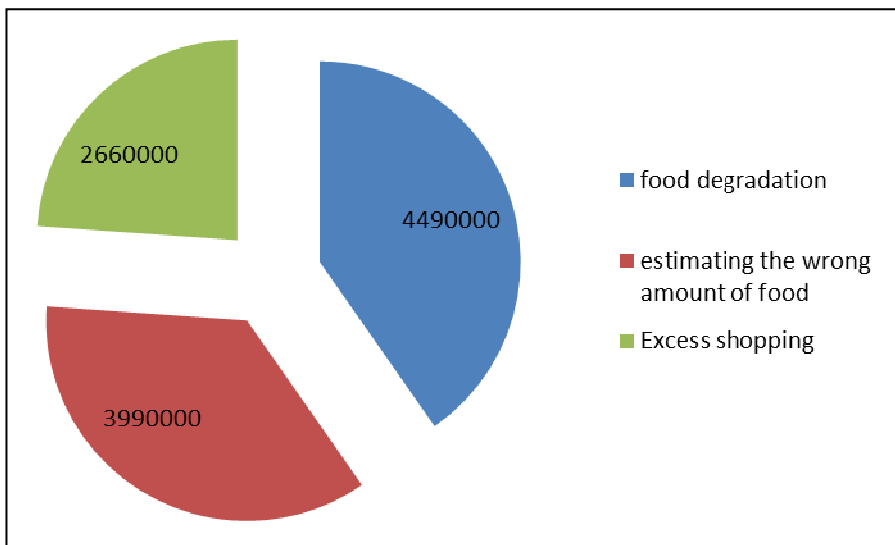


Fig.2 The main reasons of food waste

The foods that come most often at the landfill are cooked dishes (25%), bread or bakery products (21%), vegetables (19%) and the fruit (16%).

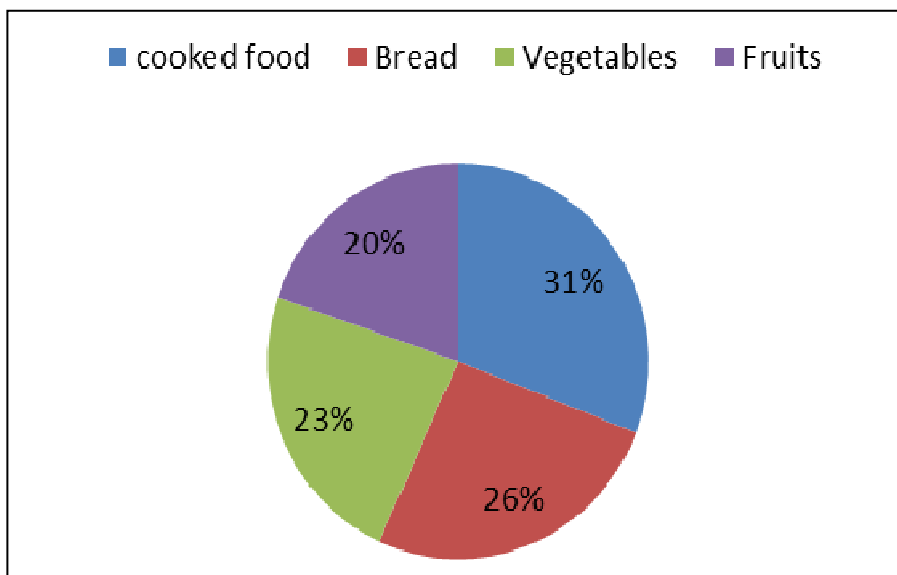


Fig. 3 Food surpluses and waste framework

In accordance with the principles of the waste hierarchy - a program of priority to encourage the use of the most appropriate resources - best effort should be made when trying to reduce the level of surplus food. Supply prevention of waste at source means that are retained valuable

materials that are avoided and costly exercises for waste management. In the case of the production of food, measures must be taken in order to assess the main cause of "waste", either due to human error, either a technological errors. Currently there are technologies that monitor the production processes in which creates a surplus of food that is weighed food stored in different containers along a line of production, almost in real time and forward highly efficient system management information.

If the operators may introduce additional elements of detail, such as the source of the waste, the computerized analysis will help then the manufacturer for processing such data and create reports according to certain machines or production lines and period of time. Of course, there may still unavoidable by products and a proportion of materials which may not be placed on the market for human consumption due to the tests. However, monitoring of investigation described above allows to producers of food to determine clearly the place in which it is produced "waste", instead of being based on assumptions or not to reveal a fault in the first place.

The management, effort and money can then be invested carefully to improve production processes, in order to avoid errors of food production, overheating of the machinery, incorrect weights and dimensions of the finished product, etc., which would lead to the creation of „waste”.

Food that is rich in starch, for example biscuits, bread, chips, cakes, confectionery products and cereals for breakfast, may be recovered, reprocessed and converted into high-quality ingredients for use in animal nutrition. This process shall be subject to the legislation of strict quality control mechanisms, but in essence preserves valuable nutrients. Mixed to match the specific requirements of farmers, such compound improves the quality of animal products they consume subsequently, thus closing the loop the food chain.

Composting energy recovery should receive a lot of attention in mass-media, so that not all producers as there are an alternate option for operating surplus food. In addition, the Government shall provide incentives to support projects of anaerobic digestion (AD), which often wrongly promotes the achievement of this option, rather than a hierarchical path more compatible. (M.El-Mashad H., Zhang, R. 2010)

AD - in essence, natural breakdown in four steps of the organic matter - has a key role to play. Create methane, which has the potential to be used as fuel for motor vehicles; and/or biogas can be burned to produce heat and electricity; Digested which can be used as a fertilizer and water. But they should be considered an option only when all the opportunities prior in hierarchy have been exhausted. In fact, it is a little better than the elimination, what it is absolutely the last solution.

This approach only concerns the attempt to obtain a key philosophy for any production environment. When managing a small amount of waste, manufacturers is faced with a range of options should be prescribed in the „waste hierarchy”. In the case in which the amount of food in surplus cannot be prevented or reduced and the material is not suitable for reuse, recycling should be the next step, composting with energy recovery next step and even last disposal.

Of course there are methods of recovery in terms of safety, waste of food, so that they do not become waste.

CONCLUSIONS

To ensure that the national programs for the prevention of waste are informed by solid evidence and supporting the exchange of information on innovation and best practices, the strategy should increase and improve the quantification of waste supply levels. The revised proposal on legislation in the field of waste requires the Member States to take steps to reduce the waste-food at each stage of the food supply chain, to monitor the levels of waste and to report on the progress made.

The Commission shall examine, in close cooperation with industry, consumers and other NGOS, experts in the food sector and experts in the field of the policies of the Member States as to reduce waste of food without compromising food safety and discuss the options for possible actions of the strategy

The immediate objectives for the reduction of waste and economic challenges continue on producers and food retailers have put in the foreground managing the excess charge of food. The accent was certainly stressed, because the supply organizations shall endeavour to reduce the impact of the prohibitive from the point of view of the cost and the environmental impact of what is often evitable proves creation of "waste".

Now we need the industry to recognize and reproduce efforts made by some of them, in the case where the sector has won the impetus necessary to combat the global challenge waste-food.

It is very clear that it is necessary for the support of the State (by law, rather than otherwise) to limit the effects of catastrophic failure of wasteful consumption power, but it is clear that to involve the Member really, the first responsibility is ours, the first actions should be taken by each of us, the first change must go inside the us. Not even we must be too intelligent, too ingenious, let too. You only need to begin to permit to emphasize. The rest will come on. To learn how to buy how, we need to know how to make a list and to follow in the shop, to know to cook as eating, to know how to deposit correctly and preserve the best methods, to know how to transform dinner remnants of yesterday in the breakfast today,

and, in particular, to know what I have to do with the food I couldn't eat it yesterday and he knew he wouldn't eat you today, so that she would not be wasted.

The amount of food we throw away is a waste of resources. Just think about all the energy, water and packaging used in food production, transportation and storage. This all goes to waste when we throw away perfectly good food.

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