STUDIES AND THEORETICAL ASPECTS REGARDING THE MANAGEMENT OF NATURAL RESOURCES CONSERVATION

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Abstract: *The theoretical aspects of this paper aim at information and current sources on the complex issue of the natural resources conservation management and the imbalances between man and the environment. The current economic policies and objectives of waste management have been studied and highlights the activities to support the concept of recycling, reuse and composting. The high consumption of resources has generated, besides benefits and added value, economic, technical and social difficulties and constraints on the occurrence of waste.*

Production and consumption, fundamental elements of human civilization, are the main sources of waste, generated both by the production process and the end of the life cycle of each product.

Key words*: management, conservation, natural resources, waste*

INTRODUCTION

A considerable amount of waste generated is biodegradable waste, food waste or kitchen waste from private households, restaurants, catering companies or retail outlets, compatible with waste from food processing establishments. Their storage has negative effects on human health and the environment (methane emissions, greenhouse gases and contributes to global warming). Therefore, a series of measures are needed on the recovery and reuse of waste as much as possible in the form of a diagram that highlights and aims to reduce substantially the amount of biodegradable waste stored.

Politics and markets affect the availability of food and so does waste. In fact, waste may be the single most important area that can be addressed with relative ease. It accounts for losses exceeding 1 billion metric tons each year. Every year, consumers in rich countries waste almost as much food (222 million tons) as the entire net food production of sub-Saharan Africa (230 million tons) [9]. On average, 30–40 percent of all food is wasted before it reaches peoples' stomachs [4]. In wealthier countries much of the losses occur at the retail and consumer levels while in poor countries this is due to poor post-harvest technologies including processing, storage, and preservation. Reports note that in the UK, approximately one-third of all food purchased is not eaten [6]. The U.S., with more than 14 percent of its population classified as food insecure [1]. According to the US Environmental Protection Agency, food waste accounts for nearly 13% of municipal solid waste in the United States [2].

When we discuss the impact of food production on the environment, it is important to use a holistic approach to the whole system. For example, it is not enough to reduce emissions from an agricultural processing plant if this leads to higher consumption of raw materials, the direct consequence of which is the emissions increase in agriculture. As the food chain is complex, the environmental impact can occur in several places, and at different times, even for only one food product. Life Cycle Assessment (LCA) provides a way of assessing the environmental impact of a product, process or activity over its entire life [2].

MATERIALS AND METHODS

The concept of waste management refers to the activities of identifying, collecting, transporting, sorting, treating, capitalizing and storing waste, as well as tracking the premises for storing them as they pose real dangers to human health. Contemporary waste management, implemented as a global trend, has several important directions: improving and protecting human health, protecting the environment and conserving the natural resources of the Terra.

The methodology approached in this paper consisted of a set of information, studies and theoretical and synthesis analysed on this topic, effective administration and integrated management of environmental resources conservation.

RESEARCH RESULTS

The European Commission's roadmap requires "a combined effort from farmers, food industry, retailers and consumers through resource-efficient production techniques, sustainable food options." The European objective is clear: halving the amount of food disposed of as waste in the EU by 2020. Some Members of the European Parliament have set 2013 as the "European Year Against Food Waste" [Agenția Europeană de Mediu, 2012]. The food and food waste sectors are among the key areas highlighted by the European Commission's "Roadmap to an Effective Europe in Resource Plan" in September 2011. While it is widely recognized that we eliminate some of the food we produce as waste, It is quite difficult to make a precise estimate. The European Commission calculates that in the EU alone, 90 million tonnes of food or 180 kg per person are disposed of as waste every year. Most of these foods are still suitable for human consumption.

Figure 1. Principles of integrated waste management

Reduce - to avoid or minimize waste
Reuse - Use of objects to delay entry into the waste stream
Recycle - reprocessing materials into new raw materials and products
Energy recovery - recovery from waste
Storage - to a high standard of performance in the field of protection environment

Analyzing various technologies of the food industry, can determine quantities of waste generated during the phases of the technological process. Can be calculated specific waste index (I_{SW}) [3]. Table 1 lists the main wastes in various branches of the food industry as well as the values of the specific waste index.

Table 1.

Wastes from different branches of the food industry [7,8]

Technology	Waste	I_{SW}
Cereals processing	bran	0.11 – 0.18
	grains, seed, husk, chaff	<0.01
	dust, straw, chaff	<0.01
	ergot	<0.01
	oats refusals with bran and chaff	0.39
	brown rice waste	0.11
	rice bran	0.11 – 0.18
	rice flour	<0.01
	sprouted malt	0.038
	malt powder	<0.01
	waste from the grain separator	0.01 – 0.04
Technology noodles	dough remnants	0.0012 – 0.0014
	eggs shells	0.02 – 0.08
Potato processing	potato pell	0.3 – 0.5
Roasting coffee	coffee bean shells	0.02 – 0.04
Extracting sugar	molasses	0.191
	beet noodle (postextraction)	0.517
	beet leaves	0.136
	carbonation sludge	0.427
Dairy products	whey	4.0- 11.3
	cheese residues	0.01 – 0.04
	milk residues	0.04
Meat industry	shambles waste	0.1 – 0.87
Eggs products	eggs shells	0.03 – 0.12
Beer industry	malt powder	<0.001
	exhausted grains	0.192
	sharps of beans	0.024
	yeast	0.024
	kieselgur sludge	0.001
Wine industry	marc	0.136 – 0.145
	sediment clarification	0.015 – 0.050
	yeast sediment	0.03 – 00.45

Table 2 shows the specific characteristics of waste water from different branches of the food industry. These waste waters are the most common waste typical of the food industry.

Table 2.

The composition of waste water from various sectors of the food industry [5].

Industry sector	The concentration of the pollutant [mg/L]			
	BCO_5	TSS	Protein	Fats
Dairy products	1000 - 4000	1000 - 2000	6 - 82	30 - 100
Fish products	500 - 2500	100 - 800	300 - 1800	100 – 800
Meat	1000 - 6500	100 - 1500	350 - 950	15 – 600
Poultry products	200 - 1500	75 - 1100	300 - 650	100 – 400
Vegetables	1000 -6800	100 -4000	-	-
Fruits	1200 - 4200	2500 – 6700	-	-
Urban	100 - 300	100 - 500	150 - 530	0 - 40

BCO_5 – Biochemical oxygen demand a 5 days

TSS - Total solide suspensions

CONCLUSIONS

Efficient waste management as a premise a sustainable development, involves important issues on the neutralization of waste and residues or their capitalization. However, they must be clarified both cost constraints and economic restrictions.

The objective pursued in the management of the conservation of natural resources lies in maximize conservation of non-renewable resources. It will track their optimal use by reintegration into the circuit economic or in nature, aiming at neutralization or decrease negative effects on the environment naturally, under the belief that any waste pollutes whether is not capitalized, neutralized or eliminated.

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