

SITUATION OF PLASTIC WASTE MANAGEMENT IN ALBANIA PROBLEMS AND SOLUTIONS ACCORDING TO EUROPEAN DIRECTIVE

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ABSTRACT

Management of plastic waste is an ongoing problem in our country. This paper is focused on the evaluation of the current situation of the plastic waste in Albania, in comparison with the European Union (EU) management policies. The data used for this evaluation have been obtained from several agencies and ministries which have been operating in the environmental field during last years. Finally we have compared them with the European ones. We are focused on collection and separation of plastic waste, on imported and exported amounts and on plastic processing lines. This paper present the problematic situation in our country in collection and separation of plastic materials, causing large amounts of plastics imported for the demands of our recycling industry.

In the last decade, due to the increased amount of plastic waste, the recycling industry has developed. The processing capacity of this industry in Albania has been estimated at around 85000 tonnes per year. There is no available technology for the recovery of energy, treatment or biodegradation of waste or even the complete destruction of non-recyclable waste, including plastic waste treatment. Based on the available technology and technical conditions in Albania, we conclude this paper with some recommendations.

KEYWORDS: Waste Plastic Recycling Industry, Reduce-Reuse-Recycle, Albania

INTRODUCTION

The increasing use of plastic materials in recent decades, along with the benefits and facilities that has brought in our daily lives, has also caused several environmental problems. Thus the effective management of plastic waste is a challenge for our society and chemical industry. In recent years the EU has implemented strict laws and regulations regarding waste management, which focus mainly on three areas: recycling, energy recovery and landfills. The majority of plastic materials manufactured, belongs to the category of thermoplastic materials. Based on their properties, they can be reused and recycled in useful products. In the EU Countries plastic materials besides recycling can be utilized in the field of energy

recovery. Deposition of plastic waste in landfill is a process which can impact negatively on our environment (emission of methane and other gases, pollution of ground and surface water and soil). The 2008/98/EC directive recommends smaller number of landfills and smaller amounts deposited in them.

Plastic materials are used in: packaging, building/construction, agriculture, medicine, electronics, automotive etc (APM 2010).

Global plastics production grew from 1.5 million tonnes (Mt) per year in 1950 to 299 Mt in 2013, with 57 Mt only in Europe. Global plastics production declined from 257 million tonnes in 2007 to 250 million tonnes in 2009 as a consequence of the continued economic slowdown. This decline was, however, influenced from the global economic crisis. From the data shown in the figure 1 we see that plastic production is increasing globally and is currently stable in Europe. It is estimated that 66.5 Mt of plastic will be placed on the EU market in 2020 and global plastic production could triple by 2050 (EC 2013; APM 2014, APM 2010)

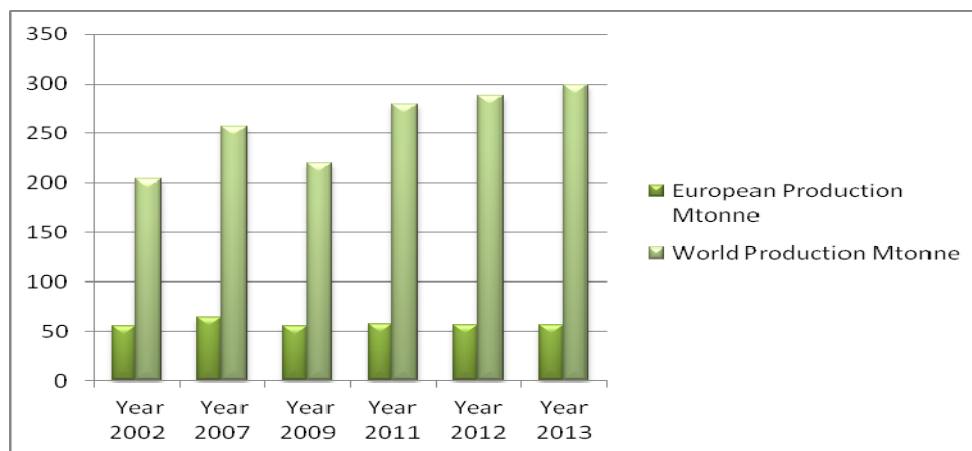


Figure 1. World and European Plastics Production 2002-2013.

Source: Plastics; The Facts 2014-2015

The use of plastic materials in Albania has shown a significant increase during the last two decades, related to economic and demographic developments during this period. This is easily identified by the large quantities of plastic materials consumed and from increased demand for plastic material from the recycling industry. The vast majority of raw materials for recycling is imported. The data from the General Directorate of Customs of Albania (DPD 2015) for the years 2009-2014 show a quantity of imported plastic materials (raw materials, products and post consumer) in amounts from 57.000 to 60,300 tonnes/year.

The plastic materials imported in Albania consist of construction materials and plastics used for packaging purposes. The imported plastic waste is calculated around 1.35 - 4.27 tonnes/year, during the period of 2009-2014 (DPD 2015).

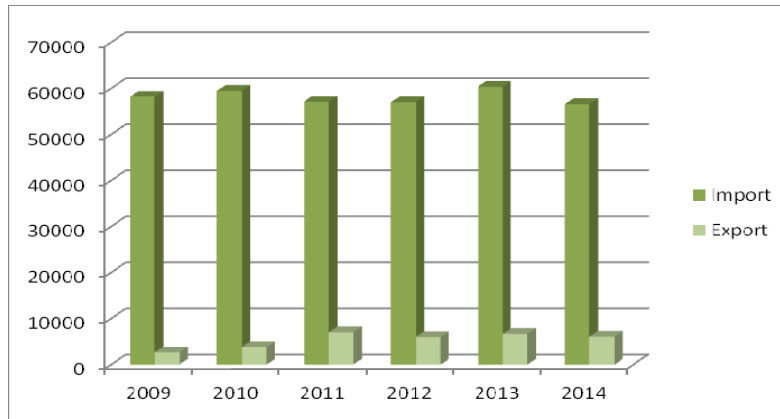


Figure 2: Imported quantity of plastic material (Tonnes/year).

Source: The General Directorate of Customs, Albania.

Albanian government's decision of October 2013 amending the law for integrated solid waste management which puts a ban on the import of plastic waste, has had a positive impact on the amount of plastic waste imported. For instance in 2014 the amount of plastic waste and post consumer product totalled only 39.729 tonnes.

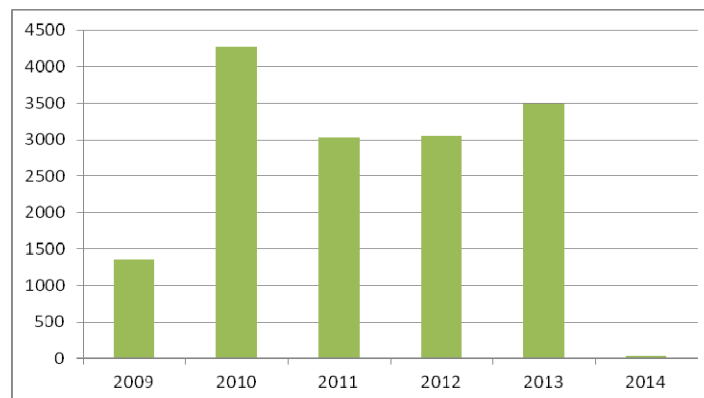


Figure 3: Imported quantity of plastic waste (Tonne/year)

Source: The General Directorate of Customs, Albania.

Our country is also exporting plastic materials as well, mainly plastic waste. In 2010, the plastic waste exported reached 72% waste materials from Albania (DPD 2015).

Solid and Plastic Waste Management in Europe and in Albania

During 2009, the total plastic waste collected in EU-27 + Croatia + former Yugoslav Republic of Macedonia (only 2008), Turkey, the EFTA Countries (Iceland, Norway and Switzerland), and the potential candidate country Bosnia and Herzegovina (only 2008 and

2009) vary considerably, ranging from 831 kg per capita in Denmark to 316 kg per capita in the Czech Republic, with an average generation of 520 kg/capita. The variation reflects differences in consumption patterns and economic wealth of the countries, but also depends greatly on the organization of municipal waste collection and management. (Karin Blumenthal 2011).

The annual generation of municipal solid waste in the United States was 443kg/capita during the year 1960; it grew and reached 781 kg/capita during the year 2000, and it decreased to 773 kg/capita during 2005 and is still decreasing (EPA 2010). Annual generations of municipal solid waste in the developing low income countries in Asia varies from 73kg/capita to 400 kg/capita (C. Zurbrugg 2003).

In the study “Activity and Potential of Recycling in Albania” (MMUP 2006) carried out by Ewald Spitaker, it was estimated that the annual generation of solid waste in urban areas in Albania is approximately 237 kg/capita while in rural areas 128 kg/capita with an average generation of 174 kg/capita. While Vladimir Bezhani (MPPTT 2006) estimates that the total generation of urban and rural waste in Albania is approximately 205 kg/capita/year in a population of 3,136,756 persons. Solid Waste Sector in Ministry of Public Affairs, Transport and Telecommunication of Albania (MPPTT 2006) estimates that solid waste generation rate in Albanian cities is 0.5-1 kg/capita city/day; solid waste generation rate in rural areas of Albania is 0.2-0.3 kg / capita village / days. These data have undergone minor changes in recent years related to economic and demographic development. An International Finance Corporation study (IFC 2006) estimates that urban waste generation in Albania is 300 kg/capita city/year. The economic growth in Albania over the past couple of years, while contributing to a higher living standard of Albanians, has also affected the rise of the amount of municipality solid waste generated. According to the data released by the Ministry of Public Works, Transport and Telecommunication the MSV/ capita has shown an upward trend, reaching 330 kg/ capita in 2010, which represents a 80% increase compared to 2003.

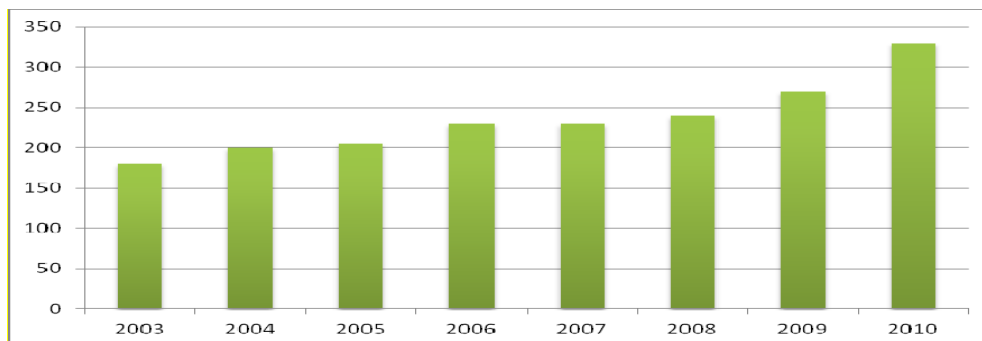


Figure 4: Municipally solid waste generation in Albania (kg/capita/year)

Data from MMUP estimate that the composition of solid waste in Albania is as follows: metal scrap 5.7%, paper & cardboard 9.3%, plastics 13.1%, glass 6.1%, the rest is organic and solid materials. Research conducted by IFC estimates that the composition of Municipal Solid Waste in Albania is as follows: 7% metal Scrap, paper & cardboard 17%, plastic 10.5%, glass 4.5%, the rest is solid and organic materials.

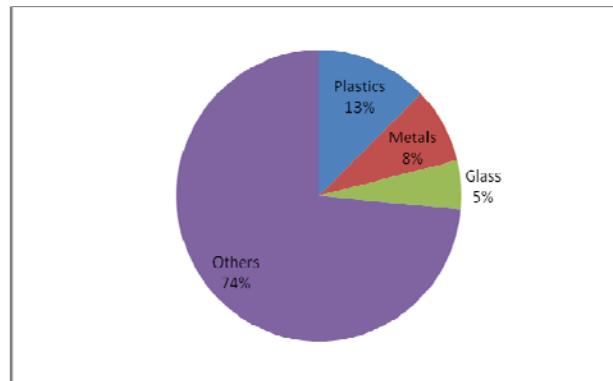


Figure 5: Content of Municipal Solid Waste in Albania (IFC 2006)

In the European Union (EU 27+Norway and Switzerland), it is estimated that around 25.2 Mt of plastic waste was generated in 2012. Of this 9.58 Mt (38%) was land filled while 9.07 Mt (36%) went for recovery, while only 6.55 Mt (26%) was recycled (APM 2014). Perspective for 2015 assumes an overall increase of 30 % in the level of mechanical recycling (from 5.3 Mt in 2008 to 6.9 Mt). Land filling and incineration with energy recovery are expected to remain the predominant waste management pathways. (EC 2013). Due also to the financial crisis the quantity of generated plastic waste has decreased while the recycled quantity and the recovered quantity has increased compared to 2008 in EU+ Norway and Switzerland (APM 2014, APM 2010).

In Albania from approximately 40.756 tones/year of solid plastic waste approximately 11% of them is estimated to be recycled, mostly plastic bottles (PET) bottles and bags (PE). Currently in our country do not exist composting plants for biodegradable waste and incineration plants of non-recyclable urban waste or industrial waste plants for the utilization of their energy in the manufacturing industry. It is foreseen that the first incineration plant will be set up at the cement factory in Fushe-Kruja.

In Albania the largest portion of the solid plastic waste is gathered in deposition sites (dam sites) which have a negative impact on the environment. There are only few landfills, located in some areas, which have a limited capacity.

Until 2010 we did not have any available industrial landfill for disposal and treatment of plastic waste and urban waste (MMPAU 2011). While EU policies are directed towards the decrease of the amount of plastic waste deposited in landfills and the increase of the amount of recycled waste and energy recovery, the local and central Albanian government are directed towards the construction of landfills, considering them as solution of waste management, including also the plastic waste.



Figure 6: Landfill of Share, Tirana (capital city of Albania). Plastic materials are deposit with the other solid waste, showing an inefficient collecting/separating system.

The target of the National Waste Management Plan 2010-2025 aims at recycling/ composting 25 % of MSW by 2015 and at recycling/composting 55 % of MSW by 2020.

Recycling Industry in EU and Albania

The plastic industry plays an important role in the economy of Europe, employing in total approximately 1.45 million people in over 59 000 companies and generating a turnover in the range at around € 300 billion per year. The producing sector provides 167 000 and the converters 1.23 million jobs (EU 27, 2005-2011, ESTAT) mostly in SMEs (APM 2012).

Plastics from municipal solid waste are usually collected by the garbage bins, or from the individual collectors. Then they are separated manually from other recyclable items. Remaining various plastics are divided according to the type of plastic and later are sent to a small number of plastic processors lines. Currently 28 solid waste recycling companies are operating in Albania, 10 of which belong to the plastic industry with a processing capacity of 85,000 tonnes/year (ARA, 2012). In this industry are employed 300 full time employers while the number of self-employed, mainly in the collection, selection and separation of plastic waste processes, are approximately 10,000 persons.

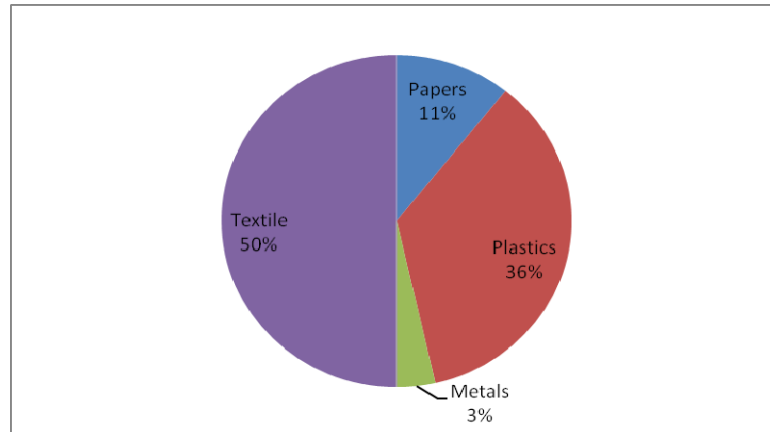


Figure 7: Number of recycling companies operating in Albania (ARA 2012)

The recycling industry in Albania is obliged to import plastic waste due to the large processing capacity of this industry and the inefficient system of plastic waste collection and separation.

Several municipalities in the country, in cooperation with recycling companies and various associations, have tried implementing such systems that can enable the separation of waste at source and their collection in the respective categories. However these initiatives have either failed or are in the early stages, in which the amount of waste separated at source is negligible.



Figure 8: Solid Waste Management Initiative in Tirana, Albania. These recycle bins are placed around the center of Tirana and their purpose is the separation of solid waste. (Blue bins are for metal cans, greens for paper, and reds for plastics and blacks for other different waste.)

Plastic recycling companies in the Albanian market mainly produce packaging bags, bottles and cups, plastic tubes and panels as well as products such as slippers, sandals, boots etc. Raw materials used by the plastic industry consist of mainly polyethylene PE, polyethylene terephthalate PET, and small amounts of polypropylene PP, polystyrene PS and polyvinyl chloride PVC. Products manufactured fulfill partly the need of the domestic market while the rest is exported, mainly in the surrounding countries.

CONCLUSIONS AND RECOMMENDATIONS

Albania, as one of the least developed countries in Europe, generates small amounts of urban waste. It is estimated that approximately 10.5% of them are plastic waste. Although plastic waste recycling industry is developed in recent years and the demand for raw materials has increased, in our country does not exist an effective system of plastic waste management. Separation of waste at source and collection of relevant categories (not just individually or manually) are necessity steps in order to have a cleaner environment, also to better meet the requirements of the recycling industry thus reducing the amount of imported plastic materials.

Also separation at source of waste plastic will enable a more efficient usage of these materials. Plastic wastes are treated in the same way as other waste by depositing them at collection sites. They cause environmental problems, and do not bring any benefit from their reuse either in the field of recycling or even in the field of energy recovery.

For more efficient management of solid waste, including plastic ones, a close cooperation with the governing bodies and recycling companies is necessary in order to raise awareness of the society highlighting the benefits that brings a more efficient management.

Based on the data analysis of plastic materials, by relevant institutions and companies in Albania, were noticed different estimations or even in many cases lack of data and for non-recurring periods, which makes a detailed analysis more complicated.

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