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# THE CALORIC VALUE OF MUNICIPAL SOLID WASTE GENERATED IN GEORGIA FOR ENERGY RECOVERY

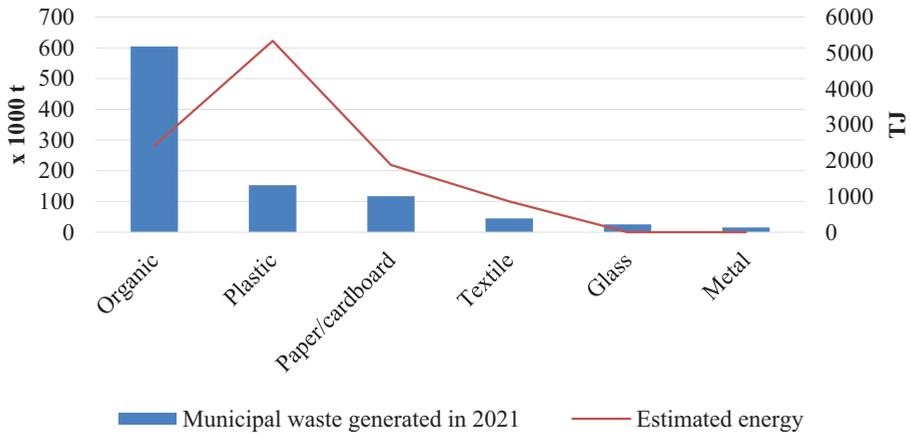
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**Abstract** – Waste management approaches such as prevention, reuse, recycling, and recovery are key objectives, which stand in a Waste hierarchy of priority. The same Waste Hierarchy is a basic principle of the waste management policy of Georgia. Waste recovery is a priority approach over landfilling. In this case, it should be noted that more than 90 % of waste generated in Georgia is landfilled, which has negative social, economic, and environmental impacts. Thus, along with reusing and recycling, Waste-to-Energy (WtE) should be a solution for sustainable WM systems. Municipal waste generation in Georgia is characterized by increasing dynamics. For example, in 2015–2023, waste generation per capita increased from 207.8 kg to 302.2 kg. Accordingly, the amount of municipal waste disposed of in landfills has significantly increased. According to data from the National Statistics Office of Georgia, in 2015, 774.4 thousand tons were placed in landfills, and in 2023 – 1116.6 thousand tons, which is more than 90 % of the municipal waste generated annually. On the other hand, the calorific value of municipal waste generated in Georgia is of interest in terms of energy recovery, taking into account the experience of many developed countries, in particular Sweden and Denmark. As is known, for the effective use of municipal waste for energy recovery, it is necessary that the average lower calorific value of waste should be at least 7 MJ/kg and must never fall below 6 MJ/kg. Plastic waste is characterized by the highest calorific value, paper and textiles are also acceptable for energy recovery. Organic waste has a rather low calorific value (4MJ/kg), which is not recommended for Waste-to-Energy technologies. Plastics such as Polypropylene PP, Polyethylene HDPE, and Polyethylene Terephthalate PET have a high calorific value. In this regard, it should be noted that municipal waste generated in Georgia consists of about 13–14 % plastic, 10–11 % of paper and cardboard, and more than 4 % of textiles. Organic waste constitutes the largest portion of municipal waste generated in Georgia (over 54 %), however, this type of waste is not of interest in terms of energy recovery, as the calorific value of organic waste is very low (4 MJ/kg).

**Keywords** – *Caloric value; energy recovery; organic waste; plastic; paper; textile; waste hierarchy; Waste-to-Energy (WtE).*



Estimated energy recovery from MSW, Georgia, 2021