

Summary

The topic of this thesis is to present a model for municipal waste logistics management in Poland. The present work has a theoretical and empirical character. The main objective of the analysis undertaken was to prepare an author's model of municipal waste logistics management in Poland, which will be based on a municipal waste incineration plant.

In addition to this, the following specific objectives have been adopted for the submitted work:

- Presentation of the place of municipal waste incineration plants in the overall municipal waste logistics management system in Poland.
- A review of 'good practice' in the use of municipal waste incinerators for municipal waste management in selected European countries.
- To diagnose the logistical system of a selected municipal waste incineration plant in Poland and to improve it based on technological and organisational solutions taken from municipal waste incineration plants in countries where experience with their use is far greater than in Poland.

The research objectives indicated above were fully met. This was based on several research methods. The first of these was a critical review of the literature on the subject. Both Polish and foreign language publications and sources were used in this respect. Various legal acts, both at national and European level, were also used. The above-mentioned research objectives were also realised using the case study method. This analysis will cover the XYZ municipal waste incineration plant. The third research method to realise the above-mentioned research methods is in turn an improvement project, which will refer to the XYZ municipal waste incineration plant. In this context, the XYZ municipal waste incineration plant, analysed earlier in terms of its problems in the municipal waste logistics system, will be improved by proposing or demonstrating how to implement new technical and organisational solutions.

On the basis of the analysis carried out, it should be pointed out that logistics, in the broad sense of the term, in modern municipal waste treatment plants is a very important area in which measures can be taken to improve the overall management of municipal waste. At present, this is determined not only by practical considerations, but also by legal regulations (primarily the European Union's climate policy). This thesis also shows that the logistics chains used in the municipal waste management process are characterised by a significant level of

complexity. These chains are influenced by a variety of factors. These factors may limit or improve the technical performance of the whole chain. This issue is analysed in this thesis using the example of the municipal waste incineration plant XYZ. It proposed appropriate corrective measures to improve the effectiveness and efficiency of municipal waste shipments.

Continuous technological progress has played a significant role in the improvements introduced. For example, in the domestic market for municipal waste incineration plants, more and more modern technical solutions are being implemented to ensure an increase in the efficiency of the plants described. These solutions are directly implemented in newly commissioned waste incineration plants. The problem is the modernisation of existing plants. This is precisely the case in the work presented here. It should be noted in this context that it is not always possible to undertake a full such modernisation of a process line. Often, other solutions of an improvement nature must be sought.

A major role is also played - as was the case at the municipal waste incineration plant XYZ analysed - by the proper organisation of the work or load flows within the plant. This is where the great importance of municipal waste management logistics comes into play. The work undertaken demonstrates that access to even the best technical solutions will not meet the objectives set before it if their use is not properly organised. The proper organisation of municipal waste incineration plants, as well as improvements in this area (which were described in the research part of the study), have a significant impact on the efficiency of the processes carried out. This will occur even if the technology used in a municipal waste incineration plant is one of the generationally older ones. This is very evident at the level of municipal waste logistics management. These issues are addressed in the submitted work.