

Abstract

The thesis presents issues related to the problem of managing waste electrical and electronic equipment. Based on a critical analysis of the literature, the effectiveness of WEEE collection in Poland was evaluated, and then the factors affecting the quantity of collected waste were identified. Literature studies and own research carried out in the Lublin Province were used to develop a model of a system supporting WEEE collection. This model is based on a dynamic approach to WEEE collection problem, based on variable collection frequency, which is more advantageous in terms of environmental and economic objectives compared to the traditional model. On the basis of the model the amount of WEEE which should be collected from the Lubelskie Province was determined, the location of intermediate storage facilities was determined, and the environmental effects were estimated. The developed model was used to create a prototype IT system consisting of an application designed for consumers and software dedicated to WEEE collection companies. The application facilitates notifying of WEEE collection, whereas the software enables to handle the notifications and optimise waste collection processes. In the final stage the system was verified on the basis of actual data from the Lubelskie Province and validated with the involvement of experts responsible for the organization of WEEE collection at processing plants.