

Amount of Electronic Waste and Recycling Achievement in South Korea

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1 . Background of research and objects

Since 2003, South Korea has operated an Extended Producer Responsibility (EPR) system. The EPR system is an environmental policy approach in which a producer`s responsibility for a product is extended to the post-consumer stage of a product`s life cycle. Still, there is little information on how the EPR system should be evaluated, particularly regarding amounts of electronic waste. Specifically, it has been hard to quantify the percentage of electronic waste that has been collected and recycled under the EPR system in South Korea. In principle, producers in the EPR system are assigned a certain amount of recycling duties, based on their yearly shipment of products. The amount of recycling duty assigned to each producer is controversial, since no-one really knows whether it is appropriate or not. With the aim of clarifying this, the research reported on here focuses on two points: the estimated amount of electronic waste and the success-rate of recycling based on this amount.

2 . Methodology of research

Two steps are involved in estimating the amount of electronic waste. The first step is to analyze the previous estimate studies that have been carried out on the electronic waste of South Korea. From these reviews, we can identify the problems that will need to be addressed in further studies regarding the amount of electronic waste. Next we introduce the Balance Model, which measures the amount of electronic waste. The amount of estimated waste from this research enables a discussion of whether the determined methodology for assigning the recycling duties of the EPR system is appropriate. This will further enable us to gauge the level of recycling achievement in relation to the amount of electronic waste.

3. Results

Two important findings have resulted from this research. First, the methodology for determining recycling duties under the EPR system is valid for the category of product which are replaced, but not valid for the category of product which are purchased for the first time. The present means for determining EPR recycling duties may not be deemed appropriate for such items as printers, copy- and fax machines, or 'kimchi refrigerators', as these have been not distributed in such large numbers considering with average purchase of household items in South Korea. On the other hand, the means of assessment may be quite suitable for products such as normal refrigerators, washing machines, and cathode ray tube TV's. Second, the percentage of total electronic waste that was recycled under the EPR system in 2006 has been established. Specifically, recycled cathode ray tube TV's comprised 37.7% of the disposed total. Under this system, 38.3% of disposed washing machines were recycled, along with 26.7% of refrigerators, 2.2% of air-conditioners and 29.5% of mobile phones.

4 . Conclusion

Through this research, we have identified some problems in the methodology for determining recycling duties and electronic waste collection of the EPR system and pointed out some ways in which they could be improved. First, it is important to have a correct estimate of electronic waste for the EPR system. In order to do this, a systematic means is required to gather necessary statistic information. Second, this research has shown that more than half the total amount of electronic waste is recycled under the private sector, but not under the EPR system. A substantial amount of electronic waste can be transferred to the private sector through local governments. In order to recycle and manage electronic waste in a proper way, it might also be considered beneficial to establish partnerships between the EPR system and local governments in the field of waste collection.