

# **An Evaluation of the Dual System as a Policy of Extended Producer Responsibility**

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*Key Words: Extended Producer Responsibility (EPR), Dual System, packaging waste, Grüne Punkt, Design for Environment (DfE), disposal costs*

## **1. Introduction**

The Dual System, which is operated by Duales System Deutschland (DSD) responsible for the recycling of packaging waste in Germany, pioneers the adoption of Extended Producer Responsibility (EPR) in the world. The Dual System embodies EPR in transferring physical and financial responsibilities for the collection and recycling of packaging waste from municipalities to upstream producers. Therefore, the purpose of the introduction of the Dual System lies in the reduction of household waste and its disposal cost in municipalities as well as the avoidance and recycling of packaging waste. This study analyzed the effects and influences on the waste reduction and disposal costs and discussed some results and causes to be seen in the operation process of the Dual System. In addition, from the point of EPR the analysis revealed some elements necessary for a recycling system design of packaging waste.

## **2. Methodology and originality of this study**

The methodology of this study is based on paper research and the hearing investigation for German municipalities and waste management companies. The originality of this study is to evaluate the Dual System as a policy of EPR with analyses of the following three aspects: (1)the incentives for the avoidance of sales packaging and for DfE incorporated in the fee system of the Grüne Punkt; (2)the total quantity of the disposal wastes generated in the Dual System and municipalities; (3)the total disposal costs in the DSD and municipalities.

## **3. Effects and influences by the introduction of the Dual System**

### **(1)Influences on the waste reduction**

During a few years after the introduction of the Dual System, the consumption of sales packaging decreased to some extent, and with high acceleration of its recycling, disposal packaging waste out of sales packaging and household waste also decreased to a certain ratio. However, it is suggested that the continuous fee reduction of the Grüne Punkt since 1998 could weaken the incentives for the avoidance of sales packaging and for DfE.

### **(2)Disposal costs**

The recycling costs of the DSD has reduced in recent years, however, it is estimated that extra costs can need for operation of the DSD in the future, which might increase the cost burdens on producers directly and consumers indirectly through the product price. Regarding the disposal cost in municipalities, on one hand, there can be a nationwide increasing trend, and on the other hand plural factors have some influences on the disposal cost at each municipality. Therefore, the total disposal costs in the Dual System and municipalities have possibly swelled, which in the end leads to the direct and indirect burdens on household economy.

## **4. Conclusion**

The reduction of packaging waste which is the first purpose of EPR in the Packaging Ordinance presents unsatisfied results with a certain effect. Furthermore, the second purpose of cost mitigation in household economy could unexpectedly cause increasing cost burdens. As further issues, there are needs for a theory research on a fee standard of the Grüne Punkt to be set properly for the prevention of sales packaging, and for devices in setting the fees of the Grüne Punkt and waste fees of household waste in order to bring advantages to household economy.