

## **THE THEORETICAL GROUNDING OF CREATION ASSESSMENT PROFILE OF WASTE MANAGEMENT SYSTEM IN UKRAINE**

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The development of a country's waste management system illustrates a sequence of comprehensive innovation projects that apply for appropriate requirements. In Ukraine plans and concept of solid waste management were adopted, which includes impossible task and the main reason for their implementation impossibility is the low environmental awareness of the population. It is significant to determine the stage of development what can be attributed to the state of waste management system in Ukraine and define the factors that influence on the system's development. This will help to develop realistic plans that include tactical and strategic tasks that correspond to the economic, social, legal and environmental level of development of the country.

The aim of the classification into several stages is to prove that waste management is nothing else but an ongoing innovation process that is driven by a changing environmental awareness of the population on the one hand side and technological steps on the other hand side. Therefore the stage model represents the transition of waste management from the pure disposal management over a more or less controlled waste management to a resource efficient material flow management and consists of 6 stage: "Coverage & Disordered Disposal", "Ordered landfilling", "Collection logistics", "Recycling solutions", "Industrial Cycle", "Raw material sourcing".

Within the stage of "Coverage & Disordered Disposal" it is the upcoming educational work that needs to create awareness towards the need to protect nature as well as the maintenance of landscape. This awareness leads to the development and adoption of first laws on waste disposal. First surveys of waste management data are conducted leading to a review of the waste management situation (wild dumping sites, danger to the environment). The central result of this stage is the assignment of authority and responsibility for waste management topics and problem areas. Frequently this is achieved in the form of an extension of remit of existing institutions.

Within the stage of "Ordered landfilling" the closure of wild dumping sites and construction of sanitary landfills is the most urgent task. Several technological innovations are realised in order to keep any associated pollution under control (leachate collection, bottom sealing and gas emission control). The rising waste amount leads to the adoption of regional waste management plans and concepts.

On the basis of stage of "Collection logistics" knowledge of waste management data separate collection systems can be introduced. In many cases

these systems start with paper and glass but also the introduction of so-called 3-bin-systems can be observed. At the same time waste information centres have to be introduced. The households have to be informed about waste prevention, collection of recyclables as well as the prevention and recycling of hazardous materials. This information is frequently given in the form of telephone advice, media information and advice to schools and environmental organizations. Raising awareness and sensitising of population are of increased importance within the field of public relations: „Successful unmixed collection of recyclables requires the intensive cooperation of the population“.

The central issue within the stage of “Recycling solutions” is the obligation to return on side of end consumers as well as the obligation to take back on side of the economy. With the goal of increasing the product responsibility the packaging ordinance calls for the economical use of packaging by industry and consumers. Therefore nationwide collection systems as well as appropriate systems for the reuse and recycling have to be constructed and set up. At the level of material recycling it is the costs for collection, transportation and processing as well as the accumulation of pollutants within secondary raw materials and the existence of a market for the created products that decide on the success.

With the preparations for the implementation of the landfill regulation the beginning of stage 5 “Industrial Cycle” is marked. The aim is to reduce the reactivity of the disposed waste for the eventual landfill aftercare. Therefore alternatives had to be found and waste is redefined into a resource that can re-enter into the economy’s material cycles and thus saving primary resources and energy.

On the stage “Raw material sourcing” the paradigm shift in the sense of the replacement of landfill sites by thermal treatment/recovery plants is completed. Waste management companies are facing new or at least boosted requirements like resource management, closing of material cycles and extension of value added chains. In this sense this sector has the self-perception of being a resource supplier and provider. This development leads to strong interdependencies between waste and raw material markets.

The next step of research was to check whether constructed model can be transferred to the waste management of other countries and regions. For achieving the goal to set up a general description and assessment model to describe the defined stages on the basis of characteristic parameters. These need to be subject to change in the course of waste management development and allow for a classification into the different stages. For the waste management’s stage conception 12 indicators have been selected that can be combined to 4 groups (economy, society, legal, ecology). In this sense there are far-reaching parallels to the environmental analysis.

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