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Initiative for promotion of environmentally compatible and sustainable resource management

Resource Management Agency

Sustainable Waste Management in Hospitals
(Creation of Basics and Initiation of their Implementation)

(Project NAKRA)

Final Report

(Summary)

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Summary

Hospitals prove an immense material turnover. In larger hospitals of e.g. 1,000 beds, the turnover can reach over 2 Mio. kg annually, i.e. the goods consumption in hospitals approximates, as order of magnitude, the one of small villages of ca. 2,000 inhabitants. This considerable material turnover results in the generation of large amounts of waste, respectively, recyclables and thus in costs for their disposal of about € 0.5 Mio annually. Keeping waste amounts and their disposal costs on a possibly low level grants great importance to the waste management in hospitals.

In both Slovakia and Austria, hospitals are currently aim at building up a sustainable environmental and quality management system and also at establishing an efficient waste disposal and recycling logistic system. This project renders support in creating the cross-border base for hospital waste management both in Bratislava and Vienna and thus gives a crucial impulse towards the qualitative and quantitative optimisation of the waste management practice.

The goal of the project NAKRA is to create the base needed for the analysis and evaluation of the waste situation in the Slovak and Austrian hospitals that participate in the project. Based on this, specific implementation measures are initiated that will enable the optimisation of the waste management, the reduction of the waste amounts or of the resource consumption in the hospitals.

Another goal of the project is to initiate and enhance the contacts between Slovak and Austrian hospitals, to unite their energy towards the welfare of their patients and of the environment. The cooperation between the hospitals would also result in adjustment, respectively, further development of the regional standards of environmental and waste management in terms of the practical implementation of the EU requirements.

The method suggested in this project for assessment of the waste management is based on an input-output-analysis and has already been successfully employed in a number of hospitals towards identification of optimisation potentials within the waste management.

With the consumption data for short-living products being the initial point, the input-output-analyses of the hospitals are created. The consumption data originate from the cost accounting. By means of ABC-analyses, those crucial products in the metabolism of the hospitals are identified that are responsible for ca. 80 % of the input. Since the data in the cost accounting are mostly given as pieces, a closer analysis of these products is necessary.

This analysis includes, for all products investigated, their weight and the material composition of both products and their packaging, the weight changes during the use of the products and the individual, optimal disposal path after use. The analysis data are collected into a database („The Connector“). The database also links the analysis data with the consumption data of the hospitals (article-waste-register) further to the input-output-analysis.

These results serve as the base for the development of optimisation projects in the hospitals as well as for information and training of the hospital staff.

The input-output-analyses offer the base for identification of weak points and optimisation potentials and also, they enable the estimation of the effects concepts and measures may imply. In a number of workshops, the results have been discussed with the hospital staff, and also, ideas have been collected towards the optimisation of the waste management and of the article consumption. This process enables the elaboration of those concepts and measures that can finally be implemented. These measures are presented to the staff at each hospital within a workshop dedicated solely to this issue, and at the same time, first steps are set towards information, sensitisation and motivation of the employees.

The four input-output-analyses show the following results: for the University Hospital of the Barmherzige Brüder in Bratislava (BBB), an annual goods consumption of 0.2 Mio. kg; for the Rudolfstiftung Hospital (KAR) and the Kaiser Franz Josef Hospital (KFJ) each 1.9 Mio. kg and for the Neurological Centre Rosenhügel (NZR) 0.4 Mio. kg.

The crucial waste fractions in terms of mass and costs are the non-hazardous hospital waste, the hazardous hospital waste and the mixed household-similar waste.

The quantitative saving potential within the hazardous hospital waste is high. The reduction potential varies between 40 % and 74 %. The disposal costs for hazardous hospital waste amount to about twice as much compared to those for non-hazardous hospital waste. So for instance, the filling grade of the 60 l waste containers in the Austrian hospitals is always below the charged disposal weight (8 kg) and also below the maximal admissible weight (9 kg respectively 18 kg). The real weight annually collected is between 2.2 and 5.8 kg per container. By means of miss reduction and measures towards achieving a more efficient filling grade, a significant reduction of the disposal costs is feasible.

The discipline of the staff in terms of correct waste disposal proves better within the non-hazardous hospital waste than within the hazardous hospital waste. The reduction potential is between 49,000 kg (NZR) and 200,000 kg (KFJ). However, with view to the large amounts of waste generated, the waste disposal discipline proves “worth“ being improved. The most efficient measures towards the utilisation of the reduction potentials refer to intensifying the collection of recyclables, the establishment of collection logistics and the information and training of the staff.

In all four hospitals, 31 measures have been developed, of which 17 short-term measures are already being implemented. The optimisation potential for all waste fractions in the four hospitals amounts to annually max. 480,000 kg, and the economic saving potential corresponds to max. € 280,000.-. The implementation of the first set of measures is already running in all four hospitals, proving already first success. By extension of the disposal intervals for non-hazardous hospital waste, annually € 50,000.- could be saved in the KFJ. Through a significant reduction of the container number for hazardous hospital waste in the NZR, the annual disposal costs of the hospital would be reduced by almost 50 % (i.e. ~ € 5.000,-).

The data and results gained in the project are generally applicable in hospitals. In terms of the Vienna – Bratislava region, the project implementation sets a first step towards a transnational experience and knowledge transfer aiming at optimisation of the healthcare waste management at regional scale. This way, the project gives a valuable impulse towards the sustainable development for the entire CENTROPE region.