



Initiative for promotion of environmentally compatible and sustainable resource management

Resource Management Agency

Compilation of an Input / Output Analysis of the Preyer's Children Hospital

(Project AKIN-P)

Summary

(Vers. 1.3)

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Summary

In the Preyer's Children Hospital, an environmental control database has been compiled within the framework of building up an environmental management system. The database accounts for the weights, en gross and net, of approx. 550 items. The basis for the database structure has been given by the KIWI system replaced in 2000 by SAP R/3. By means of this software changeover, the database could not allow for updating without a significant effort. Thus, the current project aims at constructing a new environmental control database based on the data of the SAP R/3 system.

The goal of this project is the development of an enhanced and updated database for the Preyer's Children Hospital, so to supply the regular environmental management and the Environmental Declaration 2002 with an improved database reaching beyond the collected.

An item-waste-register is constructed for the items utilised in the Preyer's Children Hospital, being of greatest relevance for the waste management, whereby for each of them the optimal disposal path for both item and packaging is registered. These data are both linked and assessed within the software tool „The Connector“. This way, a link is created for the waste management data with the procurement data, so that optimisation can be aimed at and achieved for both waste management and procurement aspects.

The data are given by the consumption records of the accounting department for 2000. By means of an ABC-analysis, those items are selected out of each items group, which are responsible for at least 80 % of the consumption within the group. Since the data are based on pieces, a transcription had to be undertaken by establishing the weight of each item selected.

The analysis of the items selected includes the weights of the item, of its packaging and of the top-packaging. Then, any possible change of the item within its utilisation path is followed, and the item and its packaging are sorted into corresponding waste and recycling categories, according to the waste management concept. An item-waste-register is constructed for the investigated items. By linking the data of the item-waste-register with the consumption data of the accounting department, the input flux into the hospital and the resulting amount of waste and recycling goods is estimated for the items in question. The comparison of this input-output-balance with the actual waste data of the hospital, conclusions and action recommendations can be presented for an appropriate management of the flow of goods.

In the Preyer's Children Hospital, approx. 2,450 different items were purchased in 2000. This corresponds to more than 3 Mio. weight units, as pieces. The material flow analysis shows that by investigating about a third of these items (equal to 827), approximately 90 % of the total input flux in the Preyer's Children Hospital can be registered and described. The extrapolated input flux of short-living items amounts to approx. 150,000 kg in 2000. If considering the total water consumption as well, around 14 Mio. kg undergo a turnover in the Preyer's Children Hospital. The comparison between the current and the theoretical must-be states for the comparable waste and recycling fractions shows that approximately 67 % of the wastes can be identified by means of the material flow analysis, i.e. it has been possible to identify the crucial items responsible for the most relevant fractions. With this, the goal of the project has been achieved.

The results allow for drawing the following **conclusions**:

- Constructing an input-output-analysis with cost accounting data as base is possible. However, additional data (e.g. energy, water and emissions) are needed that are not available through the accounting.
- By means of the items-waste-register, an unequivocal disposal path can be defined for the major part of the items. The item-waste-register includes information on the composition and the disposal of the investigated items. In special cases however, the hospital specifics as to the disposal path is to be considered in the item-waste-register. Such an adjustment, especially in for the surgery area, has allowed e.g. for additionally 20 % of the content of the Black Container to be identified.
- The Input into the Preyer's Children Hospital is dominated by water and food. On the output side, wastewater and emissions are prevailing; solid wastes follow at third place.
- The Orange Sack (ward wastes) contains one-way items. These one-way items present mainly paper handkerchiefs, one-way diapers and examination gloves. These three fractions make approx. 80 % of the Orange Sack content. The content of the Black Container (medical waste container) is mainly presented, along with the container itself, by infusion solutions and items related to blood sampling and analysis. Around 90 % of the Black Container content are caused by 22 items. Infusion solutions participate with approx. 27 %, and the Black Container itself with 16 %. A significant reduction of the Black Container content could be only achieved at the side of procurement or through a change of the work procedures.
- The mass data for the largest waste and recycling fractions (Orange and Grey (municipal-like wastes) Sacks), paper and cardboard, glass, plastics, metals) are calculated indirectly. The waste amounts for the largest waste and recycling fractions are estimated over the number of the containers. This might result in inaccuracies concerning the mass calculation. Thus, a plausibility test for these assumptions is recommended.
- The residential houses of the Preyer's Children Hospital present a significant factor that however cannot be influenced over the procurement. The Grey Sack (municipal-like wastes) is the largest waste fraction in the Preyer's Children Hospital. Over the Grey Sack, items are offered to disposal, which are not purchased by the hospital itself (external input). Thus, an amount and composition management for this fraction is not possible to achieve by the procurement of the hospital.