Study

Supporting Cycle Economy

in the

Residential Building Industry of Vienna

For the Magistrate of the City of Vienna, MA 50

Executive Summary – English

The present study "Supporting Cycle Economy in the Residential Building Industry of Vienna" was commissioned by the Municipal Department No 50 of the City of Vienna to the Technical University of Vienna and KERP Center of Excellence Electronics & Environment.

The study was aiming to tackle relevant aspects for the promotion of cyclic economy within the construction industry. This includes an overview of the actual situation and the evaluation of transfer possibilities according to the guidelines of the City of Vienna.

To asses the current situation data about the materials used for residential buildings and the rest of building masses was gathered.

During the course of research it became clear that data regarding the building materials used in the housing of the city of Vienna are unfortunately not up to date or accurately defined.

Based on the determined parameters the used material masses for residential buildings in the city of Vienna for the year 2002 were projected and estimated at 900,000 tons per year. A clear and up to date statement about the housing in Vienna materials is not available.

After a brief introduction of suitable methods such as material flow analysis or Total Quality Assessment, the currently existing marking systems (energy passport, IBO ÖKOPASS, ÖBOX, ECOBIS, ECOSOFT, GISBAU, ECOINVENT, GEMIS, DATAHOLZ) will be presented.

The methods and tools used for the development of a documentation of the composition of buildings were divided into 5 categories:

- CAD systems (Computer Aided Design systems)
- Part Calculator
- BIM tools (for modelling of technical building data)

- Special software tools for specific Material Data - registration
- Construction software (specifically includes planning, controlling and managing the entire construction project)

In conclusion it can be stated that many of these software applications are, in principle, suitable to store the material information (although with varying accuracy). A similar bill of materials is available often only for individual phases or sub positions of the order but in many cases not for the entire construction project. Therefore, it has been presented how to make such a bill of materials for the whole building, based on the planning processes in building industry.

For a possible integration in the funding of residential building the current situation of housing, the legal situation in Austria and Vienna as well as the activities for the integration of environmental aspects has been examined. The situation concerning sustainable building in Germany was also assessed.

The issue of waste and waste utilization in the building industry and activities concerning avoiding of building waste has been tackled. Again the importance and necessity of a building documentation (documentation of the used materials) could be documented.

The required accuracy of the materials description depends on the currently and in future used utilization processes. In order, to clarify this aspect, the chapter "Building waste utilization and disposal" was elaborated.

Based on that one chapter presents an extension of the building planning that considers material cycle economy and the reduction of the ecological impact. Also a “Recycling- Passport for Buildings” which allows to embrace the materials used in the building was presented. Such documentation can be elaborated at a reasonable cost for the entire construction project and is considered as essential for the promotion of recycling economy.