Research project "Evaluation of the THEWOSAN-promotion model"

The aim of the research project:

Based on existing statistical analysis on the topic THEWOSAN proposals for a successive promotion model named "THEWOSAN new" are made.

Summary:

The introduction gives an overview about the size of greenhouse gas emissions and an allocation of these emissions to individual polluters in order to define possibilities for estimating potential GHG savings. Research data for Vienna are always compared with mean values for Austria as a whole (data taken from Statistics Austria).

Similarly, effective energy and final energy data for the building sector are summarized. These data are also used as specific energy parameters for gross floor areas as well as for apartments and compared with each other.

After that, information about the redevelopment potential of opaque and transparent building components is given, mainly in a form comparing the redevelopment ambitions usually applied. This kind of comparison leads on one hand to a useful benchmarking between the redevelopment possibilities and on the other hand to find the maximum of benefits given by the different possibilities. Each of these redevelopment opportunities is calculated for 4 types of buildings that represent the Viennese building structure. Additionally, ways of improving the final energy demand are shown.

A very special place throughout the whole project is taken by the visual exposition of the increase in comfort based on the redevelopment of external building components. Especially in connection with the fact that the environmental and economic sustainability by reducing the GHG emissions and energy costs are evident to everybody, the social sustainability has to be pointed out by terms of increasing the comfort and the resulting utilization profit. Appraisals to the increase of the amount of heating demand in case of unrenovated buildings are given - with the target size "perceived temperature" instead of the air temperature.

Finally, the following suggestions for the "THEWOSAN new" promotion model are made:

- The first group of requirements is designed in a way that absolute figures in terms of the heating demand should be undercut (if needed the 1, x-fold).

- The second group of requirements comprises typical "difference requirements", which means that the difference between the actual building stock and the redeveloped building is calculated (if needed the 0, x-fold).

- The third group of requirements opens an entirely new field of possible renovations which aim to substitute fossil fuels from the areas "space heating" and "domestic hot water" as much as possible.

These proposals are supplemented by technical renovation possibilities concerning heating, ventilation, air conditioning and refrigeration.

*) Project Management: Magistratsabteilung 39 - Versuchs- und Forschungsanstalt der Stadt Wien
*) Project Team: Dipl.-Ing. Dr. Christian Pöhn, Dipl.-Ing. Georg Pommer
*) Duration: March - December 2007
*) Contact: bauphysik@m39.magwien.gv.at