Geophysical Research Abstracts, Vol. 8, 06628, 2006
SRef-ID: 1607-7962/gra/EGU06-A-06628

Transnational air quality improvement - integrated air pollution measures evaluation model

G. Schörner, R. Schönstein, G. Fister, M. Braito

(1) Austrian Environmental Expert Group (aeeg@aon.at)

Monosectoral strategies on a national level seem to be insufficient for solutions in the complex field of air pollution and environmental planning. The project area has long been divided by the iron curtain and is now a growing transnational region, characterized by rapid changes in its economic and infrastructural sector. The project TAQI (Transnational Air Quality Improvement) - designed and implemented by AEEG (Austrian Environmental Expert Group) - aims of creating a homogenous, regionalised, transnational, up-to-date emission data information base for long term planning decisions like EIA or SEA by linking environmental data with spatial information. Emission inventories, for all SNAP-categories (mobile and non-mobile sources) and emission forecasts will contribute to the aim of monitoring smaller, but more dispersed pollution sources.

Within TAQI an integrated air pollution measures evaluation model has been developed. First of all, a raw estimation of PM10 emissions for Lower Austria and Burgenland was necessary, since both federal states of Austria do not have an emission inventory of PM10 until today. Second, AEEG identified those PM10 emissions that could be influenced locally. AEEG discovered that about ij of ambient pollution can be influenced directly; and more than ij can be affected indirectly (raised dust). This fact demonstrates the urgent necessity that countries work together and develop a common emission reduction strategy. A single region is not able to diminish the PM10 pollution, in such a way that it falls below the allowed hygienic limits, whenever half of the pollution is long-range transported. After estimating emission sources and the identifying theoretical margins of reduction possibilities, AEEG decided to carry out a MEASURE ORIENTED EVALUATION instead of a POLLUTION ORIENTED EVALUATION, which is the usual practice when developing an action plan. Three approaches have been chosen to design the plan: quantification approach, starting from

existing sources and last but not least, presumption of details.

Furthermore, AEEG used three databases. EDABA (It is the emission inventory of Lower Austria and Burgenland, which was elaborated by AEEG. It includes mobile and non-mobile emission sources and numbers different energy consumptions and the associated emission factors), WOHNSIM (An energy simulation model for the Lower Austrian housing sector; simulates effects of several measures including various conditions/settings), TEMO (Traffic Emission Model Ozone is a simulation model, which was designed to simulate ozone precursors. It was modified and adapted to PM10 emission).

Finally, AEEG designed the matrix. On the first stage, it describes each measure. On the second stage, each measure is analysed in which way it can contribute to emission reduction. The matrix also shows the directives it supports (PM10, Kyoto or NEC). Last but not least, the matrix gives an overview on how and by whom the measures should or can be implemented, which costs will occur and the health effects it will have.

At the end, AEEG identified 172 measures that may lead to a reduction of PM10 emissions, whereas 87 measures concern non-mobile and 85 apply to mobile sources. The most effective measures found are related to particle absorbers (house heating), diffuse emissions (industry, agriculture), etc.