

**Mgr inż. Katarzyna Bebkiewicz**

Instytut Ochrony Środowiska – Państwowy Instytut Badawczy

Krajowy Ośrodek Bilansowania i Zarządzania Emisjami (KOBiZE)

Temat rozprawy doktorskiej:

“Modelowanie emisji zanieczyszczeń z transportu drogowego do celów jej inwentaryzacji”

### **Streszczenie w języku angielskim**

#### *Modeling of pollutant emissions from road transport for inventory purposes*

Knowledge of the total emission of pollutants from road transport in time and space, depending on the types of vehicles and conditions of their use, is necessary to assess the impact of road transport on the human environment, both natural and civilization. The only way to determine the total emissions of pollutants from mobile sources is modeling.

The aim of this dissertation is to investigate the possibility of using the procedures used in the official road transport emissions inventory to study a model of these emissions in view of the input data and model parameters characterising the structure, intensity and use of road vehicles. The research task of the dissertation is to systematise the problems of modelling emissions and to identify a model for road transport emissions. A study of national emissions was carried out for the years 2000 – 2020 under different vehicle traffic conditions: in urban congestion, urban with no congestion, rural and on motorways and highways. These studies were carried out due to input values such as the number of road vehicles in the cumulative categories and the intensity of use of road vehicles in the cumulative categories. Research was also carried out on the model of pollutant emissions from road transport due to the model parameters, primarily due to the nature of road vehicle traffic in specific conditions. The sensitivity of the road transport pollutant emissions model to model vehicle traffic conditions was examined. The structure of road vehicles was modeled as elementary and cumulative categories.

A clear trend towards decreasing national annual emissions of pollutants was found despite the dynamic increase in the intensification of motorisation. The improvement is particularly noticeable in the case of emissions of carbon monoxide and non-methane volatile organic compounds. This is the result of a change in the structure of road vehicles due to their ecological properties – pollutant emissions.

Moreover, as a result of the conducted research, it was found that the average value of vehicle speed is an effective zero-dimensional speed characteristic for assessing the traffic characteristics of vehicles in the road transport emissions inventory.

Wyłączenie jawności w zakresie danych osobowych oraz prywatności osoby fizycznej na podstawie art. 5 ust. 2 ustawy z dnia 6 września 2001 r. o dostępie do informacji publicznej (t.j. Dz.U. z 2006 r. poz. 1764)

Elżbieta Gorgoń