Short- and medium-term potential for more sustainability in asphalt road construction

Prof. Dr.-Ing. Alexander Buttgereit, *Department of Road Construction - Maintenance Management, Jade University of Applied Sciences, Oldenburg, Germany*

Leaders in public administrations are facing ever greater and ever more challenges when it is a matter of making the public infrastructure fit for the future. What contribution can the engineering sciences make to this, in particular the "road construction and transport" sector?

Smart city, green city, safe streets, resilient infrastructure, digitization are just a few of the buzzwords that have been increasingly in the public eye for a few years now.

At the same time, climate change and its effects are becoming more and more noticeable and the public is becoming increasingly aware of them. The time for effective countermeasures is becoming shorter and shorter. In order to counteract the effects, possible fields of action can be differentiated according to the extent to which, on the one hand, the consequences for the infrastructure can be reduced or the infrastructure can be adapted to the new boundary conditions. On the other hand, suitable measures should be taken to significantly reduce greenhouse gas emissions.

Public infrastructure plays the central role in the mode of operation and organization of our daily lives and will continue to do so in the future. Certainly, the boundary conditions and requirements for infrastructure will be different in some cases than they are today. It is a little surprising, for example, that while building construction is assigned an important role in the fields of action for reducing CO2 emissions, public transport infrastructure receives virtually no mention. Yet many roads are already very old and will have to be renewed in the next few years. At the same time, the younger roads need to be maintained in such a way that they will reach their intended service life. Consequently, there is a very large potential here for reducing CO2 emissions.

The development and introduction of innovations can take many years. Consequently, there is a risk that the effectiveness of innovations will only have a delayed effect. Using the city of Münster as an example, the question is to be examined as to what can already be achieved today with existing technologies in asphalt road construction for climate protection and resource conservation. To this end, starting with laboratory tests on bituminous binders and different asphalt variants through to implemented road construction projects, various test programs have been implemented, the results of which will be reported and discussed.

It is also important to mention that a sustainable asset management system is used to manage the lifecycle-oriented tasks, goals and processes.