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Context / Social problem

Besides the need for mitigating climate change, realisation has dawned that certain changes can no longer be prevented. There is a demand for better understanding of the possible consequences of climate change for various sectors of the economy. Adaptation policies can then be built around these insights. Project A08 investigates possible effects of climate change for the transport sector, with an emphasis on inland shipping and road transport.

What do we know/not know?

Little or nothing is known about the effect of weather and climate change on the inland shipping sector. There is much to be learned in this area. The literature on the effects of climate change and weather conditions on road transport is also limited. A reasonable number of studies have been done on the effects of weather (especially precipitation) on road accidents, some of which have also examined the influence on weather on cycling behaviour. Less is known about the effects of the weather on the choice of transport mode and the effect on congestion (directly and indirectly via accidents).

What is being studied?

Current research is examining the welfare effects of low water levels on transport by inland shipping. The core factors are reliability of transport by inland shipping and the effects on the generalised transport costs. Also, the potential loss in market share of inland navigation in various markets is analysed, using the transport model NODUS. Another line of research is into the value of time and the value of reliability in the inland navigation sector. Considering the research on other transport modes, with

a focus on road transport, a first objective is to assess the existing knowledge on the relationship between climate change / weather and transport by performing a literature survey. We furthermore analyse changes in mode choice decisions due to changes in weather conditions. Historical weather and mode choice data may reveal such shifts, and possible consequences for future transport patterns are assessed by using climate change scenarios. We also aim to analyse the complex relationship between weather, congestion and traffic accidents. Using predicted changes in future weather conditions we assess the potential consequences of climate change for the road network.

What are the results, and who are they for?

Besides the scientific interest in the various branches of the research in this project, other parties have expressed interest. The research on inland shipping may be of interest to the sector itself and to policymakers (inland shipping sector, Port of Rotterdam). In the latter case, it could be relevant for decisions on building new locks and upgrading certain harbours (e.g. infrastructure) if the demand for transport grows. The road transport study has attracted the attention of organisations like AVV Transport Research Centre. This organisation is responsible for warning and information systems on the roads, which could be used to prevent problems during bad weather. Also the SWOV (Dutch national road safety research institute) and the Ministry of Transport and Public works (knowledge centre KiM) have shown substantial interest in our research.

