

Summary

The Human Factors Guideline for safer infrastructure was developed by the World Road Association (PIARC) in order to improve road safety on rural and country roads. The guideline displays how cognitive and psychological properties of road users should be acknowledged in road design. On this basis, the IST-Checklist 2010 was designed to assess whether Human Factors were adopted in road design.

Moreover the Checklist was used to revise 10 international guidelines of rural road design, and the results were summarized in the report Human Factors of spatial perception. The World Road Congress in Mexico in 2011 discussed the outcome and the bad results of the German design guideline of rural roads (RAL) were criticised, though neither other German design standards nor other references were taken into account.

This thesis reassesses the German design guideline of rural roads (RAL) on the basis of the IST-Checklist 2010 under consideration of the entire body of German design standards, reconsiders the IST-Checklist 2010 itself and concludes with its relevance for casualties on rural roads in Germany.

Adjustment is needed regarding differing numbers of response time and manoeuvre zone in the IST-Checklist 2010 and other reports published by PIARC. Additionally a direct comparison of every aspect of this analysis with the result of Human Factors of spatial perception is not feasible since some criteria mentioned in the IST-Checklist 2010 were not considered when comparing the 10 international guidelines of rural road design.

The results of this analysis, using the IST-Checklist criteria, are contradictory to those of Human Factors of spatial perception. According to Human Factors of spatial perception 23 % of the criteria were fulfilled, 29 % were partly fulfilled and 48 % were not fulfilled. When limiting the outcomes of this thesis' analysis to the comparable criteria, 55 % were fulfilled, 39 % were partly fulfilled and 6 % were not fulfilled. The total result is also convergent, 61 % were fulfilled, 29 % were partly fulfilled and 10 % were not fulfilled. Therefore the bad outcome, regarding the German guidelines, put up by Human Factors of spatial perception can be confuted.

The analysis is followed by an examination of the criteria taking into account statistics of casualties on rural roads in Germany. Whether the criteria are valued as relevant or not, can only be determined by accident location. The accident cause shall not be examined because statistics do not allow deductions on whether the accident might have been avoidable by adhering to Human Factors. Based on its relevance, each criterion is evaluated which leads to an advanced version of the Checklist. This advanced version also accounts for other deficiencies of the IST-Checklist 2010 that become obvious during its analysis and are summarized in the last chapter of this thesis.