

QUANTITATIVE RISK ASSESSMENT FOR RAILWAY SAFETY – THE SAFETY NET MODEL

The hazard level of the whole BR system has in the past been measured by means of accident statistics. All incidents are given hazard ratings, which can be amalgamated to provide a measure of year on year performance with regards to safety level. Hazards can also be ranked in order of seriousness, allowing problems to be addressed according to priority. The hazard ratings use fairly arbitrary scales of severity and probability of outcome, therefore there is no absolute measure of the hazardousness of an incident in terms of expected casualties.

Different hazard rating systems used in different incident databases result in ratings which are difficult to compare. This resulted in the need for a consistent and systematic method of measuring safety.

The report describes the model, developed to quantify the degree of risk inherent in the operation of a particular section of railway route. The model allows hazards to be ranked directly in terms of casualty toll and frequency of occurrence. It will also show how strategic changes in operation of a particular route will alter its safety record. In particular the benefits of safety improvement projects can be evaluated, providing a reasoned evaluation of the projects in terms of cost per life saved.