

INTISARI

Pemerintah Indonesia sedang berupaya untuk meningkatkan konektivitas jalan dengan menargetkan waktu tempuh di bawah 1,9 jam/100 km pada tahun 2024. Terdapat beberapa hambatan seperti keterbatasan anggaran, masalah lahan, dan masalah sosial yang menghambat upaya tersebut. Tujuan dari disertasi ini adalah untuk mengembangkan model penilaian kinerja ruas jalan yang komprehensif dan yang mempertimbangkan indikator kinerja perkerasan jalan, bahu jalan, dan drainase jalan di Provinsi Jawa Tengah.

Pengumpulan data dilakukan terlebih dahulu melalui wawancara terstruktur dan pengumpulan data sekunder dan primer menggunakan teknik *purposive sampling*. Responden terdiri dari pakar di provinsi Jawa Tengah yang terlibat dalam penyelenggaraan jalan nasional, dengan jumlah 125 orang yang dipilih menggunakan metode *cluster sampling* dan *two stage cluster sampling*. Data dianalisis menggunakan statistik deskriptif, analisis faktor, dan *Structural Equation Modeling* (SEM). Model struktural digunakan untuk mengetahui faktor-faktor apa saja yang memengaruhi kinerja ruas jalan dan seberapa besar pengaruh masing-masing faktor tersebut.

Hasil uji validasi model indikator yang signifikan berkontribusi pada kinerja ruas jalan, terdapat tiga faktor yang dianggap memengaruhi kinerja ruas jalan, adalah kinerja perkerasan jalan, kinerja bahu jalan, dan kinerja drainase jalan. Hasil analisis menunjukkan bahwa kinerja perkerasan jalan berpengaruh paling signifikan terhadap kinerja ruas jalan, sebesar 58,1%. Kinerja bahu jalan dan kinerja drainase jalan juga cukup berpengaruh terhadap kinerja ruas jalan, masing-masing sebesar 20,2% dan 21,7%. Model penilaian kinerja ruas jalan yang diperoleh adalah $NKRJ = (0,581.NKPJ) + (0,202.NKBJ) + (0,217.NKDJ)$. Kontribusi tiap indikator kerusakan atau gangguan terhadap perkerasan, bahu, dan drainase jalan juga telah diidentifikasi. Model penilaian kinerja perkerasan jalan yang diperoleh adalah $NKPJ = 0,360.L + 0,221.R + 0,334.A + 0,281.K + 0,186.AK + 0,172.KA$. Model penilaian kinerja bahu jalan yang diperoleh adalah : $NKBJ = 0,311.BA + 0,294.GB + 0,292.LB + 0,053.BT + 0,050.KB$. Model penilaian kinerja drainase jalan yang diperoleh adalah $NKDJ = 0,346.PS + 0,311.SD + 0,296.KS$ Selain itu, ditemukan bahwa indikator-indikator tersebut tidak selalu memberikan pengaruh yang sama terhadap kinerja ruas jalan, sehingga perlu dilakukan penyesuaian dalam perencanaan program pemeliharaan jalan nasional.

Kata Kunci: Penilaian kinerja jalan, Kinerja perkerasan jalan, Kinerja bahu jalan, Kinerja drainase jalan, Analisis kuantitatif, Model persamaan struktural (SEM).

ABSTRACT

The Indonesian government is working to improve road connectivity by targeting travel times of under 1,9 hours/100 km in 2024. However, there are still several obstacles such as budget constraints, land issues, and social problems that hinder these efforts. The aim of this research is to develop a comprehensive and quantitative-based road performance assessment model that takes into account the performance indicators of road pavement, shoulders, and road drainage. This study also aims to verify the accuracy and reliability of the models developed using field data. This research was conducted to evaluate the implementation and evaluation of road and bridge preservation packages in the province of Central Java.

Data collected through structured interviews and collecting secondary and primary data using a purposive sampling technique. Respondents consisted of experts from Central Java who were involved in the implementation of national roads, with a total of 125 people selected using cluster sampling and two stage cluster sampling methods. Data were analyzed using descriptive statistics, factor analysis, and Structural Equation Modeling (SEM). Using structural models, it is possible to determine which elements influence the performance of roadways and to what extent.

From the validation test findings of model indicators that significantly contribute to road performance, three factors are believed to influence road performance: pavement performance, road shoulder performance, and road drainage performance. Based on the results of the analysis that has been done, it can be stated that the performance of the road pavement has the most significant effect on the performance of the road segment, amounting to 58.1%. Road shoulder performance and road drainage performance also significantly influence road performance, respectively 20.2% and 21.7%. The quantitative-based road performance evaluation model obtained in this study is $NKRJ = (0.581.NKPJ) + (0.202.NKBJ) + (0.217.NKDJ$. The quantitative-based pavement performance evaluation model obtained in this study is $NKPJ = 0.403.L + 0.354.F + 0.157.AK + 0.324.KA$. The quantitative-based drainage performance evaluation model obtained in this study is $NKDJ = 0.346.PS + 0.311.SD + 0.296.KS$. The contribution of each damage or disturbance indicator to the road pavement, shoulders, and drainage has also been identified. In addition, it was found that these indicators do not always have the same effect on the performance of road sections, so adjustments need to be made in planning the national road maintenance program.

Keywords: Road performance assessment, Pavement performance, Road shoulder performance, Road drainage performance, Quantitative analysis, Structural Equation Modeling (SEM).