



INTISARI

Perkeretaapian di Indonesia tidak terlepas dari peran penting sarana dan prasarana yang selalu dirawat dalam kondisi optimum. Kinerja operasional bergantung pada kesiapan sarana dan prasarana melalui perawatan dan pemeriksaan secara berkala. Proses pengecekan dan perawatan didukung dengan adanya depo dan stabling penyimpanan kereta dalam penyediaan sarana KA. Akan tetapi fasilitas penyimpanan dan perawatan sarana KA milik Negara belum terdapat bangunan yang tersedia. Penelitian ini dilakukan untuk menganalisis lokasi stabling sebagai fasilitas bangunan penyimpanan dan perawatan kereta untuk mengoptimalkan cakupan area pelayanan jaringan kereta di Jawa.

Metode yang digunakan adalah analisis multikriteria AHP-TOPSIS untuk menentukan kriteria yang berpengaruh dalam penentuan lokasi. Penentuan lokasi didapatkan berdasarkan peringkat nilai preferensi dari hasil analisis. Kemudian alternatif lokasi digambarkan dalam peta untuk menentukan cakupan area pelayanan. Selain menentukan lokasi stabling dalam penelitian ini juga digambarkan layout desain stabling kereta dilengkapi dengan fasilitas pendukung operasional.

Lokasi stabling didasarkan pada konsep cakupan wilayah, zonasi, pusat kegiatan nasional, dan persebaran jaringan perkeretaapian. Hasil analisis metode AHP didapatkan nilai pembobotan dengan detail kriteria topografi 0,096; ketersediaan lahan 0,110; kawasan bencana 0,217; interkoneksi 0,249; aksesibilitas 0,072; rencana tata ruang 0,257. Hasil analisis metode TOPSIS didapatkan peringkat berdasarkan nilai preferensi dengan detail urutan Gedebage 0,939; Pekalongan 0,786; Boharan 0,594; Rambipuji 0,590; Kebumen 0,538 dan Cikarang 0,430. Kebutuhan stabling di Pulau Jawa didasarkan pada tiga cakupan wilayah yakni Jawa Bagian Barat, Jawa Bagian Tengah dan Jawa Bagian Timur. Konsep perencanaan desain layout stabling SMN untuk memenuhi kebutuhan pelayanan yang efektif dan efisien terdiri dari klasifikasi sarana, panjang rangkaian, lokasi stabling, jenis stasiun dan layout emplasemen, tata letak stabling, dan fasilitas pendukung.

Kata kunci: optimalisasi lokasi, analisis AHP-TOPSIS, desain stabling kereta



ABSTRACT

The facility and infrastructure which maintained in optimum condition has played significant role towards railroad system. The operational performance depends on the facility and infrastructure condition which measures through periodic maintenance and inspection. Maintenance and inspection process was supported by the existence of depo and stabling in providing train facilities. However, storage and maintenance facility of train which belongs to the nations have no existing building yet. This study was carried out to analyse stabling and depo location of train to optimalization railway network services in Java.

The multicriteria AHP-TOPSIS was used as methodology to define the suitable criteria that have significant impact while determining the location. Moreover, the location was determined based on the preference value rank as the result from the analysis. And then, the alternative location is shown in the maps to determine scope of services. Despite determining the stabling location, this study also provide the stabling design completed with supporting operational facility

Stabling location is based on the concept of area coverage, zone distribution, center of national activity, and the distribution of the railroad network. The result from AHP method show the weight score criteria with 0.096 for topograph, 0.110 for land use availability, 0.217 for disaster region, 0.249 for interconnectivity, 0.072 for accessibility, and 0.257 for planology. The result from TOPSIS method based on the preference value rank with 0,939 for Gedebage; 0,786 for Pekalongan; 0,594 for Boharan; 0,590 for Rambipuji; 0,538 for Kebumen and 0,430 for Cikarang. The needs from stabling operation in Java based on three (3) main region namely West of Java, Center of Java, and East of Java. The concept of stabling design layout to provide the effectively and efficiently service consist of facility classification, length of train, stabling location, type of station, emplacement layout, stabling placement pattern, and supporting facility.

Keywords: location optimalization, stabling design, multicriteria AHP-TOPSIS