

ABSTRACT

Train is one of the land transportation that is widely used by the public. PT Kereta Api Indonesia (Persero) is a BUMN which is engaged in the provision of rail transport services in Indonesia, both of the human transportation nor transportation items transportation. As one of the organizers of transportation services, aspects of safety and security would be two major indicator of the success of PT Kereta Api Indonesia (Persero). According to data owned KNKT during the period 2007-2011 amounted to 32% of the accidents occurred caused by the condition of the rail infrastructure such as rail roads, bridges, and signal. Rail is one part of the railway infrastructure that the system reliability should be improved. To improve the reliability of the condition of the rail road maintenance activities need to be done properly so that failure does not occur on the rail road.

Solutions that can be performed to solve this problem is with planning intervals inspections in terms of both time inspection planning about rail road conditions with consider to the level of reliability and knowing failure models of the railway as well as maintenance costs that must be paid by the company for optimize the railway maintenance activities using Markov Chain and modeling cost.

Based on the results of data processing by using a Markov Process, ROCOF (Rate of occurrence of Failure) and ROCOD (Rate of occurrence of Degradation) are obtained planning optimal inspection interval is every 6 months. And the calculation of the maintenance costs are influenced by the inflation rate of 4%, then the total cost of maintenance for 5 years is Rp 1,711,789,488.

Keywords: Markov Process, ROCOF, ROCOD, maintenance cost