MODELLING TRAIN REVITALIZATION TOWARD URBAN SUSTAINABLE TRANSPORTATION SYSTEM : CASE STUDY SURABAYA CITY

By : Angga Akbar fanani
Student Identity Number : 2511202002
Supervisor : Prof. Dr. Ir. Budisantoso Wirjodirdjo, M.Eng
Co-Supervisor : Erwin Widodo, ST, M.Eng. Dr.Eng

ABSTRACT

Surabaya is the most populous city number 2 in Indonesia with a value of 3,110,187 causing the mobility needs of the population becomes large. The transportation system in Surabaya currently has several problems including traffic congestion caused by the growth of motor vehicles does not matched the addition of adequate road capacity and high consumption of fossil fuels is causing an increase in air pollution in the city of Surabaya. Referring to the problem of mapping results obtained that the transfer mode of transportation is an alternative solution to solve the problem of transportation in the city of Surabaya. Modes of transportation that have the potential to be used as an alternative solution is rail transport considering the number of capacity and fuel consumption per passenger. On the other hand KA has many limitations associated with the facilities and infrastructure for the operational activities. Revitalization in this study is intended to improve the usability of the train entering through the addition of new functions as the supporting infrastructure. Transportation system is a complex system where there are interactions between variables which affect the economic, social and environment aspects underlies in choosing system dynamic method to solve this problem. Based on the simulation generated several policy scenarios for realizing sustainable urban transportation system in the city of Surabaya, namely: the addition and conversion of passenger stations, additions and reactivation of the railway line, the addition of parking capacity at the railway station, the addition of scheduled departure and addition of KA KA series. In accordance with the results of the simulation showed that the addition of application scenarios train departure schedules have a positive impact tehadap environmental aspects and social aspects. As for the economic aspect there are trade-offs with other scenarios. To resolve the trade-off then made a combination of scenarios to measure the impact on the three aspects of sustainability. The combination of an optimistic scenario (application of an increase in the five scenarios) have been a significant influence on the sustainability aspect significantly.

Keywords : System Dinamic, Urban Sustainable Transportation System, Revitalization, Train, Policy,