

Feasibility analysis of investment with life cycle cost approach on prasti tunnel water treatment plant (WTP) conceptual design

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Abstrak

Jakarta's problems such as flood and traffic inspired a PRASTI (Public Railway and Stormwater Infrastructure) infrastructure design, which is a multifunctional tunnel whose one of its function is to drain Western Canal Flood (BKB) overflow. The feasibility study of this project initiated the development of PRASTI Water Treatment Plant (WTP) which aimed to increase the added functions of this infrastructure design. Before the construction of WTP, project feasibility study was required to see investment feasibility so that investors could join in developing this infrastructure. This study aimed to analyze the feasibility of the infrastructure using Life Cycle Cost (LCC) method by considering cost of development, operational, and maintenance costs as well as revenue components in 2014-2045 period. Cost analysis was obtained from benchmarking to several countries and applications of different technologies. Based on the study it's discovered that investment feasibility of a WTP project was strongly influenced by field condition (electricity and chemical needs) which will be used. Difference of operational and maintenance cost schemes in Life Cycle Cost analysis in PRASTI WTP project indicated that the project is financially feasible with IRR amounting to 23% (optimistic) and IRR value of 8% (pessimistic).