Intisari

Pusat Pengelolaan Komplek Gelora Bung Karno (PPK GBK) memiliki tugas melaksanakan pengelolaan Komplek Gelanggang Olah Raga Bung Karno untuk menunjang kegiatan olah raga nasional dan melestarikannya sebagai *national heritage*, melalui pemeliharaan yang efektif dan efisien agar fasilitas-fasilitas yang dimilikinya berfungsi dengan baik dan umur bangunannya menjadi lebih lama.

Penelitian ini menganalisis kegiatan pemeliharaan pada Gedung Istora Senayan yang dilaksanakan oleh PPK GBK dengan pendekatan metode *Overall Equipment Effectiveness (OEE)* dan menganalisis biaya pemeliharaan gedung Istora Senayan menggunakan metode *Life Cycle Cost (LCC)* dengan alat bantu program *Microsoft Excel.* Data yang digunakan untuk perhitungan *Overall Equipment Effectiveness (OEE)* adalah data *loading time, operating time, downtime, amount produced, ideal cycle time,* dan *amount defect*. Data yang digunakan untuk perhitungan *Life Cycle Cost (LCC)* adalah data biaya *initial investment,* biaya energi dan air, biaya operasional, dan biaya pemeliharaan dan penggantian. Simulasi *Monte Carlo* sebanyak 1000 kali digunakan untuk menghilangkan unsur ketidakpastian pada variabel inflasi dan *discount rate*.

Hasil perhitungan nilai *Overall Equipment Effectiveness (OEE)* sebesar 66,29%. Nilai OEE tersebut masih di bawah standar *benchmark world class* yaitu 85%. Perhitungan *Life Cycle Cost (LCC)* gedung Istora Senayan setelah menggunakan simulasi *Monte Carlo* sebanyak 1000 kali adalah sebesar Rp586.452.787.914,32 meliputi biaya *initial investment* sebesar Rp132.121.000.000,00, biaya operasional sebesar Rp123.943.141.706,75, biaya energi dan air sebesar Rp314.622.411.729,07, dan biaya pemeliharaan dan penggantian sebesar Rp15.766.234.478,50, dengan komposisi biaya terbesar adalah biaya energi dan air yaitu sebesar 54%.

Kata Kunci: *overall equipment effectiveness, life cycle cost,* inflasi, *discount rate*

Abstract

The Bung Karno Sports Complex Management Center (PPK GBK) has the task of carrying out the management of the Bung Karno Sports Complex to support national sports activities and preserve it as a national heritage, through effective and efficient maintenance so that its facilities function properly and the building age become longer.

This study analyzes maintenance activities at the Istora Senayan Building carried out by PPK GBK using the Overall Equipment Effectiveness (OEE) method approach and analyzes the maintenance costs of the Istora Senayan building using the Life Cycle Cost (LCC) method with Microsoft Excel program tools. The data used for the calculation of Overall Equipment Effectiveness (OEE) is data on loading time, operating time, downtime, amount produced, ideal cycle time, and the amount of defects. The data used for the calculation of Life Cycle Cost (LCC) is data on initial investment costs, energy and water costs, operational costs, and maintenance and replacement costs. A thousand times Monte Carlo simulations are used to eliminate the element of uncertainty in the inflation variable and the discount rate.

The result of the calculation of the Overall Equipment Effectiveness (OEE) value is 66.29%. The OEE value is still below the world class benchmark standard of 85%. Calculation of the Life Cycle Cost (LCC) of the Istora Senayan building after using the Monte Carlo simulation 1000 times is IDR586,452,787,914.32 including an initial investment cost of IDR132,121,000,000.00, operational costs of IDR123,943,141,706.75, energy and water costs of IDR314,622,411,729.07, and maintenance and replacement costs of IDR15,766,234,478.50, with the largest composition of costs being energy and water costs at 54%.

Keywords: overall equipment effectiveness, life cycle cost, inflation, discount rate