

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Based on the analysis and discussion that has been carried out in the previous chapter, the following conclusions can be drawn.

1. The cost categories in office buildings consist of initial costs, maintenance and replacement costs, and operational costs.
2. Based on the results of the calculation of the LCC for office buildings in Jayapura, for 25 years the building has been used, the details are as follows:
 - Initial fee of Rp. 25,839,000,000,-.
 - Operational costs of Rp.3.928.573.091,-.
 - Maintenance and replacement costs Rp. 18.050.028.377,-.
3. By using the Present Worth Method at an interest rate $(i) = 5.48\%$ and a period $(n) = 25$ years, the Life Cycle cost of the office building is Rp 47,817,601,467.87.
4. If the salvage value is Rp. 4,306.500.000 then obtained LCC amounting to Rp. 47,258,737,976,-.

5.2 Suggestion

Based on the result of research and discussion of life cycle cost analysis of an office building in Jayapura, the following suggestion:

1. Service life research for other buildings needs to continue. Life cycle cost of office building refers to 25 years of use, interest rate $(i) = 5.48\%$. So that for a period less or more than the period specified in this study, recalculation is required.
2. The cost calculation in this study by considering the *future value* using the assumption of a fixed interest rate for 25 years. If the desired value is in accordance with change in prices and services each year, it can predict change in interest rates that occur each year.
3. Based on the results obtained from the calculation of maintenance and replacement costs, the cost of items architecture is the largest at 63%, therefore better supervision is needed to maintain items so that they can be used longer. Intense care from the cleaning service and building maintenance is needed so that items are not easily damaged and are better maintained. So it can reduce maintenance costs.
4. Develop a good relationships with people who understand the service period, service life, and costs of the building material components is needed so the data can be obtained more accurately. The more accurate the data obtained, the more realizable the result will be.

REFERENCES

- Bull, John W. 2003. *Life Cycle Costing for Construction*. Britannia: Routledge.
- Dhillon, B. 2003. *Life Cycle Costing: Techniques, Models and Applications*. Britannia: Routledge.
- Kaming, Peter F. 2017. Implementation of Life Cycle Costing for a University Building. *Kaming*. 1: 29-38.
- Kaming, Peter F. and Yahya, Ogy Ade. 2019. Study on life cycle costing: a case of building for private high school in Jakarta. *MATEC Web Conf* . 258: 1-8.
- Koento, Kautsar A. 2012, Estimasi Life Cycle Cost (Inisiasi Konsep Green Building) Gedung Campus Center ITB. *ECON 101*. 1: 1-3.
- Kaming, Peter F. and Mardiansyah. 2015. Implementation of life cycle costing: a case of hostel building in Kediri, Eastern Jawa, Indonesia. *Applied Mechanics and Materials*. 845:326-331.

BSI. BS ISO 15686-5. 2017. Building and Construction Assets – Service Life Planning – Part 5: life cycle costing. BSI-BCIS. 2017

Gittinger, J.P. 1982. *Economic Analysis of Agricultural Projects (A World bank Publication) Second Edition*. Baltimore: The John Hopkins University Press.

Direktorat Jenderal Cipta Karya, Peraturan Menteri Pekerjaan Umum Nomor:24/PRT/M/2008, *Tentang Pedoman Pemeliharaan dan Perawatan Bangunan Gedung*, Departemen Pekerjaan Umum (2008)

Pujawan, N. 2004. *Ekonomi Teknik*. Guna Widya: Surabaya.

Fuller, S. K. and Peterson, S. R. 1995. Life Cycle Costing manual for the Federal energy management program. *NIST Handbook*. 135: 1-8.

Mearig, T., Coffee, N. and Morgan, M. 1999. Life cycle cost analysis handbook. *Departement of Education & Early Childhood Development Education Support Services/ Facilities*. 1 : 10.