



## Alternative Design of Wastewater Treatment Plant with Anaerobic Baffled Reactor and Anaerobic Filter for Romokalisari Flats Surabaya

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**Abstract :** Romokalisari flats are located at Surabaya City and have been built since 2015. Although this flats is relatively new, this flats have some difficulties that caused by the absence of grey water treatment. Furthermore, the untreated septic tank discharge water can endanger the quality of ground water. Thus, additional wastewater treatment needs to be built to treat the issue. This design gives two alternatives that will be used, Anaerobic Baffled Reactor (ABR) and Anaerobic Filter (AF). The two units are selected because of the cheap construction and operational cost as well as an easy maintenance. The dimension calculation of both ABR and AF are referring to a design criteria. The DED, BOQ, and total cost each of units are including the operational and maintenance (OM) cost planned for five year range. The result of calculation will be compared and selected to which unit that will be used in the flats. The total dimension of AF from calculation result is 16 m x 8,3 m x 2 m and for ABR is 10 m x 11,6 m x 2 m. Construction cost of AF is IDR 693.547.395 and total cost of OM is IDR 245.134.720 for 5 years, while construction cost of ABR is IDR 435.361.470 along with total OM cost of IDR 243.134.720. ABR has some advantages from area needs and total cost compared to AF. Therefore it can be concluded that ABR is more suitable to be built in Romokalisari flats.

**Keywords :** Flats wastewater, ABR, AF, black water, grey water.

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