

## CHAPTER 5

### CONCLUSIONS AND RECOMENDATIONS

#### 5.1. Conclusions

Based on the study results obtained, it can be concluded that:

1. According to the field investigation, the major source of pollution in Cinambo River comes from domestic wastewater. The water quality test showed that the BOD concentration of Cinambo River exceeded the water quality standard for raw water use of class III even though in term of DO concentration it can be noticed that the Cinambo River in general still meet the minimum standard.
2. The model parameters of  $K_1$  and  $K_2$  obtained from the calibration and verification process are  $0.5 \text{ day}^{-1}$  and  $17\text{-}20 \text{ day}^{-1}$  respectively.
3. When the maximum BOD concentration of wastewater is applied, the DO concentration at downstream of Cinambo River decreases down from  $5.1 \text{ mg/L}$  become  $3.28 \text{ mg/L}$ . While when the volume of wastewater is increased for about three times, the DO concentration at downstream Cinambo River will be significantly decreasing to  $1.15 \text{ mg/L}$ .
4. The DO concentration of Cinambo River will reach  $6.1 \text{ mg/L}$ , meaning fulfilling the requirement of raw water quality standard for class II, if the total rate of domestic wastewater discharged into the river is less than  $40 \text{ L/s}$ .

## **5.2. Recommendations**

In order to perform more accurate analysis, it is recommended to include time series data both river flow rate and water quality. As this study found that the Cinambo River has been severely polluted and may not be able to afford more wastewater loading either higher concentration or volume, to avoid worse condition of Cinambo River, it is strongly recommended that the development of Gedebage techno polis area must be facilitated with necessary wastewater treatment plant. While for the local existing residential, installation of septic tank will be very helpful.

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