

# CHAPTER 5

## CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

Based on the analysis results obtained from the conventional method developed by Wallingford and the HEC-RAS software, the following conclusions can be drawn:

1. The existing condition of Maen Village is vulnerable to get flooding. One of the flood prevention solutions is to construct levees along the Maen River.
2. The flood event in 2015 that affected Maen Village was caused by rainfall with 10 years return period. From the modeling results, with the existing levee condition along approximately 250 meters, the average flood depth due to 10 years return period rainfall is 50 cm, and the average flow velocity is 0.8 m/s.
3. To prevent future extreme flood events, the construction of levees is carried out along approximately 2800 meters with the crest elevation of +5 meters along the Maen River. The construction of these levees is considered capable of mitigating flood events with 10 years return period and even 25 years return period.
4. Gradually constructed levees have different flood characteristics from one another. Comparing the flood depth, the upstream-constructed levees tend to have slightly shallower flood depths compared to the downstream-constructed ones. Conversely, when considering the flow velocity characteristics, the flow velocities are generally higher for the upstream-constructed levees.
5. The gradually construction of levees is recommended to be carried out from the upstream area towards the downstream area. This is evident in the Flood Hazard Index analysis, where the more hazardous FHI values are predominantly associated with levee construction from the downstream area rather than the upstream area.

## 5.2 Recommendation

This thesis certainly has some limitations, leaving room for improvement to make it more comprehensive. The author provides several recommendations for future This thesis research certainly has some limitations, leaving room for improvement to make it more comprehensive. The author provides several recommendations for future related studies to be even better. These recommendations are as follows:

1. Gradual construction of levees should start from the upstream area towards the downstream area.
2. The analysis of gradually levee construction should consider the flood risks calculation. This may include assessing the potential impact on the population, building damages, vehicles, and other aspects.
3. The analysis of gradually levee construction can be performed by modifying certain factors, such as determining the upstream and downstream locations, the length of the constructed upstream or downstream area, and the dimensions of the levee itself.
4. Conducting stability and safety calculations for the levee construction to control the flow discharge of the Maen River.

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