CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Based on the results obtained from the analysis in this study, several points can be highlighted as conclusions as following:

1. The model is made for forecasting in dry months for each river basin.
2. There are 2 models that can be used for each river basin. Model selection is based on the smallest RMSE and the longest forecast time.
3. Based on the smallest RMSE value, the 2.3 model with the input Observed SPI from 1 month before the current analyzed month, Historical ONI Index from 2 month before the current analyzed month, and Forecasted ONI Index on the current analyzed month is chosen for LBB river basin. This model can forecast the SPI index for the next month from the analyzed month.
4. Based on the longest forecast time, the 2.4 model with the input forecasted ONI Index for all months is chosen for LBB river basin. This model can forecast the SPI index for the next 6-months from the analyzed month.
5. The model used in the LBB river basin has a maximum value of RMSE 0.444 for model 2.3 and RMSE 0.684 for model 2.4.
6. The model for the Sumbawa river basin was made for the dry month in May – October.
7. Based on the smallest RMSE value, with the input Observed SPI from 1 month before the current analyzed month, Observed SPI from 2 month before the current analyzed month, and Forecasted ONI Index on the current analyzed month is chosen for Sumbawa river basin. This model can forecast the SPI index for the next month from the analyzed month.
8. Based on the longest forecast time, the 2.4 model with the input forecasted ONI Index for all months is chosen for sumbawa river basin. This model can forecast the SPI index for the next 6-months from the analyzed month. This model can only be used for forecasting for July until October.

9. The model used in the Sumbawa river basin has a maximum value of RMSE 0.620 for model 2.1 and 0.698 for model 2.4.
10. Based on the RMSE values, the longer the forecast model's ability to forecast the smaller the accuracy of the model, this is in line with the Flood Forecasting

5.2 Recommendations

Considering the possible weakness on completing this analysis, further considerations and suggestions needed to improve the quality of analysis results, as following:

1. In order to get better result for Sumbawa river basin,TRMM rainfall correction based on the ground station rainfall data is needed.
2. Further studies should conduct the measurement of the drought intensity and duration associated with agricultural and hydrologic drought to get more parameters to be the input for the forecast model in study areas
3. The model used is not only 2nd order polynomial and multi linear regression, it can be developed with other models such as ARIMA, SARIMA, Markov Chain, Loglinear, ANN, ANFIS, etc.

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