

Sirikhwan Charoenkhun 2013: Self - Purification Capability of Tha Chin River to Accommodate the Deteriorated Qualitative Water of Crisis Floods 2011 in the Central After Moving to Bangkok for Safety Flow to the Gulf of Thailand. Master of Science (Environmental Science), Major Field: Environmental Science, Department of Environmental Science. Thesis Advisor: Professor Kasem Chunkao, Ph.D. 192 pages.

The study was focused on water quality and self-purification capability of Tha Chin river after accommodating drainage of floodwater from flooding crisis in 2011 in Bangkok and the Central region of Thailand. The watercourse of study in Tha Chin River from Nakhornchaisri District, Nakhornpathom Province through outlet in Muang District, Samutsakhorn Province, with the distances about 104 kilometers with 21 stations. Two sampling periods were placed on January 2012 for the accommodated floodwater and April 2012 for the non-accommodated floodwater. Sampling water by velocity and flow of water. Self- purification capability was evaluated by the Streeter & Phelps Model. The result shows that the water quality in the accommodated floodwater period was better than the water quality of non-accommodated floodwater period with the concentrated BOD about  $0.98 \pm 0.78$  mg/L in January and  $3.29 \pm 1.29$  mg/L in April. DO about  $1.26 \pm 0.65$  mg/L in January and  $2.27 \pm 1.23$  mg/L in April. Furthermore, the self- purification capability of the river in the accommodated floodwater period was higher than that capability from the non - accommodated floodwater period with the numbers 0.36 in January and 0.31 in April. Also the rate of Deoxygenation was calculated in January 0.58 mg/L-day and 2.00 mg/L-day in April, the rate of reaeration is 0.79 mg/L-day in January and 0.62 mg/L-day in April. Summarily speaking, the drainage of floodwater into Tha Chin River was indicated in low effect on water quality because Tha Chin River is efficiency self – purification in-the zone about 10 km from the river mouth. However, the more drainage of floodwater the more effect on Tha Chin river’s water quality, the policy makers should be concentrated on the quantity of drainage to serve Tha Chin river sustainably.

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Thesis Advisor’s signature