

Jeamjit Kwankaew 2010: Study of Water Quality after Construction of Closure Dam Gate of The Bang Pakong Diversion Dam, Chachoengsao Province. Master of Engineering (Irrigation Engineering), Major Field: Irrigation Engineering, Department of Irrigation Engineering. Thesis Advisor: Associate Professor Jesda Kaewkulaya, Ph.D. 173 pages.

The study of water quality after construction of the regulating gate at Closure Dam of the Bang Pakong Diversion Dam, consisted of comparing study on the water quality before the construction of the regulating gate in B.E. 2544 – 2546 and after the construction of the regulating gate in B.E. 2550-2551, studying on the suitability of water quality for Aquatic Living, Irrigation, Consumption and also assessing the water quality status of water sources around that area.

Results of study on the water quality before construction of the regulating gate, were as: the water quality in the main river indicated pH, DO, BOD and NO_3^- -N were better than the area nearby Closure Dam. Whereas, after construction of the regulating gate, the water quality in the main river indicated pH, DO, BOD and NO_3^- -N were not much different from the area nearby Closure Dam. The comparative study on the water quality before and after the construction of the regulating gate, had showed the results as: the range of water quality indicated pH was 7.2-9.1 and 6.6-7.7, DO was 1.10-10.94 and 2.45-3.89 mg/l, BOD was 1.22-8.21 and 1.18-5.89 mg/l, NO_3^- -N was 0.1-1.5 and 0.1-0.5 mg/l, respectively. The water quality after the construction was significantly better than before the construction of the regulating gate with different levels of statistical confidence 0.05.

The results of study on a suitable water quality for Aquatic Living showed that most indices indicated that the water quality was appropriate enough for the Aquatic Living, except DO and SS. For irrigation: during January to April had been influenced by sea water, the range of high EC_w as showed 10.1–27.7 dS/m. while, during May to December, the range of EC_w was 0.2-1.6 dS/m, the water quality could be used for agriculture. For consumption: during January to April, the range of chloride was 3214 – 8769 mg/l and the range of total hardness was 1241–3533 mg/l which was high. During May to December, the range of chloride was 28-395 mg/l and the range of total hardness was 47 – 445 mg/l, the water had quality good enough for consumption but needed to go through the normal sterilization process and general improvement of water quality before.

Assessment the water quality status of water source by analyzed water quality and compared with surface water standard for surface water type3 showed that the status was “ WARNING ” that meant there were quantity of water, the flow and the water’s quality is a little lower than normal standard but still could be used and did not cause much problems.

Student’s signature

Thesis Advisor’s signature