

Soulivan Voravong 2014: Watershed Management for Controlling Water Quality of Petchaburi River, Petchaburi Province, Thailand. Master of Science (Environmental Science), Major Field: Environmental Science, Department of Environment Science. Thesis Advisor: Professor Kasem Chunkao, Ph.D. 146 pages.

Water quality degradation in Petchburi river will still be present in the years to come since water pollutions from municipal wastewaters, industrial wastewaters, and agricultural practices are not visible to be handled effectively. The research was aimed to find means how to handle water at Petchburi diversion dam for coping with stream pollution in Petchburi river through irrigation watershed management. There eight sampling points for collecting water samples since the year of 2002 to 2013 for analyzing water quality in relation to release water flow in consecutive velocity of 22.4, 100, and 377m<sup>3</sup>/s in order to obtain the better diluted stream water. Accordance with the same trends of water quality indicators, this study was taken in 10 water quality indicators included water temperature, pH, TDS, BOD, DO, EC, NO<sub>3</sub>, HN<sub>3</sub>, TCB and FCB as the representatives for determining the role of flow velocity in dilution capability. The results found that water temperature changed a little in municipal area, pH increased when water flow increase, EC and TDS decreased when water flow increased, NO<sub>3</sub> increased if water flow increased and HN<sub>3</sub> not detected when water flow increased, TCB and FCB increased when water flow increased particularly water flow throughout density communities, the BOD were gradually decreased from Petchburi diversion dam all the way to agricultural zone and jumping up during passing the city zone, and still jumping up in estuarine zone. Whenever the BOD decreases, the DO values were also decreased because of bacterial organic digestion process occurring while it flows except very high flow velocity. The flow velocity less 30 m<sup>3</sup>/s is recommended to release from Petchburi diversion dam for eliminating stream pollution by dilution process.

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Thesis Advisor's signature

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