Wimolmas Warasut 2014: Water Resource Management in Orchards and Para Rubber Plantations Under Climate Variability in Chanthaburi Province. Master of Science (Resource Management), Major Field: Resource Management, Department of Agricultural and Resource Economics. Thesis Advisor: Assistant Professor Supachat Sukharomana, Ph.D. 170 pages.

The objectives of this study were (1) to study water resource, distribution of water supplies, the drought risk areas and the cost of water supply for plants in one year in Chanthaburi province. (2) to analyze the water balance of orchards and para rubber plantation, and (3) estimate the cost in holding water supply to fight for drought that may occur from climate variability in Chanthaburi province. The data used in the study were obtained from a project entitled "Integrated adaptation strategies to climate variability on the production potential of agricultural sector in eastern region of Thailand." And collected from relevant research and related thesis. The analysis consisted of average incremental cost (AIC) of digging a pond to fight for drought from climate variability.

The study showed that one rai (1,600 square metres) of rambutan, longan durian and mangosteen, requires water at the amount of 1,668.6 to 1,687.5 cubic metres per rai per year while para rubber requires 1,743.4 cubic metres per rai per year. During the period of November to March, the amount of rainfall is less than the crop's water requirements. In this period, the crops use water from ground water and moisture in soil at the amount of 719 cubic metres per rai per year and the farmer's irrigation at 138.66 cubic metres per rai per year. If the drought occure, farmers will provide more water supply. For para rubber plantation farmers will not provide water supply. Basing on a scenario of water supply, if a farmer wants 719 cubic meters of water reserve to fight for the drought that may occure in that next 20 years, farmer has to pay the cost at present value of 51,135 bath (or at 3.60 Baht per cubic metre). The cost in providing water supply reserve to fight for climate variability risk is subject to the amount of water to be reserved and the degree of risk. A farmer has to weight the cost and the degree of risk before decision to invest on it.

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