The objective of this study is to set up alternatives on water resources development in Land Reform Project No.4 Area. In consideration of the potential and constraint of water resources and water demand, the most appropriate and efficient alternatives will be selected.

This study consist of the study on potential and constraint of rain water, surface and subsurface water resources development such as the study on general water consumption and water demand to cultivate 1,700 rais longan. The potential of water resources will be allocated for the all aspects of water demand by criteria of the water balance. Finally, the alternative will be selected by the comparative analysis on the aspect of economics with the minimum costs.

The study conclude that the rain water is especially appropriate quantity and quality to store for drinking. A family of 5 persons per household may have 3 cement jars of about 2.0 cubic metres to store rain water for drinking during a long dry season in each year. They will be pay 1,800 bahts per household for this purpose. For general water consumption, shallow well is appropriate in consideration of Engineering and Economics aspects. The farmer will pay 6,600 bahts per household. The agricultural water demand to cultivate longan is about 627 cubic meters/rai/crop for the maximum growth in the fifth year. Hui Daeng Reservoir, only one storage reservoir in the project area, has its storage capacity just about 67,000 cubic meters while the average annual runoff is about 220,000 cubic meters. Hence, the proper schemes of management in a pipeline distribution system of Hui Daeng Reservoir is needed to increase the irrigable area from 209 rais to 569 rais. In case of subsurface water resources, the average annual groundwater yield is estimated to be only about 541,300 cubic metres. Therefore, subsurface water will be developed to irrigate some of the project areas.

The methodology of this study may be used as a guideline to study on water resource development in other areas.

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