

Thumrongsak Nakarawong 2007: Analysis on On-Farm Development: A Case Study on Klong Yha Irrigation Storage Project, Krabi Province. Master of Engineering (Irrigation Engineering), Major Field: Irrigation Engineering, Department of Irrigation Engineering. Thesis Advisor: Mr. Chatchom Chompradist, M.Eng. 170 pages.

This research aims to analyse the development of on-farm irrigation system which is the development of the final phase of the surface water distribution system that enhances the effectiveness of the water distribution from the reservoir to the farm plot.

Some analysis have been conducted to understand the evolution of on-farm irrigation system from the past in the different perspectives ie. legislation, engineering and on-farm irrigation system pattern as well as the compiling the end result of the development of on-farm irrigation system in the Regional Irrigation office 15. This information will be utilised for further development plan in the near future.

From this analysis, we have seen the gradual evolution of on-farm irrigation system in term of both legislation and engineering by taking into account the technology in surveying, innovation, construction in order to suit the world's rapid change. As well, the innovation of the new pattern of on-farm irrigation system to match the different geography, social, culture of each region has been considered to better plan the water distribution to the farm plot effectively with the timely manner.

Geographical Information System, MapInfo program is the key instrument to plot the map of the reservoir project in Klong Yha, Krabi province by collecting the data of the water main channel, on farm water distribution system, on farm plantation. It shows that this could be the method to better help the water management effectively as it is easily applied with other water management systems.

Hence, in term of economic analysis and assessment of the development of on-farm irrigation system, the net on-farm irrigation system construction cost for the period of 25 years, 12% opportunity cost are all the criteria. It shows that the development of the on-farm irrigation system in the reservoir project in Klong Yha, has significantly worths the economic value of all criteria which include NPV = 7.796 millions Baht > 0, B/C Ratio = 2.28 > 1 and EIRR = 24.74% > 12% opportunity cost.

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