

Thesis Title A Study of Energy Demand in Pumping
Irrigation for Rice Cultivation in
Thailand : A Case Study in the North
and Central Regions.

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ABSTRACT

In Thailand, the water pump is very important for second rice crop cultivation used for pumping water from natural water resource or irrigation canal to paddy rice field or drain water from paddy rice field. The energy source are energy from diesel and gasoline fuel or electricity which farmers have to be responsible.

The aim of this study was to find out the application of water pumps and energy in pumping irrigation for second rice crop cultivation in the North and Central regions of Thailand in crop year 1988/89.

The data was collected by interviewing farmers who had experiences at least three years in second rice crop cultivation using questionnaire and record sheet for field

test. Total cases of interviewed farmers were 200 cases, 40 cases in the North region and 160 cases in the Central region.

The final results of the study in both regions revealed that the application of water pumps and energy in pumping irrigation for second rice crop cultivation was the same. It was found that 55.56 and 80.58 per cent of the farmers in the North and North regions used diesel engine for water pumps respectively. The rest of the farmers in both regions used gasoline engines.

Sixty three per cent of the farmers in the North region used engine single as power source of water pump. While 70.50 per cent of the farmers in the Central region used two wheeled tractors as power source of water pumps. They were multiple purpose as well. Electricity was used for pumping irrigation less than fuel in both regions. However, electricity was developed and promoted for pumping irrigation by the government agencies especially the National Energy Administration which take responsible in the Electrical Pumping Project.

The analysis of energy demand in pumping irrigation for second rice crop cultivation in crop year 1988/89 was shown that in the case of using diesel engine only, farmers in both regions used diesel fuel 31,528,901 litres or 203,330,443 baht. For using gasoline engine only, the consumption of gasoline fuel was 20,500,739 litres or 182,222,495 baht. In case of using both engines, the consumption of diesel fuel was 24,116,992 litres or

155,207,399 baht and consumption of gasoline fuel was 4,566,950 litres or 40,541,898 baht.

From this study, the farmers should use diesel engines as power source of their water pumps.