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SOCIO-ECONOMIC FACTORS INFLUENCING FARMERS' ADOPTION OF A NEW TECHNOLOGY: THE CASE STUDY ON THE GROUNDWATER PUMP IRRIGATION IN LOMBOK, INDONESIA

by
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DECLARATION

I hereby declare that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree. To the best of my knowledge, all resources used and any help received in preparing this thesis have been acknowledged in this thesis. I give consent to this copy of my thesis, when deposited in the University Library, being available for loan and photocopying.

Adelaide, 28 February 1997

Abdullah Usman

ABSTRACT

The overall objective of this study is to analyse factors influencing farmers' use of groundwater pump irrigation in Lombok, Indonesia. Specifically, this study aims to better understand the farming practices of the dryland farms in Lombok, to identify the determinants of the speed of technology adoption, to identify factors affecting the levels of water use and to estimate the state of water use by comparing the actual water use to the estimated optimal water use.

This study uses both primary and secondary data. The primary data were collected by interviewing 323 selected farmers, using a specially designed questionnaire while secondary data were collected from relevant agencies in Lombok, Indonesia.

To run their dryland farms, farmers use simple technologies with the absence of mechanisation except for the irrigation which use pump generators. The main seasonal crops farmers grow in the dry seasons are corn, peanuts, mungbeans, onions, chillies and tobacco. The farmers has also just started growing perennial crops. Each farmer operates 67 ares of land on average, 53 per cent of which has been formed. Some 70 per cent of the farmers own the land. The farmers are responsible for 4 dependants and are on average 41 years of age. Some 86 per cent of the farmers have only 6 years of elementary schooling or less, 59 per cent have farming experience less than 20 years, and 35 per cent are immigrants.

Speed of technology adoption is measured using the time lapse from when the groundwater pumps start operation to when farmers start using them. The

majority of farmers needed 1 to 3 years to decide to start using the pumps. The Tobit model is used to identify factors affecting this time lapse. The significance factors are age, education, hours of attending extension training, holding area, farm income, land ownership status, house performance, previous job, migrant status and problems in running dryland farms.

Production functions are developed to assess the levels of water use. Levels of water use by the farmers are lower than the theoretical economically optimal level.

The determinants of water use by farmers are identified by using multiple linear regression with the amount of water use as the independent variable and the socio-economic variables as the dependent variables. The significant determinants are the price of water, the proportion of income from farming, household income, hours of attending extension training, type of crops grown and seasonality.

The implication of this study is that lowering the price of water can be one alternative of encouraging farmers in using the irrigation. At the same time, farmers need to improve their managerial skills through attendance of extension training. Since farmers complain that services provided by the project are too slow due to locational, personnel and communication constraints, improving means of communication and transportation can provide improvement to the problems.

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I alone am responsible for the views expressed and for those deficiencies which may remain.

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