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Factors Shaping the Operation of Machinery Hire Services: Case Studies on the Implementation of the Institution for Rental Service of Agricultural Machinery (IRSAM) Programme in the Special Region of Yogyakarta, the Republic of Indonesia

A thesis presented in partial fulfilment of the requirements for the degree of Master of AgriCommerce at Massey University, Palmerston North, New Zealand

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ABSTRACT

As part of the government initiative to improve the production of agricultural commodities, particularly the five major staples – rice, maize, soybeans, sugar and beef, the Ministry of Agriculture (MoA) of the Republic of Indonesia launched the implementation of the Institution for Rental Service of Agricultural Machinery (IRSAM) programme in 1998. The programme aims to encourage the use of farm machinery at the farm level to improve agricultural production, and to promote farmers to develop a rural business unit by providing agricultural machinery services to other farmers.

The IRSAM programme has been rolled out for more than 18 years. From this programme, many farmers have received machinery and started to provide services to other farmers. Nevertheless, the implementation of the IRSAM programme has been applied to different areas of the Republic of Indonesia, and showed various levels of success. Some IRSAMs have successfully developed the units into profitable businesses. However, the majority of the IRSAMs are still underdeveloped. This research is interested in gaining a deeper understanding of the factors that are shaping the operation of IRSAMs, especially in the Special Region of Yogyakarta and how they are working on those factors. By understanding the various factors, there would be a possibility for this research to provide recommendations on how the MoA will be able to improve the implementation of the IRSAM programme.

A multiple case studies approach was used to explore factors and circumstances, which influence the operation of the IRSAM. Two cases were selected in the Special Region of Yogyakarta. One IRSAM was chosen in each of Gunungkidul Regency and Bantul Regency, respectively. This research applied purposive and snowballed sampling to select participants. Sixteen groups of participants were interviewed. This research analysed the data using qualitative data analysis method.

The results revealed four significant factors influenced the operation of both IRSAMs. These were: 1) managers with good administrative and finance skills, 2) the availability of capable machinery operators, 3) the demand for machinery services from farmers (farmer group members and non-members), and 4) the availability of institutional support
from the public and private sectors that enable the IRSAM to flourish, such as access to financial aid, the availability of spare parts, access to agricultural extension services, training for IRSAM employees, and rural infrastructure (rural road networks and irrigation networks).

Although most of these factors have been identified in other literature, significantly, this research highlighted one factor that has previously not been identified. This factor was the availability of alternative private providers/other IRSAMs around the selected IRSAMs. Additionally, it was revealed that the formal organisation structure of the IRSAM seemed only to exist in the Republic of Indonesia. The formal structure has made the roles of manager and operators a significantly important factor in affecting the operation and success of the IRSAM.

This research illustrates the complexity of the dynamic factors that affect the operation of small-scale machinery service providers. The local circumstances and different characteristics of situations are going to mean that the specific factors and settings that are shaping the performance of the machinery hiring group will vary. This research shows how the delivery process of the IRSAM programme using a blanket policy does allow the IRSAMs to perform well across different situations. This study highlights the value that could be had for the IRSAMs to perform better if the government better targets types of machinery to match specific needs of farmers in different areas. Besides, the research suggests that the government could develop a database management system of public and private machinery hire services to obtain information on the actual supply and demand of machinery services.

**Keywords:** farm machinery hire services, small-scale farmers, agricultural mechanisation, IRSAM, custom hiring, the Special Region of Yogyakarta,

**Title:** Factors Shaping the Operation of Machinery Hire Services, Case Studies on the Implementation of the Institution for Rental Service of Agricultural Machinery (IRSAM) Programme in the Special Region of Yogyakarta, the Republic of Indonesia

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**Degree:** Master of AgriCommerce
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### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>2WT</td>
<td>Two Wheeled Tractors</td>
</tr>
<tr>
<td>4WT</td>
<td>Four Wheeled Tractors</td>
</tr>
<tr>
<td>AFGA</td>
<td>The Argorejo Farmer Group Association</td>
</tr>
<tr>
<td>AMMOTRAC</td>
<td>The Agricultural Mechanics and Operators’ Training Centre</td>
</tr>
<tr>
<td>AMSEC</td>
<td>The Agricultural Mechanisation Service Enterprise Centres of Ghana</td>
</tr>
<tr>
<td>BAPPEDA</td>
<td>Badan Perencanaan Pembangunan Daerah Kabupaten Bantul / Regional Development Planning Agency of Bantul</td>
</tr>
<tr>
<td>CIA</td>
<td>Central Intelligence Agency</td>
</tr>
<tr>
<td>CSAM</td>
<td>Centre for Sustainable Agricultural Mechanisation</td>
</tr>
<tr>
<td>DPPKA</td>
<td>Dinas Pendapatan Pengelolaan Keuangan dan Aset Provinsi Daerah Istimewa Yogyakarta / Provincial Agency for Revenues, Financial and Asset Management</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organisation of the United Nations</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>GA</td>
<td>General Assembly</td>
</tr>
<tr>
<td>GAPOKTAN</td>
<td>Gabungan Kelompok Tani / Farmer Group Association</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GOI</td>
<td>The Government of the Republic of Indonesia</td>
</tr>
<tr>
<td>GRDP</td>
<td>The Gross Regional Domestic Product</td>
</tr>
<tr>
<td>IAARD</td>
<td>The Indonesian Agency for Agricultural Research and Development</td>
</tr>
<tr>
<td>IRRI</td>
<td>International Rice Research Institute</td>
</tr>
<tr>
<td>JICA</td>
<td>The Japan International Cooperation Agency</td>
</tr>
<tr>
<td>MOA</td>
<td>The Ministry of Agriculture of the Republic of Indonesia</td>
</tr>
<tr>
<td>MUHEC</td>
<td>The Massey University Human Ethic Committee</td>
</tr>
<tr>
<td>NAERLS</td>
<td>National Agricultural Extension Research Liaison Services of Nigeria</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
</tr>
<tr>
<td>NPSFS</td>
<td>National Programme for Food Security of Nigeria</td>
</tr>
<tr>
<td>OECD</td>
<td>The Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PNG</td>
<td>Papua New Guinea</td>
</tr>
<tr>
<td>POKTAN</td>
<td>Kelompok Tani / Farmer Group</td>
</tr>
<tr>
<td>PTOS</td>
<td>Power Tiller Operated Seeder in Bangladesh</td>
</tr>
<tr>
<td>QDA</td>
<td>Qualitative Data Analysis</td>
</tr>
<tr>
<td>SMEDC</td>
<td>The Small and Medium Enterprise Development Centre</td>
</tr>
<tr>
<td>TSGF</td>
<td>The Tirto Sari Farmer Group</td>
</tr>
<tr>
<td>UPJA / IRSAM</td>
<td>Usaha Pelayanan Jasa Alat Mesin Pertanian / The Institution for Rental Service of Agricultural Machinery</td>
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