UNIVERSITI PUTRA MALAYSIA

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The primary purpose of the study is to examine farmers' participation in the *Persatuan Petani Pemakai Air* (P3A) pump irrigation project in Sub-district (*Kecamatan*) Haurgeulis of District (*Kabupaten*) Indramayu in West Java, Indonesia. The specific objectives are: 1) to study the origin and organisation of the P3A pump irrigation project; 2) to examine actual participation in the planning and implementation of the project; 3) to identify factors influencing payment of irrigation service fees; and 4) to identify the obstacles encountered in encouraging farmers to participate in the project. This study uses two approaches, qualitative (for Objective One, Two, and Four) and quantitative (for Objective Tree). Three data collection techniques were applied, namely: survey, in-depth interview, and direct observation. Survey technique was used to get representative quantitative data obtained from farmers who were selected randomly. In-depth interview with farmers was to obtain information on the implementation of the P3A pump irrigation project including their role in the activities of the project, while in-depth interview with informants was to get confirmation of project implementation, in general, and to obtain information related to every agency

involved. Direct observation was employed to obtain information on the situation of the *desas* including physical description and farmer' behaviour.

The study showed that, in general, farmers' participation in the pump irrigation project was low both in the planning or implementation stages. In both activities the farmers did not show strong willingness although there were some bodies that supported them with loans and technical assistance in running the project. Their participation also remained low although the YBSD encouraged the farmers to involve them at most activities. Their participation could not even appear strong despite the emergence of a mobiliser who struggled to build pump irrigation. Although the initiative to build pump irrigation came from farmers, they could not commit their wish by not involving themselves all the way.

There were some reasons why farmers' participation was low. The main reason was addressed to the existence of some obstacles related to it. There were three sources of obstacles that impeded farmers' participation, namely those that came from the project recipients, poor encouragement from local leadership, and the weakness of the implementing committee. The next reason for low participation was the low education level of the farmers, since the study found out that the lower the education level the farmers had, the lower their participation would be. In fact, most farmers were not even educated. On the other hand, small land farmers were not strong enough to raise participation although the study results showed that the small farmers had the potential to do so. This was because the small farmers faced hard challenges to raise their participation since factors that impeded participation were too strong to overcome.

This study showed that participation of beneficiaries was difficult to arouse strongly even in a situation in which the beneficiaries were fully involved and the existence of a mobiliser who would give encouragements to the farmers. Thus, efforts could be done to raise participation among the farmers in the pump irrigation project, by removing obstacles related to participation. Another attempt that could be done was to intensify mobiliser's efforts to promote a more meaningful farmers' participation in the irrigation project.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PENGLIBATAN PETANI DALAM PROJEK PENGAIRAN BERPAM: KAJIAN KES DI HAURGEULIS, INDRAMAYU, JAWA BARAT

Oleh

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Tujuan utama kajian ini adalah untuk mengenalpasti penglibatan petani dalam projek pengairan berpam di sub-daerah (Kecamatan) Haurgelis, Daerah (Kabupaten) Indramayu, Jawa Barat, Indonesia. Objektif khusus kajian ini adalah seperti berikut: 1) untuk mengkaji asal-usul dan organisasi projek pengairan pam Persatuan Petani Pemakai Air (P3A); 2) untuk menilai penglibatan sebenar di dalam perancangan dan pelaksanaan projek; 3) untuk mengenalpasti faktor-faktor yang mempengaruhi pembayaran bagi yuran perkhidmatan pengairan; 4) untuk mengenalpasti halangan-halangan yang dihadapi oleh petani-petani dalam projek tersebut. Kajian ini menggunakan dua pendekatan iaitu kualitatif (bagi objektif pertama, kedua dan keempat) dan kuantitatif (bagi objektif ketiga). Tiga teknik pengumpulan data diaplikasikan dalam kajian ini terdiri daripada tinjauan, temuramah, dan pemerhatian langsung. Teknik tinjauan telah digunakan untuk mendapat data kuantitatif di mana respondennya adalah petani yang dipilih secara rawak. Temuramah dengan petani adalah untuk mendapat informasi

mengenai pelaksanaan projek pengairan P3A termasuklah peranan mereka dalam aktiviti projek. Manakala temuramah dengan pemberi maklumat adalah untuk mendapat informasi mengenai pelaksanaan projek secara umum dan untuk mendapat informasi yang berkait dengan setiap agensi yang terlibat. Pemerhatian langsung telah digunakan untuk mendapat informasi mengenai situasi desa termasuk tingkahlaku petani dan gambaran fisikal.

Kajian menunjukkan bahawa secara umum penyertaan petani di dalam projek pengairan berpam adalah rendah baik di dalam perencanaan mahupun pelaksanaan. Di kedua-dua aktiviti petani-petani tidak menunjukkan keinginan kuat meskipun terdapat badan-badan yang mendukung mereka dengan pinjaman dan bantuan teknikal dalam menjalankan projek. Penyertaan petani juga tetap rendah meskipun mereka dibujuk oleh Yayasan Bina Swadaya (YBSD) agar terlibat di dalam sebahagian besar aktiviti-aktiviti. Penyertaan mereka bahkan tidak muncul secara kuat meskipun muncul pengerah yang berjuang untuk membina system saliran berpam. Meskipun inisiatif untuk membina pengairan berpam datang daripada petani, mereka tidak yakin dengan keinginan mereka dan tidak mahu melibatkan dirinya sepenuhnya di dalam projek.

Terdapat beberapa penyebab penyertaan petani rendah. Penyebab utama adalah ditujukan kepada adanya halangan-halangan yang berkaitan dengan penyertaan. Terdapat tiga sumber halangan-halangan yang merintangi penyertaan petani-petani, iaitu halangan-halangan yang datang dari penerima projek, burukanya pujukan dari pemimpin tempatan, dan lemahnya jawatan kuasa. Penyebab lain rendahnya penyertaan adalah tingkat pendidikan petani yang rendah kerana hasil kajian mendapati bahawa semakin

rendah pendidikan petani maka penyertaan mereka akan semakin kurang. Pada kenyataannya sebahagian besar petani adalah tidak terdidik. Di lain pihak, petani dengan tanah sedikit tidak cukup kuat untuk meningkatkan penyertaan seluruh petani meskipun hasil kajian mendapati bahawa petani bertanah sedikit memiliki potensi untuk melakukannya. Hal ini disebabkan petani bertanah sedikit menghadapi tentangan kuat untuk meningkatkan penyertaan seluruh petani kerana faktor-faktor yang merintangi penyertaan terlalu kuat untuk diatasi.

Kajian ini menunjukkan bahawa penyertaan dari petani sebagai penerima waris adalah sukar untuk muncul dengan kuat, bahkan di dalam situasi dimana penerima-penerima waris dilibatkan secara penuh serta munculnya pengerah yang memujuk mereka. Oleh itu usaha yang dapat dilakukan untuk meningkatkan penyertaan di antara petani-petani di dalam projek pengairan berpam adalah dengan menghilangkan halangan-halangan yang berkaitan dengan penyertaan. Usaha lain yang dapat dilakukan adalah dengan mengintensifkan usaha-usaha pengerah untuk menjadikan penyertaan petani lebih bermakna di dalam projek pengairan.

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AD/ART	*Anggaran Dasar/Anggaran Rumah Tangga* (Rules of Association)
Alun-alun	Town square
Arisan	Regular social gathering whose members contribute to and take turns at winning a sum of money
Badan Pemeriksa	Supervisory Board
BAPPEDA	*Badan Perencanaan dan Pembangunan Daerah* (Agency for Regional Development).
Becak	Trisaw
Bendahara	Treasurer
Bengkok	Government land possessed temporarily by members of *pemerintahan desa* as long as they serve
BPP	*Balai Penyuluhan Pertanian* (Agricultural Extension Agency)
Bupati	Chief of *kabupaten*
Camat	Chief of *kecamatan*
Desa	Village
DPRD	*Dewan Perwakilan Rakyat Daerah* (Regional Legislative Assembly)
Dusun	Village cluster
Gentenan	Work exchange, particularly in building a house
GO	Government Organisation
Gotong royong	Working together without payment
Hajatan	Feast
Irigasi sederhana	Traditional irrigation
Irigasi setengah teknis	Partly constructed irrigation
Irigasi teknis	Fully constructed irrigation
Kabupaten	District
Kabupaten Indramayu	District of Indramayu
Kecamatan	Sub District
Kepala dusun	Chief of village cluster
Kepala urusan	Chief of section
Kepala urusan Keuangan Desa	Chief of section for finance affairs
Kepala urusan Pemerintahan Desa	Chief of section for registration, making identity cards and statistical records
Kepala urusan Umum	Chief of section for every aspect including *desa* security
Kepala urusan Ekonomi dan Pembangunan Desa	Chief of section economic development including agriculture and other sectors

Kepala urusan Kesejahteraan Masyarakat	Chief of section for people's welfare including helping people that are struck by disaster
Ketua	Chief
Kuwu	Village headman
Lembaga Musyawarah Desa	An institution of *musyawarah desa*
Musyawarah desa	A discussion forum in a village to get an agreement from most people.
NGO	Non Government Organisation
Non-farm	Non-agricultural sector, such as manufacture, trade, and service
Off-farm	Non-farm activities in agricultural sector, such labourer
Ojeg	Motorcycle functioned as public vehicle
PIAT	*Proyek Irigasi Air Tanah* (Underground Water Irrigation Project)
P2AT	*Proyek Pengembangan Air Tanah* (Underground Water Development Project)
P3A	*Perkumpulan Petani Pemakai Air* (Farmer's Water User Association)
Pemerintah Desa	Village government refers to persons in *Pemerintahan Desa*
Pemerintahan Desa	Village government refers to an institution
Palawija	Second crops
Pengurus	Boards that consist of a chief, a secretary, and a treasurer
Persatuan Petani Pemakai air/P3A	Farmer's Water User Association
PPL	*Penyuluh Pertanian Lapangan* (Field Extension Worker)
Proyek Pengembangan Irigasi Tersie	Tertiary Irrigation Development Project
Puskesmas	*Pusat Kesehatan Masyarakat* (Public Health Centre at *kecamatan* level)
RA	*Rapat Anggota* (Member meeting)
Saluan cacing	The smallest canal which irrigate paddy field directly
Sawah tadah hujan	Rain-fed paddy field
Sekretaris	Secretary of P3A
Sekretaris desa	Secretary of village government
Sekwilda	*Kabupaten* secretary
Sunatan	Circumcision
Surau	Little mosque
Tolong- menolong	Mutual help
Ulu-ulu	Irrigation worker
Undang-Undang Pemerintahan Desa	The Act of Village Government
Warung	Stall/Simple shop

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Paddy farming is an important activity in Indonesia since it relates to the supply of staple food for 209 million people (2001) in the country. The government has given great attention to farming to boost paddy production and to be self-sufficient with the said commodity. These efforts bore fruit in 1984 when Indonesia reached self-sufficiency status in paddy production. This would continue for ten years until 1994 before regressing as a rice importer to fulfil people's food needs which grew ever increasingly. According to calculations released by the Directorate General of Irrigation (1996), rice imports had reached 255,000 tonnes in 2000. That figure is predicted to increase to 2,496,000 tonnes in 2005, and will be 5,666,000 tonnes in 2010. The rice harvest yield deficit will happen mostly in Java and Bali, which are actually paddy production centres of the country.

One of the problems faced in paddy farming is lack of water; and, the main reason for this is water source and the decreasing irrigation network performance (Sumaryanto and

Pakpahan, 1999). A form of water source degradation is the irregular water supply in rivers, which are the main water sources for irrigation. The decreasing irrigation network performance is mainly caused by tertiary canal damages and malfunctioning. In addition, irrigation network is more difficult to develop because of the unavailability of suitable areas, or due to prohibitive costs of developing such a network (Pakpahan et al. quoted in Pasandaran and Purwoto, 1999).

Irrigation is crucial for paddy development because irrigated paddy, especially those that are planted in lowland areas, have the most potential to develop in terms of high and quick yields. Besides irrigated lowlands, there are three other kinds of paddy environments, namely: rain-fed lowlands, tidal swamps, and uplands, which are developed in specific areas. Currently, irrigated paddy areas account for 72 percent; the rest are rain-fed lowland areas (7 percent), tidal swamp areas (10 percent), and upland areas (11 percent). About 70 percent of the irrigated lowlands can be planted with paddy twice a year. In other paddy ecosystems, this can only be grown once a year (Bruns, 1999).

Irrigation system for paddy farming, particularly surface-water irrigation, is developed by both the government and farmers. Surface-water irrigation is the term used for conventional irrigation that uses a dam to collect water and make it flow gravitationally. For this reason, surface-water irrigation is also called gravitation irrigation. The government manages fully constructed irrigation (*irigasi teknis*) and partly constructed irrigation (*irigasi setengah teknis*) systems, and farmers manage the traditional (*irigasi sederhana*) ones. In its irrigation development programme, the government builds new

irrigation systems and improves the existing traditional ones to enhance their function. Regulations are specified that every traditional irrigation system built or improved by the government must be placed under government management. Nevertheless, after 1983 this regulation was altered because of the government's limited budget. Currently, there are 1.1 million hectares with traditional irrigation systems managed by farmers, and 4.4 million hectares managed by the government (van Santen, 1999).

The other kind of irrigation is pump irrigation. It pumps water from rivers or lakes or from underground water. Farmers have developed pumps since 1970 for their own use, as well as for commercial purposes. Seeing that pump irrigation has the potential to be developed as an alternative to gravitation irrigation, in 1980 the government started to develop it. Pump irrigation developed by the government used underground pumps that get underground water as its source. The government has developed pump irrigation through the Underground Water Development Project (*Proyek Pengembangan Air Tanah* or P2AT). The project was then widened to become the Underground Water Irrigation Project (*Proyek Irigasi Air Tanah* or PIAT). This has been developed in all provinces in Java, Bali, West Nusa Tenggara, East Nusa Tenggara, South Sulawesi, and Middle Sulawesi. In this project, farmers manage all pump irrigation systems.

Due to the importance of water supply for agriculture to raise paddy production, pump irrigation will be widely developed constantly. According to Pasandaran and Purwoto (1999), pump irrigation is important because of several benefits: (1) it is independent of seasonal changes, particularly deep-well pump; (2) it can be established over a short

period of time, thus yields fast results; (3) it costs little because one does not need to build a dam; and (4) it is easy to manage because it can be established on a small scale. In addition, the use of pump irrigation in areas where gravitation irrigation is unavailable increases planting intensity from 156 percent to 242 percent. And, in areas where gravitation irrigation is available, planting intensity increases from 223 percent to 253 percent. Planting intensity is the percentage of actual planting frequency to three times within one-year duration as the ideal frequency.

Besides being an alternative to surface-water irrigation, the government develops pump irrigation as a way to teach farmers to participate in managing an irrigation system. This is because every pump irrigation system built by the government or Non-Government Organisation (NGO) is eventually handed over to farmers. This policy is to restore farmers' capabilities and participation in managing moderate irrigation (*irigasi sederhana*). The same was missing after the government managed all *irigasi sederhana* when there was still sufficient funding for it. For this reason, the government carried out programmes for farmers to get accustomed to managing irrigation systems. During the early and middle eighties, for example, the government had conducted a series of projects to explore ways to improve participation in irrigation development in Indonesia (Tobing and Dilts, et al. quoted in Bruns, 1999). Furthermore, in 1989, the government decided to hand over to farmers every irrigation system of 500 hectares irrigation coverage or lesser.

1.2 Statement of the Problem

Based on sources of investment, there are four kinds of pumps developers in Indonesia, namely: individual farmers, private entrepreneurs, government, and NGOs, of which the farmers' self-supporting pumps are most in number. Each one develops different pump sizes. Individual farmers have developed only small-sized pumps, which pumped surface water (river and lake) and shallow ground water to irrigate their own land. Private entrepreneurs use middle-to-big surface-water pumps for commercial purposes whereby they sell water to farmers. The government and the NGOs, who construct pump irrigations for farmers, focus on different pump sizes and types. The government focuses on deep and semi-deep ground water pumps for irrigation, and NGOs choose middle to big-sized pumps (Sudaryanto and Hermanto, 1999).

The government as well as the NGOs constructed pump irrigations for farmers. Either the government or NGOs gives wide opportunity to farmers to get involved in the pump irrigation project which they ran both in the planning and in implementation stages. During the planning and implementation stage, community organisers encouraged and assisted farmers to participate in many activities and to solve attendant problems. A community organiser assisted farmers to establish Water User Association (*Persatuan Petani Pemakai Air* or P3A) and to manage pump operation and maintenance. The capability of farmers to manage an irrigation system would then make it easy for them to improve their farming techniques that result to higher production.