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ECONOMICS OF CROPPING PATTERNS OF FARMS IN PALAWAN, PHILIPPINES

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This study was conducted to further the understanding on the cropping patterns practiced in Palawan, Philippines. Based on the concept that the farm and the farm household are interrelated and using various analytical techniques, the current cropping patterns, the availability and the efficiency of resource utilization were analysed and documented.

Farm households in the study area were basically subsistence in nature since their gross income (cash and imputed) barely met the production and personal consumption needs of the farm household. However, they were observed to

exhibit a considerable degree of market orientation in both input utilization and production. Fertilizer and hired labour constitute a greater proportion of the operating cost. Sales of annual crops constitute a greater proportion of the cash income and it was augmented with income from non-farm activities.

Production function analysis indicated that for rice production, seeds and hired labour were the important factors while for perennials it was labour. Comparisons of the Marginal Value Products (MVP) and Marginal Factor Costs (MFC) of the different inputs show inefficiencies in the use of these resources.

The highest return on all the inputs utilised for all cropping patterns was in double sequential lowland rice pattern. However, if only upland crops were considered, the highest return was from monocrop cassava.

When capital is not a constraint, the optimal cropping pattern was double sequential lowland rice, whereas, if capital is not available, the predominant pattern was monocrop cassava. Since not all farmers in the province have areas that can be planted to lowland rice, programming analysis on upland patterns was also done. Using interpolation on the computed values, the combination of enterprises needed to attain the monthly threshold income level was determined.

As rice (a subsistence crop) is a component of most patterns, marketable surplus analysis was also conducted. Regression results show that quantity paid in kind was an important factor affecting the quantity of rice to be marketed.

Abstrak tesis yang diserahkan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi sebahagian daripada keperluan bagi penganugerahan ijazah Master Sains.

EKONOMI POLA TANAMAN LADANG-LADANG DI PALAWAN, FILIPINA

Oleh

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Kajian ini dijalankan untuk mendalami kefahaman mengenai pola tanaman yang diamalkan oleh petani-petani di Palawan, Filipina. Dengan menggunakan konsep bahawa ladang dan isirumah ladang adalah berkaitan dan pelbagai teknik analitikal, pola tanaman semasa, kesediaan serta keberkesanan penggunaan sumber-sumber dalam pola-pola ini dianalisis dan didokumentasikan.

Isirumah-isirumah ladang di kawasan kajian pada asasnya adalah bertaraf saradiri berdasarkan kepada jumlah pendapatan kasar (tunai dan 'imputed') yang hanya cukup untuk keperluan pengeluaran dan penggunaan ladang dan isirumah. Walau bagaimanapun, mereka didapati menunjukkan darjah orientasi pemasaran dalam penggunaan input dan pengeluaran

output. Baja dan buruh yang diupah mengambil bahagian besar dari jumlah kos operasi. Hasil jualan tanaman haiwan merupakan bahagian besar dan pendapatan tunai yang lebih tinggi dan ditokok oleh pendapatan dari aktiviti-aktiviti bukan ladang.

Analisis fungsi pengeluaran menunjukkan benih dan buruh yang diupah adalah faktor-faktor yang penting untuk pengeluaran beras sementara tenaga buruh merupakan faktor yang penting untuk tanaman 'perennials'. Perbandingan MVP (Nilai Keluaran sut) dan MFC (Kos Faktor Sut) input-input yang berlainan menunjukkan adanya ketidakcekapan dalam penggunaan sumber-sumber ini. Kajian mendapati pulangan dari penggunaan input-input dalam semua pola adalah tinggi dalam pola beras tanah rendah. Walau bagaimanapun, jika penekanan diberikan kepada tanaman tanah tinggi sahaja, pola yang menghasilkan pulangan yang tertinggi adalah tanaman ubi kayu.

Jika modal tidak merupakan batasan, pola tanaman yang optimum ialah tanaman dua kali padi rendah turutan. Sebaliknya, dalam keadaan ketiadaan modal, pola yang nyata ialah tanaman tunggal (monocrop) cassara. Oleh kerana tidak semua petani di kawasan kajian mempunyai kawasan yang boleh ditanam dengan padi tanah rendah, analisis program pola-pola tanah tinggi dijalankan. Interpolasi dilakukan atas nilai-nilai yang telah dikira untuk menentukan kombinasi usaha-usaha yang perlu untuk mendapat tahap pendapatan bulanan yang mencukupi.

Memandangkan beras merupakan tanaman saradiri, analisis lebihan pasaran juga dilakukan. Keputusan regresi menunjukkan kuantiti yang dibayar dalam bentuk bukan tunai merupakan faktor penting yang mempengaruhi kuantiti beras yang akan dipasarkan.

CHAPTER ONE

INTRODUCTION

Agriculture in Palawan, Philippines

Agricultural production in the Philippines is usually undertaken on small farmholdings, the average of which is 2.3 hectares and they comprise 70 per cent of the total farms (Alix, 1979). The average farm area is considered small as the provision for Agrarian Reform of 1972 considers five hectares irrigated and seven hectares non-irrigated land as the economic family size farm.[1]

With the small area cultivated most farmers have a tendency to select a large number of farm enterprises to reduce the risks of crop failures. In most cases, a large proportion of their produce is for home consumption. Farmers also exhibit low levels of technology which often leads to low productivity, meager returns and little growth in production.

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[1] An economic family size farm is defined as an area of farm that permits efficient use of labour and capital resources of the farm and will produce an income sufficient to provide a modest standard of living to meet farm family needs for food, clothing, shelter, education with possible allowances for payment of yearly installments on the land and reasonable reserves to absorb yearly fluctuations in income.

As a consequence these farmers contribute little or nothing to the agricultural commodity flow. Furthermore, they contribute marginally to industrial growth as their effective demand for manufactured goods may change little over time, unless they are able to sell more and have the means to purchase more goods from outside the community. With these factors in consideration, there is a need to develop the potential of farmers, as they not only provide food for the rapidly growing population but also play an important role in the development of a country in which the major part of the economy is agriculture based.

Two possible ways to attain this is through appropriate technology development and determination of institutional constraints that could possibly affect its adoption. Besides adaptability, the technology's usefulness when combined with indigenous cropping patterns, i.e., crop production strategy, needs to be given due consideration.

However, development and introduction of appropriate technology alone will not solve the problem. As Stevens (1977) states, "accelerated small farm development depends on the right set of government policies and programs for particular situations". This is a 'bottom-up' approach that seeks to start the development process from a sufficient understanding of the farmers' environment, giving emphasis on the resources available. With this approach, it is imperative to examine and

evaluate existing resources as well as the technologies, prior to the design, testing and recommendations for technology packages in a particular area.

One of the provinces in the Philippines where primitive agriculture still persists is Palawan. It is an island province located between 8'30" and 120'45" north latitude and 117'30" and 121'45" east longitude. It lies between Mindoro and Borneo and is the country's southwest frontier with Malaysia. It is bounded on the east by the South China Sea and on the West by the Sulu Sea.

Palawan is the largest province of the Philippines, occupying about five per cent of the Philippine territory with an area of 1,489,630 hectares (ha.) (Fig. 1, Table 1). Fifty per cent or 740,000 ha. are agricultural land in which only about 454,407.5 ha. are cultivated (Palawan Economic Development Council Report (PEDC), 1980).

Of the cultivated area, 3.6 per cent is regularly utilized for rice production. Approximately 73.0 per cent of this area is irrigated, thus allowing farmers to have a double sequential cropping pattern with lowland rice. The remaining areas are rainfed, which restrict farmers to only one crop per year (monocrop lowland rice). Upland farming with rice is also common in the locality. However, this is usually undertaken in the hinterlands or newly cultivated areas.

F I G U R E 1

MAP OF THE PROVINCE OF PALAWAN

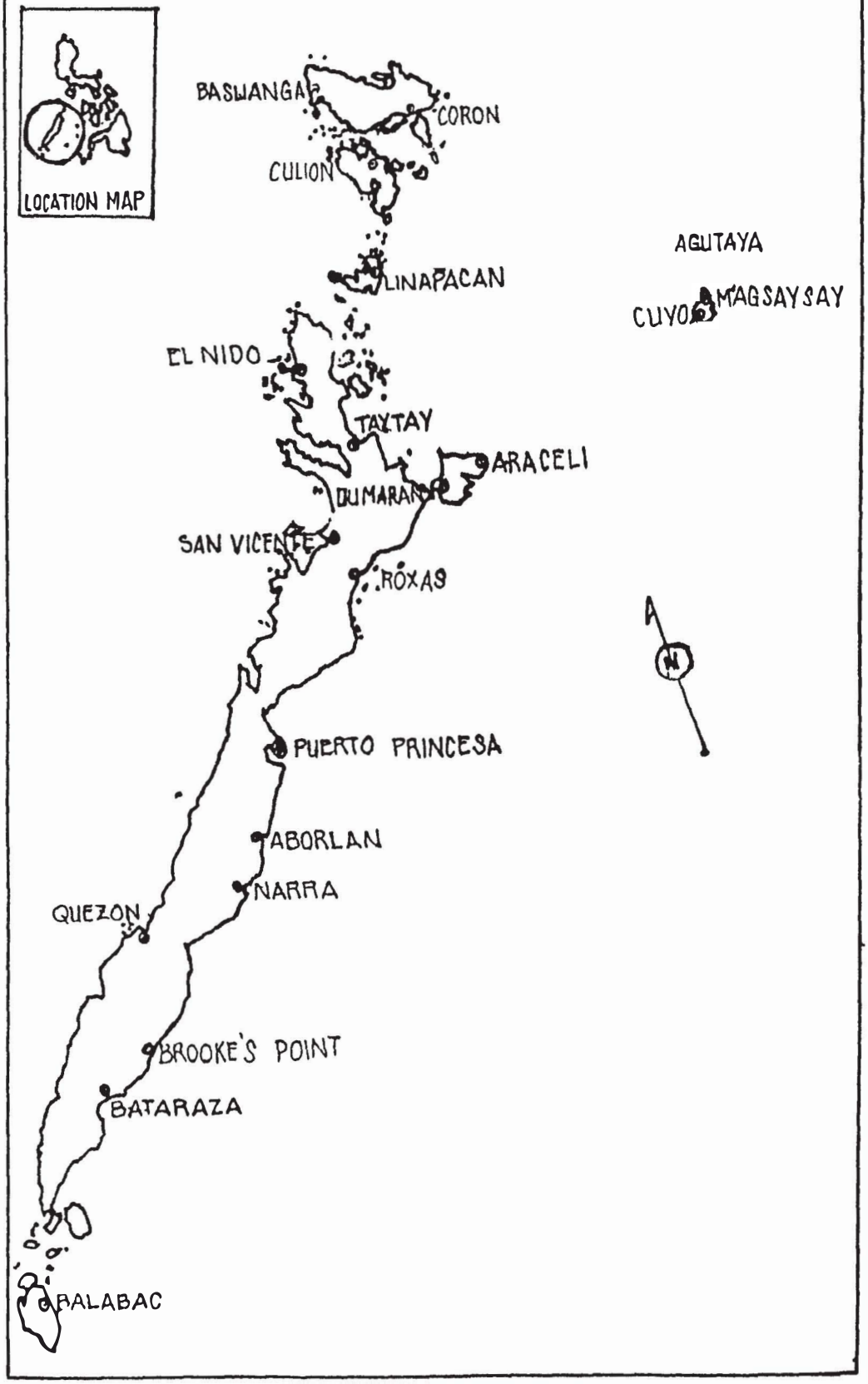

Table 1

Agricultural Land Area by Municipality,
Palawan, Philippines

Municipality	Total Area (ha.)	Total Agricultural Land (ha.)	Per cent to total
Aborlan	90,880	121,490	24
Agutaya	3,290	1,526	46
Araceli	17,680	9,211	52
Balabac	58,160	47,203	81
Bataraza	95,700	60,000	63
Brooke's Point	130,340	70,150	54
Busuanga	39,320	18,690	48
Cagayancillo	1,540	1,489	97
Coron	------	12,000	--
Cuyo	5,730	3,231	56
Dumaran	43,500	26,971	62
El Nido	46,510	34,997	75
Linapacan	15,520	5,349	34
Magsaysay	2,770	2,708	98
NARRA	70,000	49,400	70
Puerto Princesa	210,670	75,409	36
Quezon	191,280	64,933	34
Roxas	122,030	21,000	17
San vicente	84,250	39,384	47
Taytay	139,050	121,945	88
Total	1,489,630	738,759	100

Source: Preliminary Report: Palawan Integrated Area Development Project, 1980.

A few decades ago, farmers from the nearby municipalities practiced the kaingin system or shifting cultivation. In shifting cultivation, an area is cleared and planted with rice and other annual crops. After one or two years of cultivation farmers usually move to another area leaving the first cleared area untilled. As this kaingineros use the slash and burn method of clearing these areas, there are instances where the surrounding areas are also burnt. However, the trend is slowly changing as these farmers are gradually switching to settled agriculture. Instead of leaving the cleared area untouched, they plant it with perennial crops, usually coconut, which is also intercropped with annual crops.

Aproximately 9.0 per cent of the cultivated area is planted with coconuts. In most cases when the trees are still small and unproductive, these are intercropped with annual crops (usually rice, corn and cassava) and sometimes also other perennial crops such as bananas. Intercropping these areas is also observed when the trees have already grown to a height which allows sunlight to reach the undergrowth.

Corn, which is the third crop of Palawan and is considered cash crop, occupies more than 2.3 per cent of the area under cultivation. In most cases this is planted as a monocrop in non-irrigated areas. There are also instances where it is intercropped with coconut and other perennials and in some intances with other annual crops.

Crops such as peanut, mungbean, rootcrops and bananas are mainly produced for home consumption in the past few years. However, with the increasing demand due to an increasing population in the city as well a higher prices for these commodities, farmers have been motivated to plant it either as a sole stand or to intercrop it on a larger scale compared with previous years.

However, even with the availability of fertile agricultural land, farmers' production is still low. The government, recognizing this problem have launched some projects to help the farmers. Some of these include the provision of credit facilities and agricultural infrastructure, which is still weak compared with that in other provinces. In credit, the government has launched the Masagana 99 and the Maisagana. The former was aimed to produce 99 cavans of rice per hectare and the latter was to boost production of corn. The two projects failed in achieving their targets in the sense that instead of using the loans for productive purposes they were used for consumption purposes. This leads to non-repayment and consequently the discontinuance of the project. As a measure the government provided loans in kind and staggered its release. However, the farmers resorted in selling these goods to other farmers, in exchange for consumption goods. The failure to provide a necessary amounts for subsistence for the duration of one crop also contributed to the problem of non-repayment.