

INSTITUTE OF ETHNOLOGY
ACADEMIA SINICA

MONOGRAPH SERIES B NO. 5

RICE FARMING IN TAIWAN
THREE VILLAGE STUDIES

SUNG-HSING WANG
RAYMOND APTHORPE

NANKANG, TAIPEI
REPUBLIC OF CHINA

1974

PUBLISHED BY THE INSTITUTE OF ETHNOLOGY
ACADEMIA SINICA

1974

PREFACE

The three locality studies of which the principal results are presented here were carried out in the last months of 1971 and the first of 1972 as part of the Global-2 series of studies of rice farming in different regions of the world sponsored by the United Nations Research Institute for Social Development (U.N.R.I.S.D.), Geneva, and the United Nations Development Programme (U.N.D.P.), New York. Our crop production data refers to the first and second seasons of 1971.⁽¹⁾ The second author has served as UNRISD's project director for Taiwan while here on another U.N.D.P. assignment⁽²⁾. The first author, an Associate Research Fellow at the Institute of Ethnology, Academia Sinica, Taipei,⁽³⁾ joined, in the latter stages especially, as project co-director.

To Andrew Pearse, the Project Manager at UNRISD of the Global-2 Project, go our most grateful thanks for continual support of all kinds at all times. We adapted for our own purposes the methodological 'dummy' which he and his colleagues in Geneva had produced for study of quantitative (and other) aspects of rural livelihoods. At the same time we followed its suggestions as closely as possible so that our findings could be compared

- (1) For the purposes of our calculations in this monograph, we have used the standardized figures of 260 NT\$ per 100 *jin* for the first, and 310 NT\$ per 100 *jin*, for the second rice crop.
- (2) See his end-of-mission report *Social planning studies in Taiwan, China 1971-1972* (in English and Chinese). UN-ROC Preliminary Programme in Community Development, Taipei, 1972.
- (3) For the result of a previous field study see his *Kwei-shan Tao: A Study of a Chinese Fishing Community in Formosa* (in Chinese). Institute of Ethnology, Academia Sinica, Taipei, 1967.

with those on 'green revolutions' elsewhere. To Mr. Pearse and his team members at UNRISD, especially Keith Griffin and Ingrid Palmer, we are grateful also for comments that may have helped shape the write-up of our field research in what we hope is an interdisciplinary manner. We are further appreciative for the help given by the Asia Foundation towards the first author's short visit to UNRISD in 1972.

Our field studies were empirical and evaluative in approach, and oriented to illustrative cases. As such this monograph differs from the social survey work which tends to predominate in Chinese social science sometimes almost the total exclusion altogether of case studies based on participant observation. It is particularly fitting, therefore, that it is published by the Institute of Ethnology which, under the Directorship of Professor Li Yih-Yuan, to whom we are also grateful for much support, pioneered interdisciplinary behavioural science in Taiwan. As with presumably all illustrative case studies carried out to some extent, at any rate, by participant observation methods, our findings reflect partly what was there for any observer to find and partly what the individual observers actually involved could see. This latter, in turn, depends partly on what one can recognize.

The fieldwork presented by the second author in Chapter Two is on a northwestern locality, not very far from Taipei city, which we call Hsing Fu (幸福). This could not have been even attempted, let alone carried out, without the constant and emphatic help of Chiu Wan-Tuo, an economics undergraduate at Chengchi University, from whose home farm in Ta Yuan all this northern fieldwork was done. It is to be recognized

that this collaboration between a professor and a student developed finally into virtually a joint enterprise. Scarcely less important in respect of quantitative work was the help given by Hsieh Chung-Hsin, an economics classmate of Chiu Wan-Tuo, who worked jointly with us in the northern locality for January-February 1972 during which most of the structured interviews were done and for another month later in the year. The emphases in this first locality study are on those aspects of factors of production-and-distribution, and agricultural innovation, which it was possible by the second author, unable to work in either Minnan or Mandarin, to observe directly or to elicit by direct questioning with the aid of an able and trusted local assistant.

The author of the essays on the central and southern localities presented in Chapters Four and Three, which we call Fu Kuei (富貴) and Chang Shou (長壽), being native to Taiwan, was able to work directly as well as indirectly. The fieldwork in the former focused on the complexities of the burden of land tax and the penetration of state power into social organization at the local level. In the latter the main emphasis is on the highly intensive land use pattern, which includes interval cropping, and the private land tenancy arrangements that have developed as a social infrastructure for this. His research assistant at the Institute of Ethnology, Chen Hsiang-Shui, helped him collect the data in the southern study October 1971—March 1972. The central study was undertaken by the first author himself November 1971—April 1972 with the help of Hsu Tien-Tzu. To both of them he expresses his gratitude. Some of the material gathered by Chen Hsian-Shui on entrepreneurial aspects in the southern

locality has been written-up and published separately.⁽¹⁾

Chapter One, by the second author, comprises some introductory remarks which aim to show, first, the basic conditions of Taiwan's agriculture, second, the steps leading to the selection of the three localities studied, and third, something of the general similarities and differences between northern, central and southern parts of the island as can be illustrated from governmental statistics. One source used in the preparation of part of this chapter was a specially commissioned report by Lai Wen-hui.⁽²⁾

Chapter Five, by both authors, compares and contrasts some aspects of rural livelihoods as sampled in the three localities studied. It concludes with some remarks of a generalizing nature on some characteristics of rural society in Taiwan and a note on some public policy implications of our findings.

In Appendix One we have set down much of the quantitative data we collected on crop production in the course of our field-work, so that readers may make their own calculations to test hypotheses about farm performance additional to those we ourselves have presented and analysed in our text. We are grateful especially to Miss Lu Yu-hsia, then a Research Assistant at the Institute of Ethnology, for her initial help in the calculations, and later to Mr. Wolf Scott and Mr. Claude Richard-Proust of UNRISD. Our questionnaire for the structured interviews is reproduced in Appendix Two.

Finally, a word on our cooperation as joint authors. The second owes to the first his introduction to Chinese studies, and

(1) Chen Hsiang-Shui: The Role of the Entrepreneur in Rural Taiwan: A Case from Hou-chuang, Ping-tung (in Chinese). *Bulletin of the Institute of Ethnology*, Academia Sinica, No. 33, 1972.

(2) Deposited with the Taiwan Global-2 materials at UNRISD.

PREFACE

v

the first to the second his introduction to development studies. While each accepts primary or shared responsibility for individual chapters as indicated in this preface, each has closely reviewed the work of the other so as to produce as closely integrated a monograph as possible. Furthermore we intend eventually to follow this by a deeper historical and comparative study.

Nankang

June 20, 1973

NOTES

Administrative Units

Hsien (縣)—County

Hsiang (鄉)—District or Township

Ch'un (村)—Village

Lin (隣)—Neighbourhood

Weights and Measures

1 *Chia* (甲) = 0.96992 hectare = 2.39680 acre

1 *Fen* (分) = 1/10 *Chia*

1 *P'ing* (坪) = 1/293 *Fen* = 0.00033 hectare

1 *Jin* (斤) = 0.59682 kilogram = 1.31575 pound

1 *Tou* (斗) = 18.03907 litre

1 *Sheng* (升) = 1/10 *Tou* = 1.80391 litre

Acronyms

FA = Farmers' Association

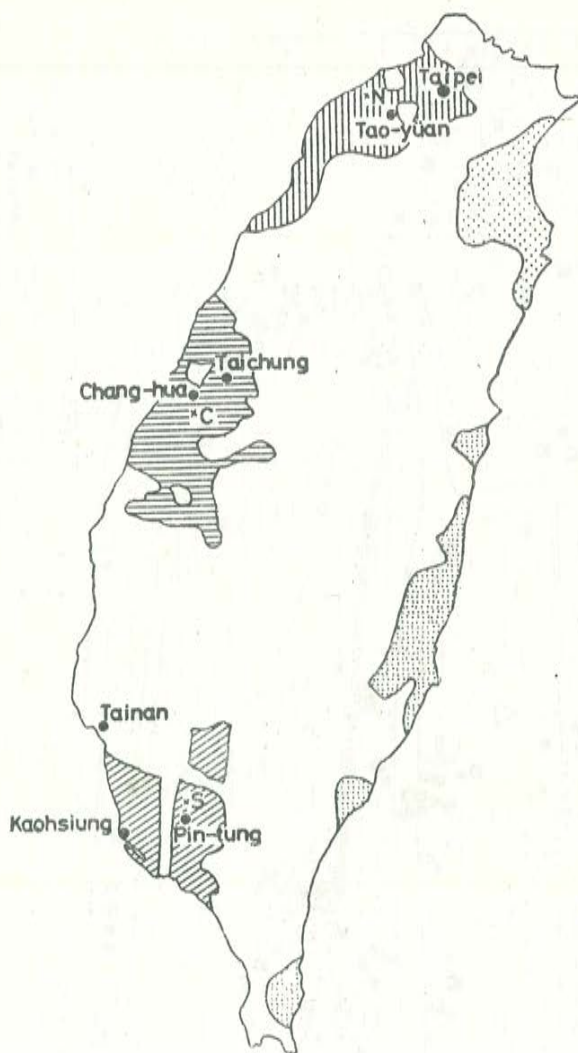
IA = Irrigation Association

JCRR = Joint Commission on Rural Reconstruction

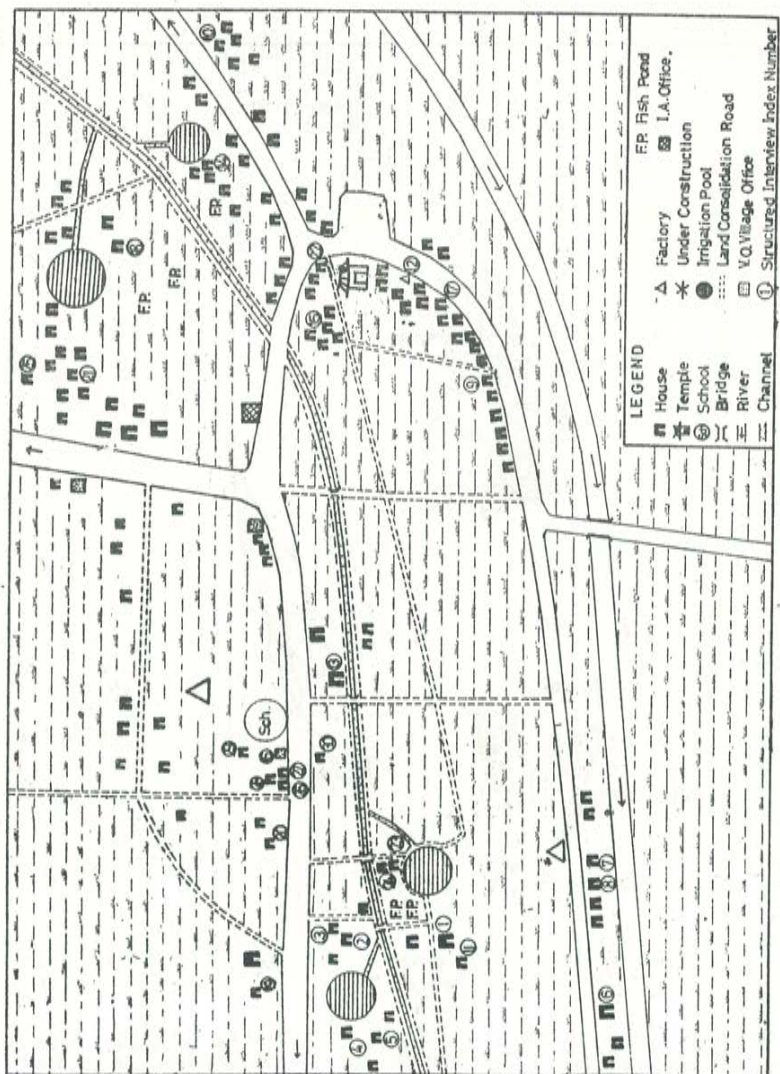
KMT = Kuomintang Political Party

CIECD = Council for International Economic Cooperation and Development

NT\$ = New Taiwan Dollar, US\$ 1 = NT\$ 38



MAP 1: Rice Regions of Taiwan Showing the Three Localities Studied.



Map 2. Hsing Fu Village

CONTENTS

Preface	i
Notes	v
Chapter 1 Introduction.....	1
The Significance of Rice.....	1
Basic Conditions of Taiwan's Agriculture.....	4
The Three Localities	14
Regional Differences	22
Chapter 2 Hsing Fu: Land, Rice and Innovation.....	28
The Environment and Farming	33
Primary Social Relationships	37
Associational Memberships.....	46
Land and Water	50
Labour.....	64
Capital and Credit	69
Management	81
Comparative Farm Performance	94
Chapter 3 Chang Shou: Rice, Private Tenancies and Interval Crops	99
The Setting.....	99
Population and Family.....	101
Land and Water	106
Rice	114
Interval Crops.....	117

Labour	121
Capital	124
Chapter 4 Fu Kuei: Village, Farmers and Bricklayers.....	126
Village Social Structure	126
Land Tenure and Land Reform	140
Agricultural Development.....	161
Agricultural Management.....	173
Chapter 5 Conclusion	194
Appendix One	213
Two.....	269

Maps

1. Rice Regions of Taiwan Showing the Three Locations Studied	vii
2. Hsing Fu Village.....	viii
3. Chang Shou Village	98 i
4. Fu Kuei Village	98ii

CHAPTER ONE

INTRODUCTION

First something of the significance of rice farming in Taiwan today must be indicated and then some of the basic conditions of agriculture in the island will be sketched. This will give the reader unfamiliar with Taiwan a brief background against which to approach our three case studies. Third it will be explained how the three localities were selected and studied. Finally some impression of the island's regional differences will be given.

THE SIGNIFICANCE OF RICE

Rice is major cash crop in Taiwan. It is, further, both a standard and a means of exchange, and a currency as well. Farmers reckon costs of labour and of other factors of production, for instance, including interest on loans in some cases, as being in such and such a quantity of rice. Land taxes, local government surtaxes and certain other fees are paid in kind. Borrowings in cash, from the Farmers' Associations, can be made against deposits of rice. Taxes in kind are collected by the government on the use of public lands. Payments for land acquired under the land-to-the-tiller programme can be made in rice. Rice can be exchanged also through the Farmers Associations for consumers goods such as cotton cloth. The payment of public administrators, educators and militia is partly in rice and it is also collateral against which the Farmers Associations

make loans and fertilizer advances. Rice prices are quoted daily on the Rice Exchange. It is a relative stability over the years, however, that is their main characteristic, although, of course, seasonal variations occur. It is because of the stability of rice prices, not their level, that farmers without the means to do anything else trust rice.

The situation with regard to land is similar. The price of agricultural land is low if it cannot for one reason or another be sold for conversion into industrial use. Land thus is a symbol rather than an indicator of wealth. If one invests in the purchase of agricultural land it is because this is considered to be a safe rather than a profitable way of laying by a surplus.

Relative rice price stability and what amounts to a striking degree of non-monetization in rice affairs is due largely to considerable direct government intervention in the rice market. Over the last twenty years the government has collected between 44 per cent (in 1969) and 74 per cent (in 1955) of all the rice marketed. About half of all the rice that is produced (in 1969 2,321,663 metric tons of brown rice) is sold. As the state has a commanding position in the market, the amount of rice delivered by farmers has little to do with the free play of supply and demand. Moreover, landowners are compelled to sell fixed quantities to the government at prices which are 20-30 per cent below free market prices. In 1969, land taxes, rents and compulsory sales amounted to 152,210 tons of rice, or nearly 30 per cent of the total amount (506,895 m. t.) collected by the government. 65% (328,472 m. t.) of the total collected by the government was obtained through the rice-fertilizer barter exchange programme, introduced in 1948 at a time when fertilizer supply was

very low, which is conducted by the provincial Food Bureau through its agents the FAs.⁽¹⁾

— Since the government has a monopoly of fertilizer production and distribution, it is able to affect the terms of trade of agriculture by altering the rate of exchange between fertilizer and rice. The demand for fertilizer is very great and apparently inelastic over the relevant range with respect to price. As early as 1938 fertilizer consumption per ha. was 623 kg in Taiwan. By using its monopoly power to impose a high price for fertilizer in Taiwan, the government has been enabled to acquire very large quantities of rice. As rice production remains on privately owned land and privately managed farms, the socio-political-administrative-agrarian economy of rice production-and-distribution in Taiwan represents precisely such a peculiarly intimate and subtle institutionalization of interpenetration and mutual adjustment of the private and public sectors as has been said to be a general feature of the social organization of Chinese economic behaviour.⁽²⁾

As the writing of this study is being completed in 1972, the Government has announced sweeping policy changes for agriculture and rural development which include the abolition of the rice-fertilizer barter institution and an approach to regional planning. The original case material in this monograph, therefore, reflects economic and social situations in the agricultural year before this change.

(1) T.H. Lee 'Government interference in the rice market in Taiwan', JCRR, mimeo n.d. (1971).

(2) W.E. Willmott, Editorial introduction *Economic Organization in Chinese Society*, Stanford University Press, 1972.

Rice is eaten virtually by everyone up to four times a day. Government policy at present is for the island to be generously self-sufficient in rice. The silo capacity provided through the Farmers' Associations is 600,000 tons. The silos are overflowing, however, and due to the long storage period there is much loss.⁽¹⁾ As waste amounted in 1970 to 18% of the total storage cost clearly the introduction of new technologies that step up production must be integrated with the improvement of storage facilities.

So long as rice continues to furnish the highest number of calories per unit of land, rice cultivation in Taiwan can be expected to have a special importance. Today urban dwellers are substituting wheat flour and animal protein foods for rice, so over the past two decades the overall *per capita* consumption of rice has declined somewhat. But there is still a slightly increasing consumption *per capita* in the rural population to be offset against the urban decline. Rice is also used as one of the chief raw materials for wine making (over 47,000 tons in 1969, and rising rapidly), as feed (but this is declining from about 3% of annual total of brown rice production because of sweet potato and corn substitution) and seed (at the rate of about 48 kg. *per na*). Waste, through storage and transporting, accounts for perhaps 2 per cent.

About 40% of total rice production on aggregate is consumed domestically by the farm families who produce it. Of the remaining 60%, about three-fifths is collected by the Provincial Food Bureau by way of land tax, barter for chemicals, cotton

(1) Tjin Mau-ying 'Analysis of paddy rice storage cost in Taiwan' *Journal of Agricultural Economics*, Research Institute of Agricultural Economics, No. 11 June 1971, Chung Hsing University.

goods and farm implements, repayments of rice production loans and compulsory purchase. It is the other two fifths which enters into commerce. Some 92% of total rice consumption is for human daily use. As the total rate of consumption is increasing more than that of production it has been forecast that by 1980 only some 42,500 metric tons of brown rice will be available for export.

BASIC CONDITIONS OF TAIWAN'S AGRICULTURE

As a rule development studies are carried out only in *countries* conventionally deemed to be 'developing' or 'underdeveloping', though focussing on *projects* that hopefully could have changed this or may yet do so. The reader of the present study will be probably inclined therefore to want to compare the conditions and problems which it describes with those in other Asian countries such as India, Bangladesh, Indonesia, Thailand, Malaysia and the Philippines. It must then be emphasized at the outset that farmers in Taiwan compare themselves not with say farmers in India but either with the other half of the population in Taiwan who are in industrial employment, or with farmers in Japan of which the island was a colony from 1895 to 1945. This is one of the basic conditions of agriculture in Taiwan. Whether it is 'social' or 'economic' in nature is unimportant for an exercise such as the present one which aims to give an impression of a number of different kinds of conditions to be taken into account by a multi-disciplinary evaluation. Many farmers in Taiwan today are aware of the extent of government subsidies and other benefits that are available to farmers in Japan for instance but not to them.

As Taiwanese rice farmers perceive their own economic and social circumstances today, they are extremely depressed rather than the opposite. Above all they blame this on the high wage-labour costs they must meet especially for transplanting and harvesting. The success story of Taiwan's economic growth is then, at the present time at any rate, very far from being a rural success story from farmers' points of view. This has been the case especially since about 1968. There are other very high costs they must face as well for inputs such as fertilizer and over and above all is the burden of taxation which will be described in Chapter Four. The cultivation of rice in Taiwan has for long been indissoluble from the use of fertilizer, especially nitrogen fertilizer. As much as 90 per cent of the variability in yield has been attributed to the single factor of fertilizer use.⁽¹⁾ Two or even three crops of rice are grown under the highly intensive and skilled system of cultivation for which farming in Taiwan is famous. But demographically with 370 persons per square kilometer (in 1967), Taiwan has one of the highest population densities in the world compared with 345 in Netherlands, 312 in Belgium, 295 in South Korea and 267 in Japan. And only one-quarter of Taiwan's land surface is not mountainous and therefore cultivable.

The basic physical conditions of the island can be summarised as resting in a combination of three factors in the main: a very limited extent of relatively level cultivable land, water shortage despite the excellent and varied irrigational facilities, and a very lengthy period, from June to October, in which typhoons are

(1) Y.H. Kao 'Agricultural planning and fertilizer distribution in Taiwan'. JCCR Taipei 72-RED-M-544, mimeo.

seasonal. To these could be added what appears to be a high incidence of crop disease. In Japan, by contrast, the typhoon season is shorter and as it is said that more effective pesticides have been developed there. It would appear that biological as well as physical hazards in Japan are fewer too.

Limited land area has meant that multiple cropping⁽¹⁾ has a special significance. As early maturity is a pre-requisite for crop rotation under the farming system of multiple cropping, hours of sunshine are crucial. The development of rice varieties such as Taichung 180 and 186 shortened the growth period after transplanting from 120 to 100 for the first and from 105 to 85 days for the second crop. Even a five crop yearly agricultural cycle became possible then. The leading multiple cropping systems in Taiwan today are—rice-rice-sweet potatoes, rice-rice-soybeans, rice-rice-corn, rice-rice-tobacco, rice-rice-vegetables and rice-vegetables-rice-one, two or three vegetable crops. In addition to these basic six there are still others such as rice-rice-flax, rice-rice-rape-seed, rice-rice-green manure and over a longer time period rice-sugarcane-rice. Possibilities of new crops such as sunflower and especially sorghum are now being developed. The lessons in agrarian change to be learned from rural development in Taiwan today would appear to pertain more to its experience of multiple cropping than tenure reform.

The expansion of cultivated land in the island almost reached its maximum as early as 1937-39. Even in a worldwide comparison Taiwan has very high man-land ratios with as many as 487 persons per 100 hectares of agricultural land as far back

(1) Cheng Chien-pan *Multiple Cropping Practices on Paddy Fields in Taiwan*, ASPAC Extension Bulletin No. 15, Taipei, March 1972.

as 1905. In 1969 this was 1,683. In 1969 the world average was only 82—Japan 1,562, the Far East as a whole 295, Europe 190, and Africa 29, Oceania had only 4. In 1963 only Japan's agricultural land bore a heavier burden than Taiwan's in supplying food for its national population. In 1969 the burden on Taiwan's land was greater than that on Japan's. Due to the high percentage of labour force in agriculture, the land available per male farm worker was only 0.8 hectares in 1915. In 1940 it was 0.9 hectares. During the post war years it declined substantially to less than 0.7 hectares. Today the average size of arable land per farm family does not exceed one hectare⁽¹⁾. If CIECD estimates are acceptable⁽²⁾, an absolute decline of total agricultural labour force started in 1968. According to the 1970 census the numbers of farm households and their average size declined also at about the same time. It is to be projected, then, again in absolute terms, that relatively soon there could be a slight increase in arable land per farm family.

Water supply is inadequate partly because, though rainfall is high, the rate of runoff is extremely rapid because of the topography of the island with its very steep gradients.

Basic governmental conditions as they affect agriculture are always difficult to assess in any country as is true of the various aspects of land, taxation, and price policies for instance. It is

- (1) The figures above were contributed in a manuscript special report by Lai Wen-hui then of the Institute of Economics, Academia Sinica, under a former services agreement with UNRISD, Geneva.
- (2) T. H. Lee, Wage Differentials, Labour Mobility and Employment in Taiwan's Agriculture, *Sino-American Conference on Manpower in Taiwan*, June-July 1972. Edited and Published by China Council on Sino-American Cooperation in the Humanities and Social Sciences, Academia Sinica, Taipei.

specially to be noted here, however, that in this small island with its geographically very mobile population, the arm of the state reaches down to virtually every farmer—outside the mountainous regions. This is a basic social and administrative characteristic of agriculture in Taiwan that has been long in the making. From 1895 to 1945 the island was governed as an extension of Japan. Especially in rural development, methods were applied in Taiwan which had already proved their worth in Japan a generation earlier. A labour-intensive approach was adopted and educational and health measures were instituted effectively. To some extent consumption was kept from rising as rapidly as production.

The Japanese used police methods extensively. The penetration of state power down to the villages through the police and other administrative organizations must initially at any rate have been considerably aided by the system (保甲 *pao-chia*) under which households were self-organized, ideally on the basis of ten units. This system of self-administration and self-policing was introduced under Ching rule but fostered by the Japanese regime as a social infrastructure of colonial rule. It was under these conditions that a series of agricultural developments was conducted successfully. Of the Japanese period it would be correct to speak at any rate of the non-absentee landlords as having formed a kind of social class in the villages. Under colonial rule, it was effectively only to the landlords and landowners, and not the tenants also, that state power extended directly. Landlords received more education and other benefits than tenants.

Since the end of the Second World War, when the Nationalist Government moved from Nanking to Taipei, rural society

has undergone new and somewhat different changes. The power of the Chinese state, which once had controlled 450 million people, came to focus on Taiwan then with just six million people. In this it was helped greatly by the physical and social infrastructure it inherited from the Japanese as well as by sheer military might. The foundations for this incorporation of the countryside into national, or state, society in the island, had been soundly laid in the period of Japanese rule. As soon as it became their colony the Japanese completed a large scale land survey which had been started by the Ching dynasty. Since then each plot of land everywhere in Taiwan has been registered and taxed. An extremely detailed household registration, which has continued down to the present day, was also instituted at the beginning of the century.

Next the Japanese state took over the ownership and management of the irrigational facilities which up till then had been mostly under private ownership. Thereafter it was through the two main means of land taxation and water fees that the state controlled the rural areas. Before this, direct responsibility for paying taxes had rested with the landlords only. Tenants paid their half-shares of tax not in their own right but in the name of their landlord.

At least for as long as relations between island and continental China continue in their present form presumably a justification will be found for continuing a form of reliance on the kind of police methods which have now become part and parcel of everyday life. The Minister of the Interior in the Nationalist government used very often in 1971 for instance, to the astonishment of persons familiar with a very different tradi-

tion, to speak of the policeman as the most important resource person of all for community development in the island. Villagers, too, speak of the intimacy of police participation in parts of their daily life. The use that villagers themselves make of police power on occasion, for instance to facilitate the informal settlement of local and simple disputes, means, though, that its nature and content cannot be reduced to any simplistic formula.⁽¹⁾

As is widely known in development studies, immediately after moving to the island, the Nationalist Government embarked on land tenure reforms which they conducted successfully. As a result of these, the rural landlord social class in the villages disappeared. The power of the state could reach then direct to every villager. The tenants of the past pay land tax now to the state and water fees to the government directly. Cash rents to landlords can be paid to them not directly but only through the Farmers' Associations. Despite their name these latter are in effect much more agencies assisting the penetration of state power into the countryside on the basis of township organizations than vehicles of village-level mobilization or participation.

The incoming Chinese regime manipulated land taxes and water fees to a greater degree than had Japanese rule before it. As will be shown in detail in the central locality studied, land tax is today one of the main sources of governmental revenue. Land is still considered the safest form of estate for farmers who have no way other than agriculture of making a living. But in rural Taiwan land is now only a general symbol, rather than any very exact indicator, of the wealth and social standing

(1). I thank Dr. R. Silin for discussions on this.

of some individuals not social classes. The effectiveness of the 1949-53 land tenurial changes was far from being the sole influence in bringing this about. While the local, mainly agricultural, community remains an important social force in rural society in Taiwan today,⁽¹⁾ social status in the countryside is related now principally to variable patterns of agricultural and non-agricultural occupations resulting from industrial and manufacturing developments with their own histories of which capital transfer from rural to urban sectors represents overall may be only one small part.

Over the past two decades there has been a decline of the agricultural sector whether expressed in terms of production, employment or exports. Within the agricultural sector, there has been a change from virtually a complete dominance of two prominent crops (rice and sugarcane) to a rather more varied pattern including first horticultural crops (i.e. pineapple, banana and citrus fruits), then some new enterprises (i.e. mushrooms and asparagus) and finally the integrated approach of a combination of livestock with crops, a principal projection for future rural development that makes an appearance in the study of the northern locality. Several enterprises contribute roughly the same percentage in terms of value of production and export. The importance of sugar and rice taken together declined from 55.1% of production and 78.3% of exports in 1953 to 28.4% and 3.2% respectively in 1970. A beginning has been made in the substitution of machinery for labour in rice cultivation, but overall capital and labour input ratios changed from 1952 to

(1) S. Feuchtwang, unpublished Ph. D. thesis *'Religion and society in northern Taiwan'* in social anthropology, University of London, 1972.

1969 only relatively little.⁽¹⁾

The supply of electric power extends to farmers throughout the western plains of the island. It is used for lighting, fans, refrigerators and rice cookers but gas is also somewhat widely used. The locality studies include data on this and on the distribution of mechanical farm tools. Most homes have at least one room with a cement floor. Sewing machines and radios or television are common. All this must be remembered in contrasting rice farming in Taiwan with that elsewhere in Asia. Also, everywhere in the irrigated lands, a principal source of rural income is non-farm employment and remittances from relatives employed in the cities. Table 1 summarizes our main findings on the subject in three localities.

Table 1. Farm Household Rural Income
Composition in 1971-1972

	Hsing Fu (Northern)	Fu Kuei (Central)	Chang Shou (Southern)
Income from farming	33.5%	27.6%	52.6%
Non-farm income	51.8%	48.4%	39.3%
Remittances	14.7%	24.0%	8.1%
Average Income (NT\$)	44,062	53,293	21,949

It is because of income derived from non-agricultural sources that the standard of living in the central is higher than in the

(1) These figures are given in the manuscript by Lai Wen-hui already referred to (fn. 1, page 8) and another by Wu Kong-hsien then of the Agricultural Economics Research Institute, Chunghsing University, Taichung, contributed under the same arrangement.

northern and southern localities. That farm life in the northern locality also appears to be somewhat prosperous according to common Asian standards is also due in part to substantial receipts of remittances and income from the industrial employment available locally under the official policy of the Government as expressed in the 'ruralize the towns and urbanize the countryside' dictum.

When, as has now been attempted, a wide variety of basic conditions of Taiwanese agriculture—and rice farming in particular—are reviewed together it becomes evident that the conventional "intensive small scale" categorization as in agricultural economics or human geography only inadequately describes farming in Taiwan. The physical extents, average spatial size, of farms is small-scale but from ordinary administrative or sociological viewpoints there is a large-scale aspect as well because the socio-political organization of agricultural is—again the mountainous zone excluded—effectively island-wide. At the local community level though its nature and scope varies as the three locality studies will describe, the degree of penetration of and incorporation into the state, as political scientists and social anthropologists would describe it, is very great. This has become so especially since the 1949—1953 land tenurial reforms as a result of which, as farmers perceived it, the state increased its presence at the local level among other things as a profit-making landholder.⁽¹⁾

(1) Martin M. C. Yang, *Socio-Economic Results of Land Reform in Taiwan*, East-West Center Press, Honolulu, 1970.

THE THREE LOCALITIES

In choosing sites for our field studies we gave consideration in the first instance to geographical differences. Then, within the southern, central and northern rice growing regions selected, localities were chosen to illustrate different kinds and aspects of rural communities. Within these a variety of individual farm families were studied quantitatively in depth. Our production data on a total of 109 farm families has been presented in Appendix One to this book. These were selected not randomly but essentially according to willingness to cooperate in this study of what, after all, are very personal circumstance. Of course, at the same time, the household heads we interviewed with the aid of a structured questionnaire used were selected in all three localities on the widest range of criteria possible as described in the respective studies. We were then, and we remain now, convinced that to have proceeded in any other way would have produced even less reliable or complete data than this so to say voluntary basis of participation could yield. Because of the very nature of the subject, however, gaps in our information about sources and extents of capital inputs for instance, in all three localities, remain.

Development studies in Taiwan as elsewhere are dominated by social surveys. On the whole case studies have been neglected in rural (as well as urban) communities but there are a few exceptions.⁽¹⁾ Social surveys tend to traverse the country irrespective of differences in localities seen from social structural points

(1) Eg. B Gallin, *Hsin Hsing, Taiwan: A Chinese Village in Change*, 1960. University of California Press. Wang Sung-hsing, 1967, *op cit.*

of view. Their results are presented as if norms are common to the island as a whole with merely variations here and there. Despite the intimate interconnection of town and country in Taiwan, and the extent to which in Chinese—as any other—society behavioural norms are shared to a high degree, the social survey method is more suitable for macro than micro research. Since there are so very few comparative case studies a modest and limited short essay⁽¹⁾ should be mentioned here which, considering such variables as non-farm income, out-of-village income, joint households, young unmarrieds with out-of-village income and high school or vocational education variables, concluded that the different kinds of communities at least in southern Taiwan included: stagnant farming neighbourhoods, developing farming neighbourhoods or industrializing from within, stagnant farming communities, neighbourhoods with out-migration, and neighbourhoods urbanizing under outside influences. In effect our three localities could be considered as illustrating three of these.

The selection of the southern and central sites (as described by Wang) was as follows:

“After two years in London and Tokyo Universities, I returned to Taiwan at the end of March 1971. Two years away from one's field gives one a good ‘appetite’ for research on return. When I was planning to conduct a field trip to find a research site in a rural area, Raymond Apthorpe invited me to join the pilot study he was then conducting for the UNDP Community Development Programme, and in early May we had our first trip together. We visited his C.D. Fellows, study sites, which were mainly in the centre and south of the island. In the past, when planning a field trip, I had considered mainly cultural historical aspects in selecting a village for study

(1) J. Freytag, *The Church in Villages of Taiwan*, Tainan Theological College Research Centre, Taiwan 1969.

usually seeking guidance from local historians in particular. But this time, we considered technological and social aspects of agricultural development more than others. It was from this point of view that I was impressed especially by two of the villages we visited.

One of these, near P'ingtung city in the south, was Chiu Ju Co-operative Farm, a place usually visited by agricultural economists. We were guided on the spot by an official of the P'ingtung city Co-operative Association. We had earlier been given the information by an official of the Co-operative Alliance that this was one of the few co-operative farms in Taiwan. It was now explained to us at the farm itself that all the villagers were members of the co-operative farm; that they cultivated the land and shared the profits jointly and that the village had its own primary school and health centre. We joked among ourselves that we had finally found a people's commune in Taiwan.

On our way back to Taipei, from the south, we stopped over in Hua Tan, near Changhua city in central Taiwan, visiting the Farmers' Association there. One of the FA staff led us immediately to see a new joint-farming project sponsored mainly by JCRR. The joint-farm staff seemed very proud of their project and well practiced in giving a brief report on it to visitors. We spent more time in looking around the village than in the paddy-fields. I was impressed by the villagers' well-built red brick houses reflecting in the fishing pond. With the flocks of geese around and its settled tranquil appearance it looked like my mental picture of a southern village in Mainland China.

In July 1971, when Apthorpe invited me to join the present project to make a social anthropological study of a selected locality, it seemed natural to think of the co-operative farm as a first choice so I visited it again at the end of that month. I soon found that the village was not a co-operative farm in reality. The so-called 'co-operative farm', established in 1949, at first was a kind of state farm, because its land still belonged to the government. After the 1951 land reform known as the Sale of Public Land Act its land came under private ownership. If it could be called a 'co-operative farm' today, it would be just because the irrigation pumps and license-quota for tobacco cultivation are held jointly.

I visited the Town Office of Chiu Ju Hsiang to discuss another possible study site. The village which I will call Chang Shou was

suggested. There, the office said, the villagers are still keen agriculturalists. I was introduced to the village head. As soon as I told him what I wanted to do, he called a seventy-eight year old man to his house who had introduced many new technologies, such as tobacco cultivation and new varieties of beans, during the Japanese period. The village head, the lowest agency of the state administration system, is in his forties. By all accounts and appearances the old man and he got on well with each other. The village head told me how he had initiated the building of the temple in the village. He was as proud of this as he was of his achievement in instituting a Provincial Government local public works CD programme. The old generation and the young, the village temple and Community Development Programme, seemed to co-exist very smoothly. So I selected Chang-shou as one site.

My assistant, Chen Hsiang-shui, went to this village in late October. He lived in the village-head's house as a member of his family, though he paid NT\$ 800 each month for accommodation and board. He woke up their children to attend school in the morning and helped them in their homework. He participated in village life as much as possible but, of course, the villagers kept a certain distance between him and them, mainly because he had received more education and depended for his income on a salary. I visited his village frequently. Once, when I was there, a villager said to us: "What can we expect being farmers? You educated people are happy and rich, not needing to come down to the fields for heavy labour. We farmers toil and toil, without taking any rest all year round and yet it is hard for us even to support a family well." Another farmer said: "Now I come to understand that the only thing I must do is to let my children attend school, to study as much and as high as they can. They should learn as much as possible and be farmers no more." Chen came to be admired by the villagers and his departure from the village in March 1972 was something of an emotional parting for them.

The central site that I will call the village of Fu Kuei, was chosen because a joint-farming project was being conducted there and I was planning a socio-economic history project in central Taiwan to start from July 1972. I moved into the village in mid-November. I lived in an independent house but took my meals together with my host family. I paid NT\$ 300 for house rent and NT\$ 600 for food per month. The rent was handed to the housewife of the family with whom I had negotiated it. In this village most of the housewives are decision-

makers, both domestically and in financial aspects to the management of agricultural production, not least because their men are working outside the village as bricklayers.

My house owner had six brothers, living side by side on three sides of a square courtyard. The eldest brother had received much more education than the others and was kept at a certain distance by the others. I saw many disputes between him and especially the fifth brother, who had been in the South Pacific as a Japanese soldier during World War II. He had returned to the village to be a farmer after the War. At first, he had just about 0.2 hectares of paddy-field, inherited from his father, but now about ten times that much. He plans farming carefully and in detail. We usually watched television together in the living room of my house-owner after dinner but he would doze off before returning to his house to work at his abacus until midnight. He could tell you that, because of different ways of calculating the costs and benefits of a crop, you could get different results. By careful planning he had accumulated capital. He suffered a stomach ulcer two years ago, for which he had an operation. In other villages, too, I have found farmers with stomach ulcers.

As compared with the southern site, the central one is more commercialized. I paid my rent to the house-owner at the beginning of each lunar month. She received it without any hesitation and even asked whether I needed a receipt or not saying that, if I needed one, one could be prepared for a higher amount which I could ask my Institute to pay and so make some profit for myself. The case in the south was very different. Chen found it very difficult to hand his rent to his house-owner. Usually, he put money in an envelope and left it on the dining table. When I finished my field-study and left the village in February 1972, no one felt particularly sorrowful. The house-owner though hoped that I would rent her house again if I started my socio-economic history project there."

As it happened, immediately after his return to Taiwan as mentioned in the diary extract above, Wang had visited northern Taiwan in search of a possible field study site. The main reason why eventually he had decided it would be best to look elsewhere was the scattered nature of the settlement patterns in Tayuan

county and their lack of villages as foci of social orientation. It would have been difficult, he said, to find a social unit there which could be selected for a case study in the usual anthropological manner. The note that follows (by Apthorpe) describes how the northern locality studied was chosen.

Originally the purpose of my visits to Fayuan county was simply social and, for me, educational. Also they enabled one to get away into the countryside from the pollution and commotion of Taipei city reasonably easily when my Taipei-based work would allow this. My visits with Chiu Wan-tuo, my guide and assistant, were to his natal homestead there. It was only at the end of 1971 that my visits and periods of living at his family's farm lengthened and took on the character of being in part at any rate of the nature of social research. When we started systematic interviewing, Hsieh Chung-hsing, another undergraduate in economics at Cheng-chi University near Taipei, whom Chiu Wan-tuo selected, from among his classmates, joined us.

In addition to the all-important factor of access, social and physical, another reason for selecting this northern locality was that the district and county in which it was situated had been the scene of two important previous studies, one specifically on land questions, and the other on agricultural extension⁽¹⁾ based on random sampling. The method of sampling we ourselves used was limited essentially to illustrating, rather than representing, selected aspects of the social and economic character of rice farming in the locality and the more profitable alternative modes of livelihood that were appearing. Because of the life experience of one of us in the locality, we had the benefit of working at least to some extent on the basis of participant observation.

On the farm the three of us shared one room, wrapping up at night in our eiderdowns on a large wooden sleeping platform where sometimes we would be joined by a young nephew or two. We ate with the

(1) Available in Chinese only: M.C. Yang 'A study of the effects of land reform in Taiwan on rural social structure', Agricultural Extension Department, National Taiwan University, 1969; Hsueh-yi Lu 'A Study of Agricultural Extension Program Planning and Evaluation—An Example of Tayuan Township in Taiwan', 1969; mimeo.

family merely contributing to the cuisine from time to time but had brought tea and coffee with us knowing that otherwise there would be none available on the farm. Except for fish, and soft and alcoholic drinks for instance, our host family was self-provisioning—in rice, vegetables, pork and poultry—from their own production. Any payment by me would have been unseemly but presents were exchanged. We bought a ping pong table for the house but this was as much for our own immediate use. The winter months of 1971 were bitterly cold and windy. Usually we interviewed in a trio all together. After walking back home we warmed up again with some exercise!

Our series of depth interviews was done in four stages, working out from the farm on which we lived in all directions. First some 15 households were selected mainly on the basis of social access in the area available to us before the research started. We visited some 15 households on whose co-operation we expected that for one social reason or another, we could anticipate. We had long decided that given the subject of our inquiries no other approach could have been more meaningful in the circumstances and in the event this proved perfectly satisfactory for our purposes. Later on, another 10 were selected to bring illustrative cases into our sample which it lacked up to that time—we found, for instance, that at first we had not interviewed part-time farmers such as shopkeepers, farm households whose economy included fish farming, and local government officials having so to say, a domestic interest in farming.

Having by then interviewed in depth what we had accepted (for the present study) as a minimum target of 25 households, and after back in Taipei we had plotted the data collected on scatter diagrams, next we selected on the basis of Chiu's and his family's personal knowledge a further 5 at points in the spectrum of family and farm size mainly where our preliminary analysis of results suggested that more observations would be helpful. We judged it to be in the nature of a confirmation of our sampling up to that point that the results of this second round of structured interviews did nothing but confirm all the lines of argument that the first 25 cases suggested. Next, return visits were made to a few of the families already interviewed in depth to understand the special features which the overall analysis suggested might exist. We hoped this would help explain instances which fell somewhat outside the dominant patterns that by that time we had established by calculating the co-efficients of selected correla-

tions. I suppose this could be called a rolling illustrative sample approach.

The final step in the fieldwork as a whole, as distinct from that part of it that had focused on the systematic collection of quantitative data on the economic performances of selected households, was to bring together in the context of a two-hour meeting some of those farmers whom we had interviewed individually much earlier in the year.⁽¹⁾ The purpose of this meeting was for us to discuss some of the results of our analysis of our structured interviews which puzzled us (such as the pattern of fertilizer applications) and more general matters.

Our study was understood by the farmers we interviewed for the most part as a fact-finding and educational exercise undertaken by a university professor and two of his students. In addition to my UNDP capacity, I was also part-time Visiting Professor in Sociology in the National Taiwan University: a university professorship is a greatly respected status in Taiwan generally. It was also known to some extent, however, that the foreigner had been provided with an introduction to the local government by the UNDP Community Development Research Programme which he directed in Taipei.

Throughout the whole fieldwork experience virtually everyone with whom we sought to discuss farming and its problems in northern Taiwan today was freely forthcoming with comments and explanations. Partly this was because of the good personal standing in his natal Hsing Fu of one of us—who had lived and worked on what is now his brother's farm until very recently. Partly this was because a foreigner whose credentials so to speak have been vouched for locally can to some extent be a stimulant especially to some kinds of problem-focussed inquiries. Thirdly, of course, there is the extent of these very real problems themselves in farming. Probably *anyone* considered to have some independence of opinion in the matter, even without at the same time having any evident ability at any rate to help solve them directly, would be a welcome researcher, if only because of the opportunity for release and dissemination that such affords. Of course as always, sensitive or secret matters will and must be treated as such

(1) As, fortunately, Wang Sung-hsing was able to attend this meeting with us, among other things the making of some contrasts and comparisons with the centre and south of the island was facilitated.

accordingly by all concerned. That could go almost without saying.

Since completing the study reported on here I have been welcomed back already on three occasions not only to Taiwan but also to Hsing Fu.

REGIONAL DIFFERENCES

The three localities chosen for detailed field study, as shown in Map 1, are in the Taipei, Taichung and Kaohsiung rice regions respectively in the north (*N*), the centre (*C*), and the south (*S*) of the plains lying west of the island's central ridge of mountains that runs from its northernmost to southernmost tip. Our three localities are illustrative—but not necessarily also statistically representative—of some aspects of each of these three rice regions. Other dominantly rice regions are in the north-east and the east. In all the JCCR distinguishes a total of thirteen agricultural regions in the island on the criterion of dominant crop patterns.

Regional geographical and economic differences in rural Taiwan are very marked. Some of these can be shown simply by making some contrasts and comparisons in the framework of the three *hsien* (counties) in which our localities are situated.⁽¹⁾ For example while (as of 1965) differences in farm family size are not very considerable at the *hsien* level (1-5 persons, *N* 25%, *C* 23%, *S* 24%; 6-10 persons, *N* 59%, *C* 66%, *S* 63%; 11-15 per-

(1) The sources used below are the 5% Sample Census, published as *Report on the 1966 Census of Agriculture, Taiwan, R. O. C.*, by Committee on Census of Agriculture, Taiwan Provincial Government, October 1967 (Chinese and English) and the *Taiwan Agricultural Yearbook 1971*, published by Department of Agriculture and Forestry, Taiwan Provincial Government, June 1971 (Chinese and English).

RICE FARMING IN TAIWAN

sons, *N* 14%, *C* 11%, *S* 11%; and 16-20 persons, *N* 2%, *C* 3%, *S* 2%), *hsien* differ considerably in the distribution of size of agricultural holdings, as shown in Table 2. Farm sizes are considerably smaller in central and southern than northern counties.

Table 2. Sizes of Farm Holdings, 1965

	<i>N</i>	<i>C</i>	<i>S</i>
	%	%	%
Under 0.5 ha.	18	49	34
0.5-1.0 ha.	30	29	28
1.0-1.5 ha.	23	12	16
1.5-2.0 ha.	14	5	10
2.0-2.5 ha.	17	2	4
2.5-3.0 ha.	3	1	3
3.0-5.0 ha.	3	1	3

There is also considerable regional differentiation in terms of the tenurial system. It is usual for Taiwan macro-agricultural data to distinguish between four categories of tenure as follows: farm households fully owning the land they cultivate; households who are part-owners of their land, i. e. farm families who supplement their own land by renting some from others; households owning no land of their own but having only tenanted holdings; and households without agricultural land at all, which are dependent therefore on wage incomes (or remittances) entirely.

Table 3 shown regional differences profiled in this way. While the percentage of households with tenant tenure is fairly uniform between the three counties, land-to-tiller programmes have been less fully implemented in the south than elsewhere. Note also

that more than ten percent of households in the north are non-cultivating households.

Table 3. Tenurial Differentiation, 1965

	<i>N</i>	<i>C</i>	<i>S</i>
	%	%	%
Full owner	75	83	72
Part owner	9	9	16
Tenant	5	6	8
Non-cultivating	11	2	4

In the agricultural sector throughout Taiwan the occupational composition of, as a rule, all farm families, is diversified. Their members do not all depend on agriculture alone for their livelihoods. Overall our three counties are not strikingly different in this regard (full-time agric. hh. *N* 44%, *C* 34%, *S* 33% part-time but with agriculture as main occupation, *N* 34%, *C* 45%, *S* 43%; part-time with agriculture as a vocation, *N* 23%, *C* 20%, *S* 23%).

Of all the cultivated land in Taiwan in 1970 some 85 per cent was under rice cultivation. Most of this is irrigated land. Dry land rice growing is also common in the island (but not in the three localities studied). In the northern and the central two thirds of all households cultivated only paddy, but in the southern *hsien* under mention here only one third. While our southern locality is, as has been observed above, fully within the Kaohsiung rice region, agriculture as a whole in Pingtung *hsien* is mostly characterized by mixed farming. Irrigated land is not necessarily all under rice cultivation only.

Three systems of irrigation are used in different regions in Taiwan and to some extent each locality studied differs in its irrigational methods. In the north there is a system of ponds originally constructed in the Japanese period from which a series of channels, which in some instances have been improved under recent land consolidation programmes, lead to individual farms. In the centre all rice-fields are irrigated by canals which were built as early as the eighteenth century and were planned on a large scale. The total irrigated area of this canal system is almost twenty thousand hectares. In the south, some fields are irrigated by canals which date from the Ching dynasty. Others are supplied by ground water raised by small electric powered pumps. Each pump services about 10 hectares.

As of 1967 the three regions (and note that we are *not* speaking now of *hsien*) which our field studies illustrate did not differ according to land use as between farm area, farm land and non-farm land. In each the figures read respectively approximately 1 *ha.*, 1 *ha.* and 0.1 *ha.* Neither do average percentages of farm (75%) and non-farm (25%) receipts vary considerably (though total family receipts do—*N* NT\$73,722 *C* NT\$69,445 *S* NT\$79,000). Farm receipts per *ha.*, however, (cash *N* 63%, *C* 64%, *S* 71%; non-cash *N* 37%, *C* 35%, *S* 29%; totals in NT\$: *N* 50,545, *C* 64,341, *S* 69,374) vary somewhat more.

Farm family receipts in 1952, 1957, 1962, and 1967 (including non-farming receipts) per household are given in Table 4 (at 1952 prices). Average farm earnings per farm household, per hectare and per man equivalents are shown in Table 5.

Table 4. 1952, 1957, 1962, and 1967 Farm Family Receipts

	N			C			S		
	Amount NT\$	Link Index	Index	Amount NT\$	Link Index	Index	Amount NT\$	Link Index	Index
1952	16,833	—	100	13,355	—	100	13,037	—	100
1957	17,636	105	105	14,373	108	108	14,330	100	110
1962	20,992	119	125	19,659	137	147	19,605	137	150
1967	25,178	120	150	23,701	121	177	26,962	137	209

It is with regard to average farm family surpluses and rates of saving that there are the most striking differences of all between the three regions. (1967: farm family surplus NT\$: N

Table 5. Average Farm Earnings, 1967

	N	C	S
1967 average earnings (NT\$) per hh.	22,929	22,557	27,895
1967 average earnings (NT\$) per ha.	20,657	27,848	32,063
1967 average earnings (NT\$) per man	10,867	10,741	14,018

2,745, C 4,323, S 6,158; % rate of saving N 7, S 11, S 13). Farm family surpluses by rice region are in the north reported to be *three times less* than those in the south. The situation in the centre lies almost exactly midway between.

CHAPTER TWO

HSING FU: LAND, RICE AND INNOVATION

The northern locality selected for field study, which fictitiously will be called here Hsing Fu, is known locally by its traditional Minnan name. Soon after Taiwan was restored to China after World War II the new government proclaimed all place names in the new official language, Mandarin. Fortunately in the case of our particular village there is enough etymological similarity between its Minnan and Mandarin appellations to enable anyone to find it without much difficulty. It is near Taoyuan city which in turn is only half an hour by non-stop train from Taipei city. Long distance bus or shared taxi, is, however, not only a cheaper mode of travel but also only slightly slower than the express train. It is the punctuality of trains in Taiwan that is a byword. From Taoyuan city it takes only twenty five minutes by bus to reach Hsing Fu or half that time by shared taxi at a cost of only NT\$5 per person for the trip except on holidays or very busy times of the day when the taxi drivers put up their fares considerably to take advantage of the market. Ta Yuan township, the seat of the local government and where the local branch of the Farmers' Association is situated, is some twenty minutes further on by bus. Under construction nearby is a section of the national north-south highway.

The settlement pattern of Hsing Fu is not completely un-nucleated inasmuch as some houses, a shop and a rice mill, for instance, cluster near the temple and the office of the Irrigation

Association is also nearby. An elderly man once related something of local history to us in terms of the founding of this temple perhaps two hundred years ago as having commemorated the local population, because of a highly fortunate and fortuitous combination of circumstances, having managed to hold out behind bamboo pallisades against a much stronger adversary until it gave up the battle and went away. But this northern locality is very far from being a compact and nucleated settlement like the southern and central villages described in Chapters Three and Four. The existence of the temple never has represented in ordinary times a corporate geographical unit with any particularly exclusive social cohesion or identity. Today, while the present grouping of houses, stores and the small textile assembly enterprise near the temple does have a degree of centrality, shops are also grouped along the arterial road to Taoyuan city. The village administrative office, housed in a room at the store near the primary school, is not near the temple at all. There is sometimes up to ten minutes' walking time between individual farms in Ta Yuan district.

In December 1971, the total population of Hsing Fu was 3,108, comprising 1,502 males and 1,606 females. Its total land area was 450 *chia*. Farm families totalled 410. Table 6 shows the population composition of the whole *hsiang* as of mid 1970. With a crude birth rate of 30.4, a general fertility rate of 140, a total fertility rate of 4,885, and a death rate of only 4.6, it has probably the highest rate of population increase in the entire island. Table 7 shows some aspects of household composition of the sample of families studied.

Occupations in rural areas in northern Taiwan especially are

Table 6. The Population of Ta Yuan Hsiang, 1970
(a) Numerical composition

Age-group	Total	Sex ratio	Male	Female
0-4	7,576	101.8	3,822	3,754
5-9	7,780	103.3	3,954	3,826
10-14	7,113	103.2	3,612	3,501
15-19	6,444	103.0	3,269	3,175
20-24	3,929	105.2	2,014	1,915
25-29	3,059	107.0	1,581	1,478
30-34	2,960	98.0	1,465	1,495
35-39	2,709	119.4	1,474	1,235
40-44	2,987	151.2	1,798	1,189
45-49	2,215	154.3	1,344	871
50-54	1,629	139.9	950	679
55-59	1,411	163.2	875	536
60-64	975	120.1	532	443
65-69	700	94.4	340	360
70-74	443	75.1	190	253
75-79	234	78.6	103	131
80+	168	60.0	63	105
Total	52,332	109.8	27,386	24,946

Data source: 1970 Taiwan Demographic Fact Book, Republic of China.

(b) Percentage distribution of age structure

Age	0-14 years	15-64 years	65 years and over
%	42.9	54.1	3.0

The dependent ratio is 84.8.

Table 7. Family Size in Hsing Fu, 1971

Size (Unit: person)	2	3	4	5	6	7	8	9	10	12	13	14	15	17	18	20	23	Total
Families	2	1	3	1	3	5	1	1	4	1	1	1	2	1	1	1	1	30

now very diversified. Of the employed population in the entire *hsiang* only some 70% of employed or self-employed men, and about 30% of women, are in agriculture, forestry and fishing. Nearly 60% of the women enumerated as employed are in manufacturing. 23% of employed males are in services. Such figures especially for female employment in an agricultural labour force, however, can be notoriously unilluminating as will be discussed below.

Part-time and occasional employment opportunities are seized as often as they can be found. In the thirty households interviewed in depth, three persons out of the total working population living at home worked full-time outside the farm. On one farm in the sample studied a wife was employed full-time at home in knitting textile garments for the assembly factory in the village. More than 65% of the farm families sampled, however, have brothers—often more than one—or sons or daughters living and employed in a town or city nearby.

Social links of all kinds between outside family members and those at home, as will be described, are strong and important in land matters, in rice farming and in the social context of agricultural innovations. Not least, as was shown in Table 1 in Chapter One, income received from outside family members, as this was stated to us, was considerable. Half of the first 25 households interviewed in depth said that they were in receipt of income from outside family members. On average this means 33.5 per cent of the total income of households, ranging from 20% to 99% in individual cases, is not derived from farming. As, most likely, nearly all households are in receipt of remittances, though we were not fortunate enough actually to be given detailed statements

to this effect, our figures under-, rather than over -state, this aspect of financial income.

Respondents' statements as they were made to us about their incomes from sources other than farming and from outside family members, together with their estimates of total expenditure for the year (but not all families ventured to make estimates, hence the blanks in the final column of the table) are given in Table 8. Some of the inconsistencies of this kind of data can be seen simply by reading figures across the table.

The Environment and Farming

The district is a treeless windy tableland. It can be bitterly cold in January and February particularly, but clusters of bamboo windbreaks surround each farmstead virtually hiding it from sight. It is too cold in northern Taiwan for fruit trees.

The entire area is irrigated and has been since the Japanese period, not from wells or pumps or channels bringing water from rivers or reservoirs as is the case with the southern and northern localities studied, but from large ponds. This irrigational pattern dependent on large storage ponds is found only in northwestern Taiwan.

Land levels are greatly uneven. The farm landscape is composed mainly of myriads of small irregularly shaped fragments or parcels of land of varying sizes most of which are at slightly different elevations from the others. On paper virtually the whole area was subject to a land consolidation programme some two years ago. This means, so far as fields are concerned, that rectangular plot boundaries have been drawn neatly on a map

Table 8. Stated Income and Expenditure Estimates in Hsing Fu, 1971

No.	Total Income (NT)	Income from Farming (NT)	(%)	Income from Other Source (NT)	(%)	Income from Outside family members (NT)	(%)	Estimate Expenditure
N-1	73,736	41,336	56	32,400	44	26,400	36	56,000
N-2	5,484	-2,515		8,000		7,200		33,600
N-3	24,563	12,663	51	12,000	49	12,000	49	43,120
N-4	56,350	24,670	44	31,680	56	18,000	32	47,040
N-5	1,598	-3,402		5,000		5,000		28,000
N-5	18,000	0		18,000	100	18,000	100	
N-7	35,901	11,901	33	24,000	67	24,000	67	56,000
N-8	14,834	14,834	100	0		0		44,800
N-9	10,437	2,437	23	8,000	77	0		26,880
N-10	-1,984	-1,984		0		0		16,800
N-11	17,604	5,604	32	12,000	68	12,000	68	33,600
N-12	16,571	2,171	13	14,400	87	14,400	87	13,440
N-13	53,457	53,457	100	0		0		55,826
N-14	93,378	66,228	71	27,150	29	12,000	13	182,280
N-15	46,060	46,060	100	0		0		56,000
N-16	4,487	1,687	38	2,800	62	1,000	22	14,000
N-17	18,666	9,666	52	9,000	48	0		
N-18	98,657	62,657	63	36,000	36	0		
N-19	39,894	3,894	10	36,000	90	0		364,000
N-20	7,505	7,505	100	0		0		67,200
N-21	24,276	-276	1	24,000	99	0		100,800
N-22	120,000	0		120,000	100	0		
N-23	70,800	0		70,800	100	0		
N-24	61,528	1,528	2	60,000	97	12,000	19	21,420
N-25	27,737	8,537	31	19,200	69	0		42,000
N-26	-166	-3,666		3,500		0		28,000
N-27	10,259	6,259	61	4,000	39	0		44,800
N-28	6,001	4,321	72	1,680	28	0		28,000
N-29	8,204	8,204	100	0		0		44,800
N-30	46,907	46,907	100	0		0		28,000

but on the ground, except in one locale, few changes have been made in field boundaries as yet.

Every year, despite the irrigational facilities which have seen a degree of further improvement under the land consolidation programme in some instances, the second rice crop in particular must contend with severe water shortage. It is also in this part of northern Taiwan that the second crop suffers from typhoons. During 1971, both crops suffered because of water shortage. The weather in 1972, however, was better, and by August it became clear that that year's rice harvest from the first crop would be the best over say the last thirty years, yielding up to seven to eight thousand *jin* each *chia*. As farmers reckoned the costs of this output as amounting to some five to six thousand *jin* only, a profit was made then. But this is exceptional. As a rule, farmers complain that the profitability of growing rice for sale is low, even minimal or negative.

In addition to rice and vegetables, watermelons are also grown after the second rice crop. Fish farming and hog farming on a large scale are new developments. Preparations are in hand for the introduction of dairy cattle.

We interviewed a very old farmer, whom the Japanese authorities had selected for a visit to Japan more than thirty years ago because of the part he had played in this northern locality as a model farmer and a Farmers' Association official in introducing and popularizing the new *ponlai* rice varieties in the 1920's which proved to be so high yielding. He and his wife were resting, smothered with eiderdowns on a wooden platform bed, in the kitchen where there was some warmth from the stove.

It was a bitterly cold day in January. In fact we did not know his wife was present until she emerged from under an eiderdown later on. He gave it as his opinion that the Chinese government today, unlike the preceding Japanese regime, aimed to provide for the poor as well as the rich in the countryside. For the past two generations he thanked the government that people in Hsing Fu have had rice to eat. Before *ponlai* sweet potato was the staple food. Like everyone else he blamed the present recession in agriculture mainly on the high cost of labour. Before the Japanese came, he said, rents could be higher than incomes so landlords had, as he put it, to solicit for tenants. He added, though, that anyone with the skill to do it was able to negotiate with a landlord to bring his rent down.

This former model farmer had not been a landlord himself but the imperial government had given him 50 *ping* of land for demonstration purposes. Also, as he cultivated land in some kind of partnership with his five brothers, he was in effect responsible for farming the very large extent of 50 *chia*. He recollected he had very soon been able to produce 2,000 *jin* per *chia* of the new short grain rice with the new methods. But this figure he said was the result of continuous experimentation with fertilizer and a Japanese technician staying nearby had done four or five times better on a demonstration plot.

Farmers in Taiwan talking about changes in rice cultivation tend to speak not of new rice varieties as such but about the costs and benefits of different kinds and amounts of fertilizers and from where they were imported. Precisely what combinations of kinds of fertilizer are needed to produce the best results

depend on the specific characteristics of the soil, for instance whether it is sandy or not. Farmers also point out that these can be determined only after much experimentation on the particular parcels of land concerned.

In addition to his invitation to visit to Japan this pioneer described how he had also been rewarded by an opportunity to become a policeman, an honour he said he had preferred to decline.

The technological environment in which northern farm households carry out their farming today is comparatively complex as indeed is true generally throughout the island. Virtually all households have electricity, and only in one of those interviewed had the supply been disconnected because of outstanding bills. Nearly 30% of the sample studied own, or share in the ownership of, a powertiller. Bicycles, sewing machines and electric fans are to be found in almost every household. Nearly 80% of the households sampled have had electric pumps for domestic water purposes in most cases since about 1967 or 1968. About 50% have had motor cycles and almost as many TV sets since about the same date. More than half have partly or in some instances wholly-concreted floors. More than half own or share in the ownership of agricultural sprays. More than 10% have refrigerators.

Primary Social Relationships

The larger and longer-established farmsteads in Hsing Fu, which may contain anything up to say sixty-five people related by patrilineal kinship, as everywhere else in the irrigated areas

of the island are built round three sides of a rectangular courtyard. Other open spaces, also used for drying rice and so on, lie in other directions. The use, even the ownership, of these outside spaces, including the courtyard as well as the use and the ownership of individual sections of the farmhouse and even individual rooms, is divided out among the families living there by the grandfather at the end of the family developmental cycle when he apportions his farmland among his heirs. What we call 'families' or 'farm families' here of which as many as five or six, each with its own head may live under more or less one roof, in local languages throughout the island are called 'stoves'. What sociographically as it were distinguishes one such unit from another is the use of a separate kitchen. A stove, or a farm family, is a unit of economic management of both production and consumption. As these families do not depend for their livelihoods on income from farming alone, however, it might really be best to call them simply 'rural', rather than 'farm' households. Our structured interviews in all three localities were of selected stoves not farmsteads.

On the whole it is only in certain legal and ritual contexts that 'extended' families are important social units. They will be called here 'lineal' in contrast to the 'domestic' families which comprise the people who eat from a common kitchen. As, however, a stove may include some members who do not work on the farm or who may not even live there, even this economic definition of a farm family is not strictly accurate. Moreover, while a stove certainly is a unit of management, in two or three of the cases studied in this locality the head or 'owner' of its finances, as religiously or legally defined, is not the same person

or individual as its 'manager'.⁽¹⁾ At times, therefore, the ownership or the headship of a farm family is, and is said to be, distinguished from its management just as the ownership and management of fields or other forms of capital may be in different hands albeit within the same—either domestic or lineal—family.

Many writers have chosen to speak of the family—usually in a larger and not the smaller connotation of 'stove'—as being 'the basic social unit' of Chinese social structure. In addition to conceptual exceptions to be taken to such an over simplification there is, in Taiwan, the ethnographical evidence to be considered also! Social structures in Hsing Fu and its surroundings comprise different social units for different social and other purposes. Moreover, not all of these units are corporate units. Families are corporate only in some respects at some, but not all, phases in their developmental cycle. At other times family unity in Taiwan as elsewhere may be categorical not organized. In Chapter One the vital importance of units and relationships relating to the power of the state that penetrates right down to the local level and are not in any sense familial was mentioned as one of the basic conditions of agriculture in the island. In addition to that of families, and of the state, there are of course various

(1) My introduction to Chinese family organization was provided by Myron Cohen 'A Case Study of Chinese Family Economy and Development', *Journal of African and Asian Studies*, Vol. 3, Nos. 3-4, July and October 1968 and same author's 'Developmental process in the Chinese domestic group' in *Family and Kinship in Chinese Society*, M. Freedman ed. Stanford University Press, 1970; Wang Sung-hsing *Pooling and sharing in a Chinese fishing economy: Kuei Shan Tao*, unpublished doctoral thesis in anthropology, Tokyo University, 1971; Chen Chi-lu 'The Taiwanese family', *Journal of the China Society*, Taipei, Vol. 7 1970, pp. 64-79.

other levels and contexts of social organization to be taken into account as well.

According to governmental law, daughters as well as sons are entitled to shares in their father's property. It is the custom in Taiwan, however, that in practice daughters do not share in inherited property. What grandfathers do aim to do is mainly to distribute their property to their sons and oldest grandson equitably according to the economic and other services they have rendered to the family in the past and present economic needs. For each particular distribution or inheritance of property, there is a particular reason. For an understanding of inheritance as applied to farmland in Taiwan, for instance, rights to succession provide nothing greatly more than an approximate framework only for an initial considerations of duties. While, generally speaking, farmsteads are composed according to agnatic descent and patrilocality, each farmstead is seen to have its own social character and complexities. It is these which are given overriding importance in inheritance.

Important in this connection is the institution of the 'brought-in' husband. The brought-in husband in one stove studied said that, he like others elsewhere, had no real rights or status in the family into which he had married (but added wryly that the other side of such a negative position was a certain kind of freedom). The sole farmer whom we attempted to interview on his household production in depth who declined to talk about this with us was a brought-in husband. But he was in no sense hostile or indifferent to our study. He had, indeed, been listening in with great interest throughout an interview that we had just conducted. He said that as he just worked on the farm only,

merely doing whatever was necessary, unfortunately he had not enough knowledge of the overall management and performance details to help us. Our impression was that his situation was just as he said it was. Nevertheless the children of a brought-in husband can in certain, perhaps unusual, circumstances, claim almost equal rights—though they have a different surname—as those of their step brothers though others in the lineal family may dispute this.

On one occasion, when trying to find out exactly which land fragment belonged to which full—or half—brother, I was told sharply that I had better not ask anything of that sort unless I wanted to be thought of as wanting to divide brothers. Later I learned that the show, which is not always substance also, of fraternal solidarity, is affirmed whenever it suits but between brothers there may be many economic differences which are admitted to exist in one situation if not another. In any event it is extremely rare, before as well as after the grandfather has divided his property, for married brothers to be in any sense joint members of one farm family. At one level of discourse the virtual independence of one domestic family from another in most everyday matters will be partly attributed, structurally, to the influences exerted by wives or sisters-in-law.

It is considerations about economic equity that principally influence the inheritance of property when the time comes to pass it on. At the same time economic considerations enter also into the manipulation of the social composition of households.

When they are applied to Chinese family organization, theories in kinship studies about transactions of persons in the form of wives between one residential and domestic group and another

seemingly fit, where they touch, only ludicrously inadequately. We have seen already how husbands may be brought-in. In certain kinds of situations sons as well as daughters are transferable as well. Considerations of succession and descent may determine some instances. Matters of economic support will be decisive in others. In one family, a grandson had been given to an uncle living in a distant town who had no son of his own. The object of this arrangement was simply that the old man should derive some economic support from it. Another grandson in the same family had married a foster-daughter, his own foster-sister. She had been brought-in to the family while still a small child precisely with the objective in mind that one of the sons would marry her eventually. In this particular case, as it happened, the particular foster-brother for whom she was so to say putatively originally destined, was married by another foster-brother.

Also in this as in other cases this family had both given out, as well as received in, a girl—one of the granddaughters had been transferred out. In northern Taiwan marriage with a foster-daughter is a very common phenomenon. More than half the number of farm families we studied contained at least one instance of this. As the transaction of bridewealth is not necessary for marriage with a foster-daughter this institution has a strong economic foundation. Should a foster-daughter die before marriage, she would be treated in the attendant rituals virtually as if she had been a bride.

By means of such social transactions of persons, of girls and boys and men and women, before and after marriage, which are all forms of the management and development of human resources in a literal sense, domestic families become linked with others

in the most intimate of ways. These permit, and even necessitate, social communication of all kinds. Always economic considerations are very significant. As regards lineal as well as domestic families in some instances policies of occupational differentiation have been pursued deliberately with the objective that the family—in whatever sense—as a whole should maximize its economic chances. Information about biological and technical innovations in farming, as well as much else, travels by means of these interpersonal, internal-external, social links that have been deliberately set up for one purpose or another. In one case in Hsing Fu know-how that was vital for commercial hog raising had been transmitted through a link set up by a foster-daughter and her marriage. Of course it would be totally false to think of farmers as just giving away surplus sons, or expendable daughters, if by this one would mean that after the transaction, which perhaps a third party specialized in such matters had helped arrange, there would be any loss of relationships. The pattern seems to be rather for relationships and connections to be multiplied than the reverse.

In other cases in social communication patterns what has been passed back to a farm family from, say, a relative in the city, was information about new seeds. The introduction into Hsing Fu both of fishponds for commercial exploitation and the dairy cattle project that started in 1972 was not due to the FA or any other such official body. It followed principally from initiatives taken by brothers and other relatives now living outside the village but keeping land interests there. Rural, not a whit less than urban areas in Taiwan, are characterized by a complex of interpersonal relations stemming from very closely

inter-communicating groups in the context of which the number of individual family and other enterprises is ever increasing.

Concerning social status and sex, distinctions are made in Chinese as other societies between women as wives and as daughters, men as husbands, as brought-in husbands and as sons, and so on. But some generalizations can be made as it were biologically. Customarily women do not work in the fields in the north as they do in the south of the island. As a rule in this northern locality their sphere of activity, other than at the critical transplanting time, is that of the kitchen and the home where they raise all the poultry and small livestock that constitute what may be a source of considerable income for the wives themselves directly as well as food for the family. As has already been noticed, nearly all households are supplied with electricity. It is a switched-on electric light bulb suspended into a cardboard box that provides the warmth for the raising of chicks and ducklings before they can go outside. Chickens, turkeys, ducks, and goslings are constantly being reared in small cardboard boxes in the corners of rooms. No sooner has one batch grown up than another is started. That a wife can keep the proceeds of any sales for herself after domestic consumption needs are satisfied must no doubt be an important production incentive for her for any surplus. It is very unlikely, incidentally, that this farm production of small livestock could enter current statistical sources on Taiwan's agriculture adequately if, in some regards, at all. As the greater part of their feed would appear to be scraps and leftovers, costs must be modest. On a huge commercial scale cattle raising was started by the mammoth sugar corporation in the south of the island to provide an economic use for the sugar-

cane tops that otherwise would be wasted. Domestically on the small scales at the local level similar kinds of integration of resources have long been established Chinese custom. Though women may not be enumerated in the agricultural labour force if, for instance, as in Hsing Fu they do not as a rule work in their own fields or as hired labour, certainly their economic activities are of vital importance in the making of family livelihoods. This includes, if to an unknown extent, cash income. Sales of hogs to buyers who come to the farm are negotiated by the husbands who also have control over the proceeds of such sales.

At harvesting and transplanting times another important part of what otherwise would be called wives' domestic activities is cooking for hired labour who, in addition to their wages in cash and cigarettes, demand four or even five meals or snacks a day in northern Taiwan.

In at any rate the larger families in Hsing Fu it still tends to be the case for the men to eat first after which they are followed to the table by the women and children, though they will probably already have made something of a start in the kitchen. On special occasions meals are taken in the farmstead's entrance hall where the ancestral tablets are kept on a domestic altar where religious and ritual observances are made regularly at all the appropriate points in the agricultural calendar. Each household within the farmstead has its own smaller altar-shelf in addition. There is also devotional incense-burning at earth shrines outside which can be built virtually wherever they are desired such as at an outbuilding or in a field. As participation in these external activities extends beyond the basis of single

lineal families it can be a means, at times, of neighbourhood mobilization.

In Chapter One the administrative fact of the penetration of the power of the state to the local level was emphasised as one of the basic conditions of Taiwan's agriculture. At the same time, as has now been described for one particular locality, it is plain that primordial interpersonal relations have not lost significance even in such regards as the diffusion of new rice varieties. If it would make any sense to distinguish between diffusion and innovation in agricultural developments, one could with some reason attribute the latter more to the effect of state power and the former more to communications within so to say the private sector but meaning by this kinship, affinal and neighbourhood relationships primarily. A social observer living with a farm family cannot but notice the high degree to which children, especially brothers, tend strongly to imitate and complement each others' behaviour and the extent to which close physical intimacy among indeed all members of the family prevails so much of the time. Perhaps in this lies one reason why these relationships can continue in importance in later life. But at the same there is constant motion and intervisiting of all kinds on farms. Again, at least as a visiting sociologist can observe, what appears very characteristic is the extent and way in which individuals as they go along enter into more and more relationships without in many cases apparently it being felt necessary, desirable or inevitable to relinquish the old.

Associational Memberships

Turning now to associational memberships that transcend

domestic social organizations and their internal-external links altogether in some regards, some 80 per cent of the farmers interviewed are members of the Farmers' and the Irrigation Associations. Joining such associations was, however, at any rate up to the year of our field study, mostly a matter of necessary routine because of the rice—fertilizer barter system primarily. The chief 'success' of the FAs in recent years in any event has rested simply in the fact that the government has accomplished rice collection by means of them. For individual farmers to join them there is no special reward except in those few cases where either a position in the organization or some special favour is being sought. It is, however, to be borne in mind here also that the local township FA office is geographically somewhat distant from Hsing Fu. This sheer geographical distance means that even such services as it could provide will tend to be sought mainly elsewhere.

One day in the FA office we had the good fortune to interview an agricultural extension instructor who proved to be as forthcoming and frank about agricultural difficulties in the district as were farmers themselves. Extension work, he said, now was only an insignificant part of FA activities although to those who requested it instruction could be given on hog farming and about what kind of fish it would be best to stock. Specialized knowledge such as is needed for eel farming for instance is not provided at all. The instructor was, he said, concerned in his ordinary work mainly to encourage the joint cultivation of rice provided that the mistakes that had been made by joint farming in central Taiwan (see Chapter Four) could be avoided and especially the error of making work teams too large. Under ordinary circum-

tances even using the best varieties of seeds for the district (which he said were Hsinchu 56, Tainan 5 and Kaohsiung 153) the costs of rice cultivation would average (the equivalent of) some 5,500 *jin* per *chia*. The very best harvest that could be obtained, he said, under perfect climatic conditions would not be significantly more than 7,000 *jin* and this is not much if anything more than what farmers needed for their own domestic consumption!

The IA office, though it is in the village, is usually empty. There is precious little business to be done there. One could be excused for thinking it an unoccupied, though new, building. Each storage pond has its own committee and master who is a farmer who oversees the allocation of its water to himself and those living in the immediate vicinity. In addition, each pond is watched over by usually a retired Mainland veteran who lives there alone in a single room structure. Water usage fees in this northern locality are charged simply according to the amount of land one has whether one irrigates or cultivates all of it or not, and without regard to the extent to which there are buildings on it.

In reply to our questioning in the structured interviews about memberships in associations, virtually all thirty households identified themselves as being Taoist or Buddhist. What was meant by this publicly was, however, simply that modest cash contributions are made at intervals to the temples—like, in a way, voluntary membership fees—and that domestically the agricultural ritual cycle of observances is followed faithfully. It would be completely wrong to see in this associational identification and pattern of religious observances any tradition-based, endemic 'fatalism', a word commonly used in development studies

to mean something that would for instance inhibit technical innovation in farming including organizational changes. We found no such fatalism in Hsing Fu in any institutionalized or general sense. Religious and economic activities appear to relate to quite separate and distinct planes of conduct and belief with any continuity or change in behaviour in respect of the one bearing, seemingly, no relation to that in the other. Defeatist attitudes towards farming and possibilities for its improvement were expressed to us by one household head, one of the few who had completed junior middle school. About half of the household heads interviewed had not been to school at all and the remainder had received only primary education. But as this same farmer told us also of his difficulties in getting his share of irrigation water at his appointed turn—he said that only if he managed to call out all his available relatives to help him he could possibly not lose out—he sounded more realist than fatalist.

In another instance the despair expressed by a small household that, unlike the case just mentioned, was wretchedly poor, seemed also to have been born so to say more of circumstances than culture. The wife said she had owned only one pair of shoes since she was born. She believed there was nothing whatsoever short of charity that could give her and her family any hope of surviving until the next harvest.

Most farmers interviewed were aware that village meetings are held in premises near the primary school and most believed they were held once every other month. Others, however, thought they were held monthly. This uncertainty only goes to symbolize the anomalous and to some extent meaningless nature of 'village organization' at the present time as regards most local community

matters in as much as government works through the FAs and other township rather than village organizations. The business discussed in village meetings, whenever it is precisely that they may be held, pertains mainly to complaints about taxes and the like in difficult seasons. Once recently, there was a discussion about an agricultural development, namely the projected introduction of dairy cattle, but though the village leader is a local man it is not he who actively initiates business. The general pattern is, rather, for farmers to bring their troubles to him especially when, because of the weather, their crops have failed. That sometimes petitions are sent from village meetings to the head of the local government asking that a tax should be modified or postponed, however, shows the kind of channel of communication that perhaps could be or should have been developed instead of the township-based FAs. If sometimes petitions are received favourably, though, this may be mostly for the simple reason that only so much blood can be squeezed from a stone. Farmers say that any relief they can achieve by petitioning is slight. Nevertheless, clearly this kind of communication between so to say the private and state sectors exists on occasion, bypassing lower officials, and evidently if it is used skillfully enough it is not entirely ineffective.

Land and Water

Land as a factor of production will be discussed here together with its fixed equipment (physical infrastructure) such as irrigation works, ponds, roads and windbreaks, under three headings: (a) the tenure of land including the extent or quantity of land held, (b) transactions in land such as sales and pledges, and (c)

land use. As any discussion of, say, land management is bound to shade over into that of both labour and capital as factors of production-and-distribution, management will be treated separately as a fourth factor for descriptive purposes. But distinctions between both factors and particular aspects of factors are, as a rule, far from being very exact. For instance, transactions in land are related usually either to actual or potential land use and this in turn may be an influence on, and influenced by, land tenure.

(a) *Tenure*

For comparative purposes five tenurial categories could be distinguished: owned and self-cultivated land (in Hsing Fu there are no absentee owners apart from a few cases of brothers having for the time being at any rate given over their land and its use, possibly for no consideration, to brothers who are still living at the family farmstead); land rented-in at the 1949 land reform-fixed rent of 37.5% of its product; land rented-out, which of course may be the same tract or tracts of land coming under the immediately preceding category above; borrowed land, for instance land pooled between brothers could come under this heading; and land shared either by right or custom.

All cultivated land in this northern as in the central and southern localities studied is paddy, that is to say, irrigated land. Here it is mostly of grades 10 or 9 in quality. Land that has been consolidated is considered by Government to have improved in grade by one degree.

Table 9. Extent in *chia* of Land Owned in Hsing Fu, 1971

No.	Total Extent	Parcels	Land Reform Transfer Land	Non-transfer Land	Grade	Estimated Value (NT)
N-1	3.1	17		3.1	10	403,000
N-2	0.2	2		0.2	10	26,000
N-3	1.8	11		1.8	10	234,000
N-4	1.6	10		1.43	9	232,391
N-5	0.27	2	0.27	0.27	9	20,000
N-6	2.2	4		2.2	10	286,000
N-7	1.2	12		1.2	10	156,000
N-8	1.2	3		1.2	10	156,000
N-9	0.81	5		0.81	9	129,000
N-10	1.5	5		1.5	10	195,000
N-11	0.83	7		0.83	10	49,400
N-12	0.2	1		0.2	9	81,000
N-13	3.9875	22		3.9875	10	26,000
N-14	1.2	4		1.2	10	600,740
N-15	0.2	1		0.2	10	240,000
N-16	0.17	1		0.17	10	2,600
N-17	0.6	2		0.6	8	22,100
N-18	3.02	1,5		3.02	10	168,000
N-19	1	7		1	10	69,460
N-20	3.8	19		3.8	10	130,000
N-21	0.13	3		0.13	10	494,000
N-22	1.2	2		1.2	10	13,500
N-23	No farm land				10	156,000
N-24	0.13	1		0.13	10	13,500
N-25	0.85			0.85	9	136,400
N-26	0.8			0.8	10	114,000
N-27	0.81	5		0.81	10	105,300
N-28	1	?		?	?	?
N-29	1.1	4		1.1	10	143,000
N-30	3.1	8		3.1	10	369,000

Self-owned land. Of the 30 households studied in depth only one has no land and in only two cases is farmland not self-owned, and self-cultivated, as shown in Table 9.

The sources of these figures are the title deeds of the property concerned. The reliability of these documents has been questioned in some cases. One farmer told us that it was only as a result of the 1953 land-to-tiller programme that his ownership rights had been delineated satisfactorily. Another said it was the 1969 land consolidation programme that had done this for him. Other than this only in very rare instances were any remarks at all offered about the former, or any favourable remark made about the latter, except—in the case of the latter—in the abstract or as a good general principle of development with reference to the distant future. Any comments made about the 1949–1953 land tenurial reforms were offered only in response to a specific probe.

The degree of fragmentation of holdings is extremely high. As a rule the more land one has the more it is divided. Fragmentation as this is understood locally, however, does not necessarily mean the scattering of land in different pieces or parcels. Fragments may be more or less adjacent but at different levels because of the landscaping for irrigation which has been based closely on the rise and fall of the natural contours.

Rented-in land. Four of the 30 households rent-in part of the land they cultivate. The rents fixed in 1949 at 37.5% of rice production in that year have not been changed since then.

Land rented-out. Only one of the households studied rents-out land, and in this case *all* its land has been rented-out. This, an arrangement made for 1969–71 only, was due to the special

circumstances then that none of the owner's sons or other family were with him, only his wife, so he had no family help at all for cultivation. The lessee was a neighbour.

Pooled land. To a certain extent and for limited periods probably on all farms there is some pooling or sharing of land or limited exchanges or mutual borrowings for only a small, if any, consideration in cash or in kind if the specific economic circumstances of the parties concerned are such as to make any reckoning necessary. But it is next to impossible for the extents involved to be established in only a short-term research. Normally no land is held collectively.

Common land. There is no common land in Hsing Fu.

Fixed equipment and water. The ownership or tenure of fixed equipment such as windbreaks is of the same order as that of the land on which they stand. Rights over water and ponds, however, vary. The small duckponds, which are very common in the area, are privately owned by households. But the irrigation ponds and channels are not. They belong to the IA, that is to say, the State. Essentially rights to the use of irrigation water are acquired in return for the fees exacted by the IA on the basis of the extent of land owned and calculated, at present, regardless of whether irrigation water is used or not in all parts of the holding concerned.

One of the beneficial effects of land consolidation, where, that is, there have been any at all, has been the improvement of irrigation channels. That, as regards particular fields or fragments, farms and parts of farms vary considerably in access of water to them is, in this particular locality, due as a rule to natural, topographical reasons rather than political disputes about

the allocation of water. The latter exist here as elsewhere, and one case has already been mentioned in this chapter, but apparently they are uncommon. Our attention was sharply drawn, however, to one important consideration concerning water namely that the labour allocated or available on the farm for water distribution may be insufficient in critical periods. When it is necessary for water to be distributed at night, for instance, there may be even no one at all to do it because of moonlighting or being away for other reasons.

Farmers made it plain to us that their outputs varied not only because of micro differences in land quality, which even the most conscientious application of fertilizer cannot iron out completely, but also because, especially for the second crop, water is not available equally to all. Unfortunately this had not been anticipated sufficiently in our research design.

(b) *Transactions*

In discussing tenure the subject of land transactions has already been broached. But other aspects remain to be discussed. These include inheritance, the land-to-the-tiller programme, land consolidation, commercial sales and a subject which shades into that of land use, namely, pledges or mortgages.

Inheritance. The commonest method by which land passes from one owner to another is that of inheritance. As the end of his working life draws near the grandfather divides up his property among his sons. On land shared out only after death a high tax would be levied (and, it could be assumed, inheritance disputes would be more numerous and more difficult to settle. Thus any attempt to assess the significance of other kinds of

land transactions must first of all establish the quantitative dimensions of inheritance. This would provide a standard of significance meaningful to the local population immediately concerned. It has not fallen within the scope of the present study to attempt this mainly because the 1949-1953 land reforms, being now only of historical interest, have not been specially selected for analysis here.

Land-to-the-tiller. Of the households studied only one reported that it had benefited in 1953 by the land reform in that year that was designed by the Government as a last step towards the equalization of rural land holdings and thus to change the part played by land ownership in local—and national—power structures. In some homesteads we learned that tenants who were also relatives of the landowner, who was neither absentee nor a tyrant, had chosen not to avail themselves of the opportunity to gain land of their own that these reforms extended to them. They said they rejected any legitimacy or responsibility on the part of the state to intervene in matters of family estates. Of much more importance was the reduction in 1949 of rents from levels perhaps as high as 50-60% to 33 $\frac{1}{3}$ % of the rice output.

Land consolidation. In this northern tableland locality the 1960's land reform known as land consolidation is a two-stage programme. Once an area has been designated by the government for consolidation—a decision described by all the farmers interviewed, notwithstanding the paper requirements to the contrary which require the *hsien* government to obtain seals of agreement with more than half of the owners of the land to be affected, as one over which local opinion could have no influence whatsoever—the first step is that of planning new field boundaries

on a map and of constructing new local roads and irrigation channels on the ground. The approach adopted by the government in Hsing Fu was an excessively rigid one in which roads were laid down strictly according to a standard plan regardless of where roads already existed and whether new ones were needed or not. As a result some earth roads were carved out of farmland quite unnecessarily. As they were not needed it was not long before farmers dug them up in some stretches to plant vegetables. Only in one instance was a small feeder road constructed which, when surfaced, proved useful. But this shows what despite its high costs an approach implemented in a fashion sensitive to local conditions *could* achieve.

The second step concerns both maintenance and implementation of the new field boundaries. Infrastructural improvements built must be maintained, but as no provision for this in the case of roads has been made they are mostly unusable even where they have not been cultivated! Maintenance of the new irrigation channel, however, has been undertaken effectively by the IA.

The implementation of the new plot boundaries amounts to what could be called a personal, as opposed to an official, undertaking. After the official plan has been drawn up it remains for individual farmers, completely unaided by any subsidy, to rebuild and relevel their plots. Some farmers complained that the official planning left them with even a larger number of fragments than they had had before. They meant by this that now they have more parcels of land at more different levels if slightly less geographically scattered than they had before. It takes hours and hours of very heavy labour to reduce fragments of land all to the same

or a similar level and the cost of this must be borne entirely by the farmer himself, this in addition to the fees he has already paid the Government in connection with the first, official, stage.

To judge from what little personal, that is to say actual, consolidation has been done thus far, it will take perhaps another four or five years for it to be finished. It would be difficult to disagree with the complaints of the farmers who, as nearly every farmer did, chose specifically to discuss land consolidation with us. With at most only three exceptions all said that, while in the very long run land consolidation might be good general policy, it was much too costly for them and had in any case been planned and implemented very poorly in Hsing Fu. At Sallun not very far away they said consolidation had not been badly done. But in Ta Yuan the situation was very different and, land consolidation being government policy, they said there was nothing that they could do about it. Incidentally, given that one—if not the main—stated governmental objective of consolidation is that it should facilitate mechanization, it is to be noted here that only one farmer interviewed even mentioned this possibility to us.⁽¹⁾ Perhaps this was partly because the degree of mechanization that has been achieved thus far amounts only to a dubious advantage over older ways for most farmers except in certain regards (see below) because of its high costs. But even if a farmer's land fragments were effectively to be brought all together the resulting single holdings would still be too small for

(1) Virtually the same situation was found in a study conducted in 1971 by Yang Yuan-chuen for me in Ilan, northeastern Taiwan; where local officials as well as farmers did not know of any possible advantages of land consolidation, as presently planned and implemented for mechanization.

the opportunity cost of mechanization to be much affected either way. Joint forms of cultivation might make a difference but at present in Hsing Fu there is no interest in these.

Another disadvantage of land consolidation for medium and small farmers particularly is the fact that one loses in the process up to 15 per cent of one's total land surface which goes for infrastructure. As the construction costs (for roads and irrigation ditches) per *chia* come to NT\$12,000 (or more), overall, as one group of farmers put it, farmers lose what amounts to the equivalent of 25 per cent of their land at obtaining prices. If additional amount of land was added to this figure to cover the costs of the second, personal, step of consolidation, which are in Hsing Fu at least NT\$15,000 *per chia*, the final total would be equivalent in effect to the value of more than 50 per cent. On one occasion a group of farmers did, in fact, express the sum total of the cost to them of consolidation in this way.

Farmers' complaints about the high construction fees of the consolidation programme included their belief that the local government made a profit from selling the residual fragments which it had acquired from them on promise of compensation.

The implementation of land consolidation has failed in this part of northern Taiwan also in another respect. In the course of redesigning the feeder road network, windbreaks were destroyed where shelter from winds is absolutely necessary. If windbreaks were to be planted now along the new roads they would be with, not against, the prevailing winds.

Commercial sales and purchases. Farmers complain that, as the market value of agricultural land decreases every year as the recession in farming worsens, it is profitless to sell it. In any event, no one wants to buy it. They say it would be best,

if one could find the capital with which to do it and if one wished to make this kind of investment, to convert land from agricultural to industrial use or from crop to fish or livestock farming. Two of the three major commercial sales of land that had occurred in—or just outside—Hsing Fu recently were to buyers who wanted to build factories. The purchaser in the third case, who leased the land out for farming to begin with, sold out to an industrialist at a considerable profit three years after his purchase. If even one large factory were to be built locally considerable social and economic change would result at least in two respects. Cash incomes would expand and land values would increase.

Aside from these large commercial transactions in land we learned only of several minor ones of, for instance, local farmers buying small tracts of residual land (from the government) after land consolidation. In another case a farmer sold out to neighbours so that he could take his large family to an area where land was cheaper—he wanted to continue making a livelihood as a farmer. In other instances small sales of land were made mostly by one brother to another.

(c) *Use*

The possible uses to which land is put (other than as collateral for loans) could be listed as follows: for residential, arable, fish farming, large livestock and non-agricultural (and non-residential) purposes. As the keeping of small livestock for domestic consumption as well as for sale, by wives, is done essentially at home, this is an important aspect of the use and management of what otherwise would be called simply residential land.

Arable. Concerning land use for rice cultivation the most important single fact is that two crops are planted and the

characteristics of each vary considerably. Not least this can be seen with regard to the varieties of seeds sown. Climatically there is a tremendous difference between the two cultivation seasons, the second of which starts almost immediately after the end of the first. The first crop usually escapes typhoon damage and water shortage. The second crop suffers from both high winds and drought. It is impossible to discuss rice cultivation in Taiwan without considering land and water at the same time.

The second most important fact is that in 1971 all the households studied and so far as we know all the others in the region generally which have agricultural land (only one household of those studied lacked cultivable land altogether) cultivate rice. The big change, the deliberate decision of one household (not the one lacking land) *not* to cultivate rice at all, and of the same and other households to convert part of their rice land into grassland, came only in 1972 namely the year after that to which the quantitative data we collected in the structured interviews refers. Thus 1971 has proved to be of special historical importance in Hsing Fu as the final year of a particular period.

Vegetables. Vegetables are cultivated for sale by a few households. Virtually all households with land grow vegetables for domestic consumption. Only the larger ones, however, approach self-sufficiency in this respect. Watermelons are grown for sale depending specifically on anticipated prices and demand though farmers' recollections about whether prices the year before last were high or low varied sometimes considerably. This year, as it was believed there had been an outbreak of cholera in Taipei, watermelon prices plummeted. Farmers said that as a result they

would not make much profit from them if any. It is believed in Taipei that the disease can be spread by fresh fruit sold by the slice at streetside stalls. Government denials that there had been any outbreak in Taipei were not believed in Hsing Fu (or for that matter in much of Taipei city). Other factors affecting watermelon production include the scarcity or otherwise of water.

Not far away from our locality there is a successful and profitable large-scale mushroom farmer but no one in Hsing Fu now has a quota-license to engage in this good business. Four years ago one farmer was growing mushrooms but his enterprise collapsed due, it is said, to financial mismanagement.

Hogs. Turning now to hogs, the (only) instance in our locality of a farm family turning to hog raising on a large commercial scale is the household that decided in 1972 not to grow any rice at all. This particular household is exceptional in our locality inasmuch as, while it has some 4 *chia*, and is therefore by local standards large in size, it is small in terms of the members of its family who live and work at home. At the time of writing it has started to raise some 500 hogs in buildings either specially built or converted. Most households surveyed keep a few hogs occasionally, or more regularly, for sale.

—Concerning the ordinary domestic keeping of hogs a special word needs to be added. Basically at the local level⁽¹⁾ rice has

- (1) It could be argued that at the governmental level rice has a different significance. The provincial government urges higher and higher production of rice partly because in addition to it being the staple foodstuff for rural and urban families alike, three times daily, it is also a medium of payment for services rendered to the state by public servants. As such it could be said that rice has become invested with a certain quality of immanence in at any rate the human universe. See chapter one.

no special ritual or sacral significance whatsoever. It is, simply, a staple food which is of entirely a secular nature like, presumably, potatoes in Ireland. Hogs, however, in Hsing-fu have a kind of kula aspect. Competitions with prizes are arranged regularly by the temples. The winners proudly display photographs of their prized animals on the wall in their ancestral entrance hall. The fattest and heaviest hog wins, its belly so heavy that seemingly it can only barely manage to drag itself along the ground. As with ritual competitions everywhere, to lose would be too serious a setback to contemplate. So the prizes are many. A farmer will proudly show you the certificate issued by the temple awarding him 37th prize.

Fat pork is extremely prominent in the cuisine of those families who can afford this luxury. One might sell one's water buffalo when its days as a work beast are over, knowing that this might mean that it would end up as 'beef' on someone else's plate. But you would never be so callous as to eat your own buffalo after all the work it has done for you. In Taiwan, while pork fruit and vegetables are taken to the temples at regular intervals for the religious ceremonies collectively called *bai bai*, only glutinous rice could be said to have a character somewhat out of the ordinary for rice. When rice is used in ritual, it is glutinous rice that must be used. Thus many farmers in our locality cultivate small amounts of it. The short grain *chai lai* is also grown to some extent—but for special dishes such as Taiwanese noodles.

Fish. Recently or during 1971 five fishponds were constructed. One of these was built by the large hog farmer just mentioned who will integrate the keeping of hogs with fish farming. In

the other cases it has not been planned thus far at any rate that fish farming should be integrated with hogs. The catch from of these ponds includes a small, oyster-like, shell fish which commands a high price and can be collected from the bottom of the pond quite easily just by wading through it with a net scoop. Fishpond income is also derived from the leasing of fishing rights, by the day, to anglers. No detailed data is available but the profitability of fish farming must be from medium to very high even allowing for the expense of the hire of a bulldozer for the making of the pond to begin with. Profits from eel, or rather elver, farming, are probably the highest that can be made from ponds or specially constructed and aerated tanks if they are exported alive by air to Japan.

Fishpond construction at least at present requires no previous authorization from for instance the IA, and again thus far at any rate it occasions no water or land tax variation.

Labour

For comparative purposes one might have to distinguish between four kinds of labour as an input: (a) self or family labour, (b) hired labour, (c) shared, borrowed or exchanged labour and (d) services rendered at harvest time mainly such as before an expected typhoon by military personnel in the vicinity. In Hsing Fu, however, seldom is labour of the first three kinds altogether distinctly differentiated. As for agricultural labour performed by the military, though figures released to the press by the authorities concerned suggest the *hsien* as a whole benefited hugely, Hsing Fu is situated too far away from the immediate vicinity of the camp to be affected.

(a). *Family and self-labour*

With two exceptions all household heads studied are men aged from 36 to 81 years. The exceptions are both small households with but two members each, one a mother and her mentally handicapped son, the other a wife whose husband lives elsewhere and her son. As a rule, household composition spans three generations. That there is no evident correlation of age of the household head with either the size or the composition of the household suggests that there may be no special trends of social change in this locality with regard to this household aspect of social structure. The larger the farm size, however, the larger is the family, meaning by this its members working at home plus dependent family. It is the high correlation (except in the one special case often mentioned in this chapter) of large farm size with a large working population living on the farm that is of special importance for overall farm performance in this northern locality.

The working population on the farm with 4.2 ha. comprises, in addition to the farm family head himself, his wife only since two years ago a young and unmarried brother who lived and worked there left for a university. In this particular instance only a very small fraction of the land of this farm is owned by the household head. The rest belongs to his brothers, comparatively rich men in the city, who have made over the use of it to him. His children are all below the age of 12. Farmers do not count such young boys and girls in the labour force but nevertheless they may be given some responsibility.

In absolute figures, the larger the farm the larger the hired labour component. No correlations are noticeable in our data

of dependent with working population or those at home with those working outside.

It is believed that in the past, despite sickness and mortality rates, households were yet larger than they are sometimes at present. Certainly it would be easy to infer this from the large physical size of the farmsteads (which in the north of the island especially landowners had erected for their tenants) with their many and high-ceilinged rooms. This larger size of families in the past is one factor relative to labour scarcity today. As we have seen already, wives work in their husband's fields only for instance at transplanting time when they help carry the seedlings from the seed beds to the fields. There are no women in the contract agricultural labour gangs in the north (but we have seen three or four women working temporarily on construction sites).

To older sons or younger unmarried brothers who work on the farm either generally or at special tasks, regular, if small, money payments are made at for instance ceremonial times. It would be difficult to distinguish these from a kind of wage informal and small though the transactions may be. They are, indeed, in a way thought of and described as wages by the giver and receiver alike.

(b) *Hired labour*

As noted already for Ta Yuan *hsiang* fertility is even higher than it is anywhere else in the island. Yet, hired labour costs account for about half of all cash costs, with no other single item being adjudged by the farmers as more critical. Today, and for the past four or five years, labour at the peak agricultural

periods of demand is, and for some years has been, difficult to get at any price.

Family labour generally speaking is unpaid in cash though there are exceptions as has been remarked above. Hired labour must be paid in cash and in kind—up to five meals or snacks and a packet of cigarettes a day. The average daily hired labour wage cost per person to the farmer here is NT\$120. This figure includes a fee paid to the broker who visited the farm earlier to see what labour was needed. The broker collects NT\$100 for each man he provides but if the man works for two days then proportionately the fee paid to him is at only half that rate, and so on. The common pattern is for practically the same workers to be employed on contract each year. Some come to enjoy a reputable social standing with their employers. In one case a brought-in husband was a former contract worker. Sometimes the broker himself had started out as a worker. In addition, the farmer must pay all the travel expenses, from the Miaoli area as a rule, for his hired hands.

It is possible that cash costs for labour as given in our figures are underestimated by, in some instances, up to perhaps as much as ten per cent on average as brokers' fees might not have been fully included in all cases. It is difficult in any event to establish this cost element on an individual farm basis as brokers charge their fees per man supplied not per man-day worked. Thus, a farmer employing two men for two days each would pay a total according to the basis we have used in our calculations, of NT\$600. A farmer employing four men for two days each, i.e. twice the labour force, would pay in total NT\$1,200. A farmer, however, employing two men for four days each—

twice the labour force of the first instance above—would pay only NT\$1000. Certainly, however, labour costs have not been overstated for Hsing Fu in the data set out in Appendix one. On the basis of our interviewing alone we would conclude that it must be hired labour costs that would correlate more strongly with gross receipts than any other single input.

(c) *Shared, borrowed or exchanged labour*

Turning now to borrowed or exchanged labour nearly all households share or borrow manpower at transplanting, weeding and harvest times. It is said that, where this happened in the past, no account was kept of quantities exchanged, the implication being somehow that the quality of the relationships was somehow its own reward. This is very far from being the case today. If my household contributes seven man-days of labour to yours, and yours only three to nine, the difference will be accounted for in cash at virtually the same rate as for contract or hired labour even if the farms are similar in size and general economic level. After division of property in the family, any 'free' exchange of labour that there might have been before ceases, whether the division was a disputed one or not. In case of disputed divisions especially, however, even small amounts of vegetables for instance will not pass from one 'stove' to another except as market transactions. Exchanging or borrowing labour—for payment—has, though, as has been noted already, increased somewhat recently as more and more people locally look for paid work.

For the northern locality studied unfortunately we have no data to show how many man-days' farm work is contributed by

exchanged or borrowed labour compared with that performed by contract employees.

Capital and Credit

Capital and credit may be discussed under two main headings, namely technology and money, the former including animals, machines, fertilizer and pesticides, and the latter cash and credit. Ideally the very minimum we would like to know about each item would include matters of number or extent, source, use, costs and its social organization.

As the subject of credit is so vitally important it is so very unfortunate that it is exceptionally difficult, for any researcher, to obtain exact data about it.

(a) Technology

Animal traction. The keeping of water buffaloes has declined recently as their reproduction rate has diminished, as animals have increased in price and as feeding costs have mounted. But it has by no means disappeared altogether. Mechanization is not completely a substitute for animal traction and, as will be seen below, this is not only because power tillers in Taiwan are very expensive.

Mechanization. About mechanization of agriculture in this locality at the present time the salient facts are that this has not yet at any rate extended to the two most labour-requiring operations, transplanting and harvesting. Not very far away there is a mechanical transplanter undergoing some form of pilot or experimental use. But we have no exact information about this.

Nearly all households own chemical sprays. Those owned on the smaller farms are hung on the back like a knapsack and pumped

with one hand while the other directs the nozzle. Spray machines on the larger farms are worked by a small motor. Power tillers have long been in use for two equally important purposes,—for cultivating, and for powering a cart that for instance can carry rice to the mills. It is not every farm that owns a tiller, however. Of the seven power tillers in the locality studied six are owned by farms of 3.1 ha. or more, i. e. all large farms. One is owned (jointly by two brothers) by the farm family with 2.4 ha. and with many family members living and working there.

To hire labour, the services of a middle man are necessary. The hiring of someone else's power tiller can be arranged without a go-between. The benefits of power tiller mechanization are not however to be simply and directly contrasted with those of hiring labour in Hsing Fu. Precisely as farmers say, the cash costs of the two are about the same for the work done whether it is labour or machinery that is hired. The benefit of using the power tiller is felt by the working population at home on the farm mainly, for whom it saves time and effort but not money outlay directly. One technical agricultural consideration in particular is very important in this connection. Transplanting must be done in a very limited—about a three day—period, otherwise the seedlings will not take. Given the prevailing labour shortage it is only the use of a power tiller that can ensure that land can be prepared for transplanting in time, Especially between the first and second crops there are very few moments to spare.

The attachment of a small motor to threshing devices is something of an energy, rather than a time, saver. Scarcely less important it is a necessary inducement to the attracting of hired labour. Thus the benefits or otherwise of mechanization are

subtle. There would seem to be no completely convincing case either completely for or completely against the unintegrated kind of mechanization that has been introduced in Hsing Fu on small size farms. As yet there is for instance no experience in northern Taiwan at any rate of, say, combine harvesting (and experimental harvesting machines on trial from Japan in southern Taiwan in early 1971 were not noticeably labour-saving since many people were needed to keep pace with them; also in cutting the stalks much grain was knocked to the ground and lost).

To own a power-tiller on a large farm, in addition to its use as an immediate asset, is a good investment if it can be put out to hire as well. In all, then, in Hsing Fu farmers distinguish at least between mechanization as saving time, as saving effort, as saving money outlay, and as investment capital.

Data collected on the hiring out, and in, of power-tillers (and on power tiller owners' hired labour costs) are shown in Table 10. One owner, whose rich brother in the city simply had given him a tiller apparently did not bother in any systematic fashion at least to hire it out for revenue. Seemingly the joint-owner in our sample did not hire his out regularly either. The stated revenue a year of NT\$4,000 gained by one owner who did hire out his machine is probably an understatement. Perhaps that figure refers to a half year only. The figures of NT\$12,000 and NT\$13,680 given by other owners are probably more representative. Machines when hired are owner-driven. A possible micro social organizational aspect of this mechanization is that, as tractors are hired without the use of a middleman's services, there is a tendency for tractor owners to develop spheres of informal social leadership in the process. More or less on extension of

Table 10. The Hiring-out of Power-tillers* by Their Owners in Hsing Fu, 1971

No.	Revenue per year (NT)	Size of land <i>Chia</i>	Man-days by working population at home Crops 1 and 11**	Hired labour costs, (NT) Crops 1 and 11
N-1	4,000	3.1	270	10,000
N-4	13,680	2.4	180	8,800
N-13	?	3.9	270	4,000
N-14	12,000	1.2	270	5,200
N-15	?	4.1	90	17,840
N-20	?	3.8	170	10,000
N-30	?	3.1	240	5,400

The Hiring-in of Power-tillers*

No.	Size of land <i>Chia</i>	Cost per year (<i>jin</i>)	Man-days Crops 1+2	Cost, NT		Hired labour costs	
				Crop 1	Crop 2	Crop 1	Crop 2
N-8	1.2	1,200	120	1,560	1,860	nil	nil
N-19	1	1,200	90	1,560	1,860	4,070	4,070
N-17	0.6	700	16	910	1,085	2,100	2,100
N-9	0.8	972	90	1,263	1,506	1,496	1,553
N-21	0.1	156	0	202	241	627	588
N-11	0.8	996	270	1,294	1,543	2,715	2,766

* Machines are either 10.5, 13 or 14 h. p.

** Note. Respondents gave the same figure for both crops (with one insignificant exception).

existing social interactions. Probably, at any rate, to judge from the general patterns of existing social relationships in the locality, the relationships between such farm families as are involved are not at any rate immediately changed as would be more likely to be the case if a broker were needed. In the past, as well as there being no power-tillers, there was also less exchange of labour because homesteads were larger and more self-sufficient. The greater exchange of labour today—which as distinct from labour hiring can also be arranged without a middleman—also goes to help make relationships between small groups of farmers somewhat more organized and integrated than before.

Two of the power-tiller owners with the largest extents of land under their own cultivation own water buffalo as well. It is to be noted always that one of the large farms in our sample is exceptional in that while it has much land there are very few members of his family living and working there: so this farmer gives out the use of at least one quarter of his land to any neighbour who will agree to cover just the land tax and irrigation fees. Some other households have buffalo also. Another has only very recently parted with theirs. Partly buffaloes continue to be kept because power tillers are not adaptable enough to cultivate all the margins of plots even after land consolidation has straightened out a few boundaries. Only a buffalo can be manoeuvred sufficiently well to cultivate every bit of land.

The costs of power-tillers to those farmers who own them are included in the amortization figures in the data reproduced in Appendix One. Man-days contributed by the working population living at home on the farm were ascertained by the structured interviewing and further probing where we thought this

necessary. It is to be noted that, in the majority of cases, labour requirements (both working population and hired labour) were stated as being the same for each crop. Each rice growing season is a little over 100 days. On average about 42 man-days of labour are required for each crop.

Power. In addition to the electric current supplied to virtually all of the farms in Hsing Fu and nearby, the farm that changed to hog raising on a large commercial scale made some use, in the kitchen, of methane gas piped from the pigs' cesspit which had been covered by a kind of metal tent. On hot days sufficient gas was produced from this pit for ordinary kitchen cooking purposes. All other families visited which did part of their cooking by gas bought this in cylinders from the gas company.

Mills. Finally a word should be added briefly on powered rice polishing mills. Two of the thirty households sampled owned one each. We were persuaded, however, that they were for use solely within the (lineal) family on these respective farms. It should be remembered that upwards of over of sixty persons can be, and were in these two cases, living under one roof. Neighbours apparently made no use of these mills either for cash or without payment.

In the village there is a milling machine. The family owning it has no agricultural land of its own and lives basically from the income they can derive from it alone. Another mill is on the arterial road to Taoyuan city. A mill will meet transport costs if the farmer brings in one kind of rice for husking but is prepared to 'exchange' this for a variety of a lower quality. Sometimes other arrangements can be made to cover transportation. But as a rule for rice taken to the FA against the

fertilizer issued, or to pay land tax, the farmer must provide his own transportation, usually by means of a power-tiller.

Fertilizer. One of the most significant inputs of all in rice farming is fertilizer. It is, not least, because high yielding varieties of rice *require* the intensive use of chemical fertilizers, which must be bought or bartered, that agriculture in Taiwan necessarily has acquired the character of commerce. As been observed already, farmers in Hsing Fu experimentally select types of fertilizer and then vary the amounts and kinds to suit the soil as well as the crop. While, however, farmers usually say that they use the same amount of fertilizer in the second as the first crop, in fact this is not exactly the case. Less is used for the second because there is more rain in the second than the first season. Farmers say that rain is the best fertilizer of all. It makes the leaves of the rice plants blacker and this means that the yield will be higher.

As animal traction used has become less, so the supply of farmyard fertilizer has decreased. But on every farm in this village human feces and urine is still systematically used in the fields. Where there are pigs these contribute too if their waste is not prepared as food for a fishpond. With the shortage of labour, however, the stalks after the rice has been harvested are nowadays usually left standing in the field except for what is needed to burn as fuel in the kitchen. Fertilizer other than of the natural, human variety, which is applied to vegetable cultivation especially comprises small amounts saved over from that issued through the FA for rice cultivation. Table 11 gives some data on fertilizer use by type and season.

One feature of fertilizer use is its somewhat greater application proportionate to area on farms over 3 ha. in size. It is

Table 11. Fertilizer Use by Type and Crop Per Chia in Hsing Fu, 1971

No.	Area	Crop 1				Crop 2			
		F ₁	F ₂	F ₃	F ₄	F ₁	F ₂	F ₃	F ₄
N- 2	0.9	7	5	3.5	1				
N- 3	2.2	8	8	4	2				
N- 8	1.2	12	5	0	0				
N- 9	0.8	8	3	2	1				
N-10				22					
N-11	0.8					8	4	0	2
N-14	4.2	9	5	0	4	8	8	0	4
N-18	3					13	5	2	2
N-19	1					10	10	2	4
N-20	3.8					8	5	0	2
N-28	0.8	8	4	2	2				
N-30	1.1	6	6	2	2	10	4.5	2	2

Unit = bags

Price per bag: F₁ 115 NT; F₂ 110 NT; F₃ 105 NT; F₄ 95 NT.

difficult to explain this fully but two considerations in particular must be taken into account.

The first is that farmers apply different amounts, and different kinds, according to the qualities of the soil. Sandy soil requires the largest applications. There is, therefore, no necessarily fixed quotient to be used according to area.

The second is that rather more fertilizer is used in the larger farms because, as larger farm families live on them, more vegetables must be grown for domestic consumption. Less fertilizer is used on the large farm which has only a small (part

of the) family living there. For vegetable cultivation, however, the amounts of chemical fertilizer that are used are mostly 'savings' made for the purpose from the fertilizer bartered for rice. On most farms today in our sample it is farmyard and especially domestic manure that is devoted to vegetables.

Insecticide. No less than fertilizer the use of insecticide is an integral part of rice cultivation also. This has been so for a few years now but it is still talked about as a new technique. Old complaints about fertilizer are that today's kinds are not as strong as those that were first imported from Japan and West Germany, and that in any event chemical fertilizers, being Western, are not as effective as the farmyard kind, the use of which is good Chinese custom (systematically fostered by the Japanese). About insecticide it is complained, less particularistically, that really all kinds are harmless not lethal. If these complaints are as well founded as they seem to be, and if the effectiveness of the insecticide cannot be improved, then clearly farmers are perfectly right in remarking that the research stations should start breeding varieties of insect-resistant rice.

Insecticide is applied regularly at constant intervals throughout both seasons. As regards the use of insecticide there is a tendency for the somewhat less educated to follow leads given by somewhat more educated farmers. Other than in this single regard, however, there would seem to be no special connection whatsoever between levels of schooling and farming in Hsing Fu.

(b) *Money and Loans*

Non-agricultural revenue which is used for agricultural as well as other purposes and is received in cash comes essentially

from one or more of three sources: remittances from members of the family living (and working) outside the farm, income derived from those members of the farm family living at home from non-agricultural employment, and loans or credit. As in many ways in rural Taiwan as we have seen cash equivalent to such and such an amount of rice. Sometimes the reverse is the case as well.

Remittances. Not all remittances are in the form of cash since some members of the family who work outside make contributions in kind, including even in some cases agricultural machinery. There is also less visible help of various kinds and virtually no end to the forms which the material aspects of family differentiation, and indifferentiation, may take. In a few special cases brothers living away from the farm may have made over at any rate the use of their land to a brother living at home perhaps for no rent if he pays the land and irrigation tax. Occasionally, perhaps, a brother outside pays taxes for his brother at home as, for example, when a brother left his village while still very young and managed eventually to make a good livelihood in the city coming back only for the lunar new year festivals wearing smart city clothes so villagers will know he has been successful. If he stays outside it would be thought he had not been successful.

Income from non-agricultural sources. Income from non-agricultural sources other than remittances from outside family members (who are outside agriculture as well as the family at home on the farm) comes from a number of sources as shown in Table 8. We asked that figures stated for income from non-agricultural sources should not include loans, or credit, but in some cases perhaps these have been included, we cannot be sure.

Loans. Turning now to loans and credit, of the 30 farm families studied, only 6 were both prepared to say that they were in receipt of loans from one source or another and to discuss this in detail with us. One household head said he did not borrow from anyone, because rates of interest on all kinds of loans were so high. He said he saved until he could afford to buy whatever it was he needed for himself, such as capital for small scale hog raising. Probably, however, even he, like other farmers at times, participates in the kind of mutual credit buying society that is organized for a limited period for a specific purpose. The organization of such a *biau huei* over what is normally a five year span of life appears very complicated at first sight to an outsider because the transactions which take place within it are managed and very finely adjusted according to needs, supply and costs, and finally all must be arranged equitably, if differentially, for all participants. Some members 'exchange' money, others rice, all at interest rates that vary according to sealed bids.

This personal method of raising credit is still common but has declined in popularity somewhat recently. This decline is said to be because of the higher costs that its main beneficiary, 'the head' of the *biau huei*, must be prepared to shoulder as entertainment expenses for feasting 'the tail' despite the fact that the head pays no interest on the loan he receives in the first year.

Two household heads of farms with 2.2 ha. and 2.4 ha. respectively discussed with us loans they had received from the FA of NT\$ 16,000 and NT\$ 20,000 each for farm production purposes. Interest, they said, was at the official rates namely about 8% per year. Another household head said he had received a NT\$ 65,000 loan from the Food Bureau but would not disclose the interest

rate he had paid. This particular loan had been made under a programme which extended credit to farmers with only very little capital so that they could build a house. At the time he was running a small food store. Now he is the owner of the small textile assembly factory in the village. He built and partially equipped this with the Food Bureau loan. He may or may not have intended originally to construct a factory. When he did make his decision, however, this was in conjunction with his daughter who already had worked in such a factory in the city. His manufacturing is done under a subcontract from a larger factory. He told us that now he was looking for capital of the order of NT\$350,000 so that he could extend his operations. His employees, he said, were some twenty-four young girls and a few boys earning up to NT\$2,000 per month if paid on a piecework basis and working up to twelve or more hours a day. One of the girls we interviewed separately at a later date said the amount she earned was only about half that much. The main factory issued about NT\$600,000 to be paid out each year in wages. This, as its owner chose to put it to us, equals about the net income (excluding costs) to be gained from 40 hectares under rice.

One farmer specially mentioned his debt of NT\$50,000 to the Land Bank for construction costs for land consolidation. An unexpected opportunity for him to earn money to go towards paying this back arose during 1972 when construction started at the new factory site in Hsing Fu and he was employed as a labourer at about NT\$80 per day. Presumably all farmers must be in debt because of land consolidation. This particular farmer also had borrowed from a private person recently so that he

could rebuild his house. He said he used part of the Land Bank loan to repay him. Interest rates on loans from private persons, who may or may not be related to the borrower by kinship, are the highest of all. They run at anything from 5 to 10 per cent monthly. Interest rates on loans of all kinds are quoted usually by the month not the year.

Two families said they had received *biau hwei* loans recently, one of NT\$10,000 cash and the other of 5,000 *jin* of rice. The interest rate on the former was believed to have worked out at around 0.88 per cent per month and on the latter 0.24 per cent per month. It is the usual practice in Taiwan for interest rates to be calculated, as here, to two decimal points. It is well and widely believed in this as in other rural areas that money is best made from money. One of the uses made of loans, difficult though it is to establish exact information about uses as it is about sources and extents, is to re-lend to someone else.

Management

Three forms or components of agricultural management patterns could be discerned at least in northern Taiwan for comparative purposes: by the state, a cooperative, a joint farm or the FA directly; by the private enterprise whether of one farmer or partners who might or might not all be present or absent; by a third party such as the JCRR, consultants or extension advisers including so-called demonstration or model plots. Concerning transactions of the products of the land under these various management possibilities one would need to know for each activity whether for instance input is consumed domestically, sold (to government, neighbours or private traders), bartered

formally e.g. for fertilizer, or exchanged informally e.g. for other crops.

Of the first kind of management listed above there are at present no instances in our locality though of course the power of the state, channelled through the FA, reaches down to individual farmers as in for instance the rice-fertilizer exchange system. Farmers who expressed any view at all about joint farming tended on the whole to be extremely sceptical that it would bring any benefits. They compared it with the institution of exchanging labour except, they said, that as under the joint farming scheme one's time would be controlled by others, any optimal allocation of time would be impossible.

Of the third kind of management mentioned above again there is no instance in our locality in the period studied but it is to be noted that the initiative behind the recent dairy farming developments in Hsing Fu (see below) stemmed initially from the JCRR.

It is the second category of management that is most significant. All farms in Hsing Fu are private commercial enterprises. To put it in another way, virtually all farmers are privately commercially enterprising in so far as their financial abilities allow them to be so. A further general feature is that, with only a couple or so exceptions in the sample studied intensively, the owners of these farms are also their managers and they are present, not absentee. This being so, the component of 'family labour' discussed in the previous section is of particular importance. Hired or contract labour is used only to a small, and expensive, extent by comparison.

The management of water, as distinct from the management

of land, is on a cooperative basis through the IA. For each pond a small local management committee has been set up under a chairman informally selected by the group from its members. The leader of the KMT village team was, at any rate until recently, one of these chairmen. Only in the case of one of the households sampled did we hear of any dispute arising over water allocation to a farm that was rather distant from the irrigation pond. Pond management committees, which apparently are very loosely organized groups in this particular locality, have no fee collecting functions.

The most relevant single question to pose of the management of land under its main product rice, given the low profitability of rice farming and the higher profitability of alternative uses, must be: why does rice cultivation still predominate? Why has there not been greater diversification than has occurred thus far? Why, indeed, has only one farmer thus far been able to abandon rice cultivation altogether?

The answers that the farmers themselves give to these kinds of questions relate mainly to the single factor--capital. The persuasive argument that farmers continue to grow rice because the governmental rice-fertilizer barter system compels them to do so is not conclusive for this particular locality because access to ordinary commercial purchase of fertilizer on the grey market has not been difficult for at least a couple of years. In any event the rice-fertilizer barter system has not been strictly administered in this locality of late. This is not to say that this popular explanation is invalid for all cases. But as regards the general force of government policy as a determining influence on the status quo it seems probably more important overall to

emphasize that farmers are obliged to pay certain taxes to the government in rice. Therefore rice equals money, again, though, this is not completely a satisfactory explanation. Rice can after all be bought and then 'paid' over as in the case of the farmer who in 1971 grew no rice at all. Certainly it would even further add to the burdens of farmers, exactly as they say, to have idle land on their hands. The taxes and fees exacted by the state on land amount, in effect, to a kind of wealth tax. In northern Taiwan it is just a matter of routine normal practice for rice to be planted rather than other crops (with the exception in the past of sweet potatoes). As noted already climate is a severely limiting factor on crop diversification in northern Taiwan.

In any final analysis it would be necessary here for any evaluation to distinguish between at minimum three aspects of rice production: that for domestic consumption, that for the payment of taxes and fees, and that for sale. These three aspects and the incentives that enter into these various productions may be never completely distinct. But micro studies of production functions need to take scales and patterns of activities in the three into account separately as well as all together.

While notably industrial development policy in Taiwan has exploited comparative natural and social advantages, rural development on the other hand has not been based as a matter of prime policy on regional crop zoning. All areas, indeed all farmers, have been expected to be rice producers. Of course this is not to say that in practice all areas actually are dominantly rice regions. Nonetheless, as a rule it has mostly been diversification and multiple cropping within the farm, rather than the district or region, that, by the provincial government particularly,

has been promoted. Undoubtedly this is connected with the fact that rice is the staple food for everyone in the country as well as for the farmers themselves. Among other things basically this has meant that managerial decisions and innovations have been called for not so much in rice cultivation as in secondary crops if, for a moment, we leave aside such technological questions as say whether or not the keeping of water buffalo for the paddies should be given up, how or when to mechanize instead of hiring labour if labour-saving machinery is available, and technological decisions about what crops it is not ecologically possible to grow. In rural northern Taiwan especially relatively easily accessible non-agricultural alternatives to agricultural development, which offer better returns to be gained from one's labour, are of overriding importance.

The least unsatisfactory general explanation about the continuity of rice farming may be simply that, notwithstanding the patterns of farm performance to be analyzed on the basis of all our quantitative data reproduced in Appendix One, rice prices have at least the virtue of stability. Of all arable farming—and of course even rice grown with the intention of selling it can be eaten at home instead if necessary—the lowest market risk attaches to rice cultivation (except for special crops grown under quotas) and factor prices for rice are lower than those for any ordinary alternative. It reflects this character of rice cultivation that it is universal throughout the island to reckon the costs of rice production inputs, including the wages paid to hired labour, in terms of so and so many *jin* of rice output. It is merely for the purposes of this book that we have transliterated costs into money terms taking the government-fixed prices of rice in 1971

at the figures of NT\$260 per 100 *jin* for the first, and NT\$310 per 100 *jin* for the second, crop. Actual rice prices in Taiwan, like stock exchange prices, are quoted day by day throughout the year. Farmers in Hsing Fu as in the other two localities studied, as has already been noted frequently complain that the profitability of growing rice for sale is low, even minimal or negative. But for the relative general stability of rice prices, as contrasted with those of vegetables for instances, which fluctuate very widely indeed, they tend to praise government policy.

It is because vegetable and fruit price levels are so unstable that farmers throughout the island describe the harvests they gather of these crops not in terms of gross quantities but gross receipts obtained.

As for the significance of the FA for rice cultivation, as distinct from rice collection, that this has declined considerably from whatever it may have been in the past can be seen from the fact that one of the FA recommended best seeds, Hsinchu No. 56, is apparently being used by no one in our sample and Kaohsiung No. 178, not mentioned by the FA instructor interviewed as noted earlier, is a strong favourite in Hsing Fu.

Hogs The sale of hogs is to private traders who call to collect them. Farmers say that the prices they get for their hogs in this way are reasonably fair on the whole. As for any extension advice sought on hog raising, when this is needed it is veterinarians or pharmacists in private business and not the FA who supply it. Fish are disposed of also to private buyers. The farmer nearby who grows mushrooms sells them to the FA on quota because no other outlet is open to him.

Table 12 gives a summary of marketing data collected for the rural households sampled.

Duck farming. The keeping of poultry on the farms by the wives partly for domestic consumption and partly also for sale (and we have noted that they have the right to keep the proceeds from such sales in their private purse which is an important incentive) is to be distinguished from the large-scale raising of ducks, mainly, for sale. It is common in many parts of Taiwan and not only the north to see duck raising on what appears to be a large scale although no instance of this commercial activity fell within our study. And then to be distinguished from so to say stationary duck farming, there is the migratory duck farming in the island that for many years has been integrated with the second rice harvest. Starting around October 20 rice is harvested in Central Taiwan. Temporary duck houses are then constructed in the fields with rice stalks. The ducks which are then about two weeks old are fed on the rice grains which were knocked to the ground when harvesting. Usually very little if any supplementary rice must be bought for feed (but there are disputes with farmers when vegetable patches are invaded). Then, about every fifteen days, the ducks are moved by truck or otherwise progressively further north in keeping with the later rice ripening dates there. Three months later, which is when the ducks are ready to be sold, they are well fed and near Taipei city at the time of the lunar new year holidays which is when prices are highest.

Migratory duck farmers raise capital from their savings or their friends for the initial cost of the duckings which is about NT\$ 6 each. They may manage some five hundred ducks or

RICE FARMING IN TAIWAN

Table 12. The Marketing of rice, hogs and vegetable in Hsing Fu, 1971

No.	Crop or Livestock	Amount Marketed (元)	Proportion Marketed (%)	Method of Disposal	Household Consumption (%)	Seed (%)	Loss by drought or Typhoon (元)
N-1	Rice I	8,091	58	Mill	40	2	37,200
	Rice II	6,195	57	Mill	40	3	
N-2	Rice I	2,910	65	Mill	33	2	1,000
	Rice II	969	31	Mill	67	2	
N-3	Rice I	6,880	79	Mill	18	2	1,600
	Rice II	5,980	74	Mill	22	3	
N-4	Hogs	440	100	Pork Shop			
	Rice I	8,760	64	Mill	31	2	2,400
Rice II	3,360	47	Mill	50	3		
N-5	Hogs	900	100	Pork Shop			
	Rice I	0	0		100	1	200
Rice II	0	0		100	2	NT\$ 7,000	
N-7	Vegetable	?	?				
	Rice I	432	9	Mill	87	3	300
Rice II	0			100			
N-8	Rice I	3,500	50	Mill	40	1	2,500
	Rice II	300	9	Mill	84	3	
N-9	Rice I	370	9	Mill	89	2	1,200
	Rice II	0	0	0	100		
N-10	Rice I	0	0		100		
	Rice II	0	0		100		
N-11	Rice I	2,085	45	Mill	52	2	1,500
	Rice II	1,225	32	Mill	62	2	
N-12	Rice I				100		1,000
	Rice II				100		
N-13	Rice I	18,931	85	Mill	14	1	8,000
	Rice II	4,893	42	Mill	56	3	

CHAPTER TWO

89

N-14	Rice I	16,600	72	Mill	26	2	6,300
	Rice II	8,364	57	Mill	41	2	
	Watermelon	NT\$ 8,000	99	Merchant	1		
N-15	Rice I	16,100	89	Mill	8	2	4,000
	Rice II	7,400	80	Mill	2	4	300
N-16	Rice I	0					
	Rice II						
N-17	Rice I	1,150	32	Mill	67	1	720
	Rice II	0	0		100		
N-18	Rice I	13,820	76	Mill	23	1	6,000
	Rice II	4,780	53	Mill	46	1	
N-19	Rice I	3,700	68	Mill	32	1	800
	Rice II	2,700	60	Mill	40	2	
N-20	Rice I	8,820	58	Mill	39	2	5,700
	Rice II	1,220	16	Mill	79	5	
N-21	Rice I				100		30
	Rice II				100		
N-24	Rice I				100		150
	Rice II						
N-25	Rice I	1,510	38		60	2	500
	Rice II	510	17		80	3	
N-26	Rice I	1,900	67	Mill	45	3	3,000
	Rice II	1,900	67	Mill	45	3	
N-27	Rice I	2,140	59	Mill	33	2	1,500
	Rice II	1,800	45	Mill	37	2	
N-28	Rice I	1,926	46	Mill	43	2	
	Rice II	3,010	50	Mill	45	2	
N-29	Rice I	580	16	Mill	73	2	
	Rice II	720	19	Mill	70	2	
N-30	Rice I	12,400	70	Mill	27	2	7,700
	Rice II	6,900	42	Mill	40	2	

more. Sales are made to private buyers who come to collect them. Of course this kind of farming is only a temporary occupation and one must be prepared for the hardships of the severe northern winter weather. The profits, however, are said to be handsome provided no disease problems arise. It is diseases of all kinds that is the scourge of all livestock keeping in Taiwan. One such migratory duck farmer lives near Hsing Fu.

Dairy farming. What might prove to be the beginning of a major new development in land management in Hsing Fu must be recorded here. Some sixty-six families in this village locality opted in the year to which our quantitative data refers each to plant 0.2 ha. starting the year afterwards with not rice but napier grass (supplied by the JCRR). The plan is to change gradually from arable to dairy farming. In 1972, in an attempt to promote cattle keeping in Taiwan, the island was divided into southern, central and northern regions. As it turned out Ta Yuan district was chosen as a pilot dairying area in the north. The site came to be located precisely in the locality we had chosen to study— for social research a happy coincidence indeed! No one in Hsing Fu thus far has any experience of cattle raising so far as we know.

According to a reliable—but single—local source of information, in the first place Ta Yuan was selected for this project by the government and the JCRR because of its reputation, in terms of public administration, as a well organized *hsien*. It is said, though, that when discussions were held between the local and provincial government representatives and officials of the JCRR, the latter insisted that the pilot scheme be located in a village where one hundred farm families would agree to participate

saying that the cost-benefit aspects of the provision of cold storage facilities necessitated participation on this scale. It was only after the local government doubted that so many willing and able households could be found all in one place that it was agreed to look for two sites. The local government then circularized all villages. Finally four expressed enthusiasm. Of these two were ruled out because of their situation near the military airport in the vicinity which it was thought would soon be enlarged.

When the documents from the local government explaining the new venture were received in the village the first reactions, though interested, were not very enthusiastic until a part-time farmer—with a fish pond as well as a commercial interest in vegetable farming already who is also a shopowner actually living at his shop not far away—heard people talking about the idea when visiting his home farm. Henceforth it was he who was the main promoter of the idea believing that, as the JCRR would provide skills and loans, the venture would be likely to be successful.

He went to the village head and asked him to hold a meeting. As a result sixty-six household heads came forward. Their reasons were firstly that, at an annual interest of 6% only, the JCRR would make loans of NT\$23,000 for each cow for six years. The JCRR experts' advice was to the effect that that sum would completely cover all capital and current operating costs for that period. Secondly, the JCRR was to provide a design for the cattle sheds and to subsidize their construction. There was, though, a snag. For the cold storage and office facilities the JCRR demanded that 400 *ping* of land be granted

without conditions. It was only when a farmer—the shopkeeper who promoted the project personally—agreed to grant this amount of land outright that finally Hsing Fu could be selected. That it was chosen in preference to the fourth village which had expressed interest was because the sixty-six participant households it offered were more than could be found elsewhere. Also important (relative to the other three villages) was its favourable location in the direction of Taoyuan city where the milk would be marketed.

All told these households said they would set aside a total of 55 *chia* to be put under grass. The cattle (to be imported from Australia) are to be stall-fed. The JCRR has advised that napier grass, to be reaped mechanically, would provide sufficient foodstuff.

Each participating household will keep its own cattle—six, to begin with—on its own land. The grass planted in July 1972 should be ready by February or March 1973 when the cows are to come. One *chia* should support 10 cows. It is aimed to produce 1 kg. of milk per cow per day for ten months of the year. Milk sales will be to a big commercial company which will buy from the farmers directly.

Some of the sixty-six interested households are among those we have interviewed in depth. A follow-up study (in say 1975) should investigate this particular development once it gets underway.

For the introduction of this new agricultural activity into a local community, more strategic than its overall composition for the setting of that change in motion initially has been the nature of its *external* links. The new idea of dairy cattle farming was

propelled, essentially, by someone whose land and home was in the area but who now lives outside it, depending for his livelihood on commerce mainly. It was, in fact, this same person who had constructed one of the first fishponds in the vicinity.

The local imitation of local innovation turns on other issues. When we asked other farmers not far away when or whether they would be introducing fish farming on their own farms themselves, their reply was that they would first wait and see whether the first fishpond was successful or not. What prevails today as common practice has become so only as a result of continual experimentation and adjustment in the past. With new varieties of rice seeds, for instance, farmers are constantly experimenting so as to get a better performance. The use of fertilizer is also constantly under scrutiny so that the best may be got out of the existing land qualities. Farmers learn from their neighbours' experience as well as their own and are receptive to advice from the FA when it is given. To break away from present practice altogether, therefore, such as a change from rice cultivation to that of something else would be seen as representing, would in the circumstances be seen as culturally or socially incorrect behaviour as well as, simply, very risky. This is by no means to say that Taiwanese farmers are backward or unenterprising with regard to technological changes. On the contrary, they are progressive. Neither, of course, is leadership the only or necessarily the most important factor. Farmers themselves say, and, with good reason, that capital is all important. That the high level of performance in farming in the district has been achieved despite lack of capital means that even greater achievements could have been made with it

than skill, thrift and hard work can manage alone.

To study innovation in agriculture one has to distinguish for example between, for instance, factors which are necessary but not also sufficient and processes which even at the local level include origination, dissemination, and legitimation in addition to the adaption of new ideas. The implementation of all of this, it can safely be assumed, will in turn set off other trains of events.

Comparative Farm Performance

By way of conclusion, a brief note will be offered on comparative farm production performance based on a rapid scrutiny of the data for this northern locality set out in Appendix One. It is for those wishing to calculate specific distributions for themselves on the basis of our original data that we have prepared Appendix One on an individual household basis. In Chapter Five some comments comparative of farm performance in the three localities are made.

In Hsing Fu, farming is principally rice farming. Compared with the central and southern localities there is little diversification in its agriculture. Indeed, as a rule in this village it is easier and more profitable to obtain wage employment off the farm than to hire labour to work in the paddies. The profitability of rice farming in northern Taiwan is low. As shown in Appendix One there are many individual instances even of negative farm performance. It is in this context of a very marginal arable agriculture that keen interest has been shown in livelihoods that could be derived from dairy farming.

The rate of profit from rice farming in Hsing Fu, to judge

from our data, does not vary significantly with gross receipts and extent of farmland. This is true for the year as a whole and for each season considered separately. The difference between the seasons in respect of rate of profit and gross receipts is slight ($r=0.58$ for the first and 0.46 for the second). As one would expect, however, for area and rate of profit there is a greater contrast ($r=0.53$ and 0.34). As farmers themselves say hired labour is an input very strongly correlated with production performance. Total cash costs, fertilizer and area form another cluster, at least for the first season.⁽¹⁾

What single factor accounts most satisfactorily for specifically the negative farm performances found? It would be our conclusion from the final stages of our fieldwork, after the sample of structured interviews was completed, that is, that this may not be labour costs but the other main constraint that farmers mentioned namely uneven water availability. Despite the fact that the irrigation system in this locality has long been established, not all farms have equal access to water because farms, and parts of farms, vary in their levels of land and in their precise distance from the channel serving them. It is in this connection that when one has completed the second, personal, step of land consolidation, one's land is likely to have an improved accessibility to water. In Hsing Fu it would appear on the whole that the obtaining social organization of water distribution functions smoothly. And farmers accept the pre-

(1) Based on a factor analysis carried out by Liu Yi-her in the course of his MA studies at the University of Kansas in the Department of Sociology, but as of this writing no details are available unfortunately. Liu Yi-her helped with the preliminary plotting of our data on scatter diagrams.

Table 13. Average Rice Cultivation Costs and Returns
in Hsing Fu, 1971

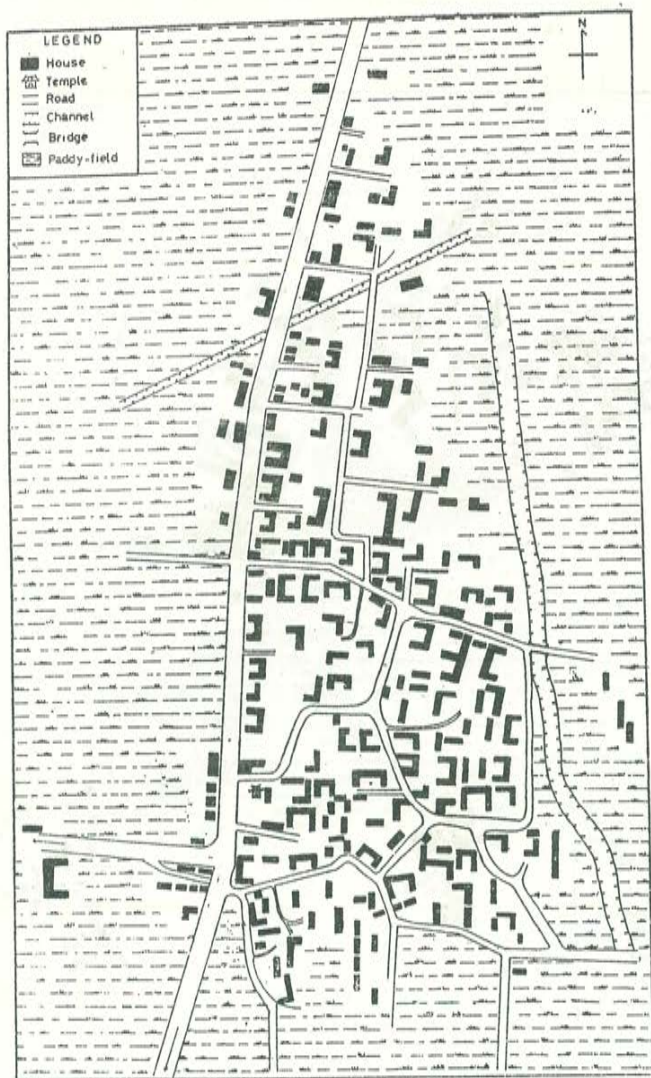
Item	First Crop	Second Crop
Cost of hired labour	NT\$ 1,941.32	NT\$ 2,008.39
Food	415.33	414.03
Fertilizer	1,676.97	1,684.64
Farm chemicals	356.95	356.95
Water etc.	650.00	650.00
Land tax	910.00	1,085.00
Transport cost	70.91	70.82
Interest	47.36	47.36
Other cost	98.75	103.20
Total cash cost	6,175.52	5,951.95
Gross receipt	12,667.52	10,293.51
Cost of seeds	256.17	279.47
Amortization	390.09	390.09
Total non-cash cost	646.35	658.73
Total crop cost	6,766.39	6,966.39
Reft of leasehold	416.44	448.04
Landlords contribution to costs	102.94	106.27
Net income to landlord	313.60	344.15
Crop cost to tenant	7,005.60	7,025.71
Net return to tenant	5,640.75	2,491.70
Man-days	42.28	42.28
Wage	4,228.00	4,228.00
Total cost	10,490.28	11,249.66
Net return to tenant capital	1,679.28	-2,020.67
Production	4,854.06 kg.	3,398.97 kg.

miss that a farmer with more land and thus paying more land and irrigation tax is entitled to proportionately more water than those with small farms and paying less. There is, however, a potential socio-administrative or legal problem that might arise in the near future if land utilization patterns change, but the present administrative system, which is the same whether land is irrigated or not, does not. A significant change in land use away from rice and which would entail a different pattern of water use could be a very strategic factor of potential change.

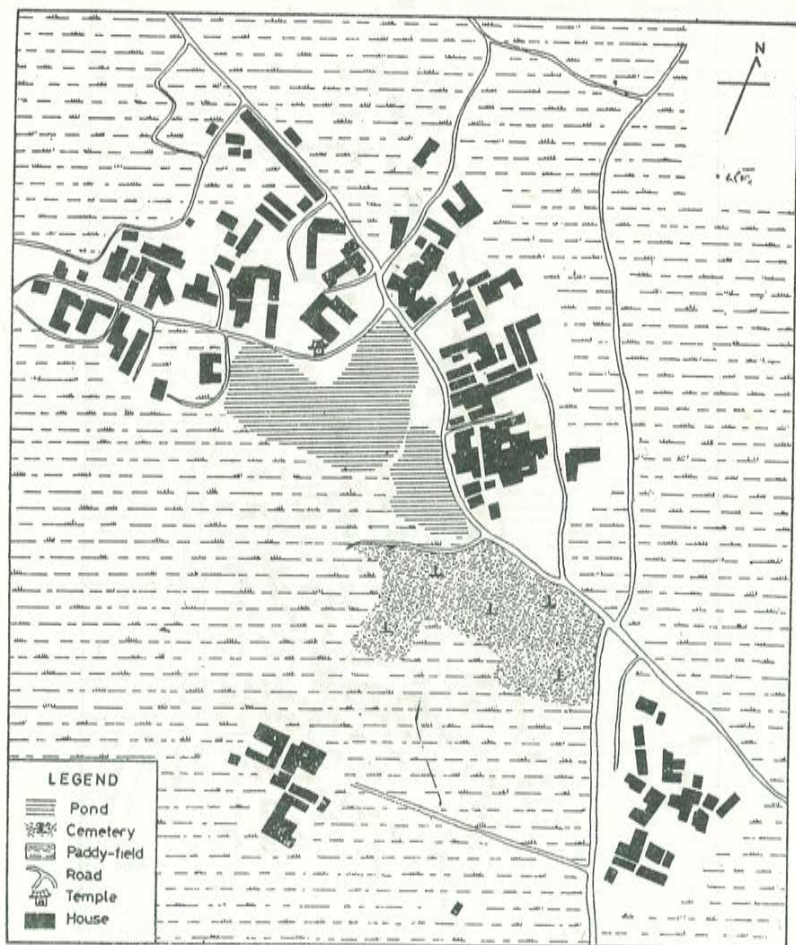
Concerning the overall pattern of production performance of the Hsing Fu farms studied, Table 13 shows average rice production costs and returns. This will enable comparisons to be made with overall average figures for the southern and central localities for instance. Concerning area and gross receipts, and it is to be noted that farms in Hsing Fu vary widely in size, correlations of coefficients are high in both seasons (respectively 0.97 and 0.96). All land is cultivated. Land tax must be paid whether land is under cultivation or not. All farmers are present; there are no absentee owners.

Gross receipts obtained are higher from the first than the second seasons. The quantitative data obtained in the structured interviews, however, shows somewhat smaller differences than those described to us in qualitative terms at the same time. The dark picture painted for the second season relates specifically to its lower profitability. Levels of farming skills in this, as in other Taiwanese village, are high. At the same time farmers here are perfectly familiar with figures and calculations and their own numerical estimates tally closely with those made as a result of our research. Farmers' commercial

orientations to the market are high as evidenced perhaps particularly in watermelon cultivation.



Map 3 Chang Shou Village



Map 4. Fu Kuei Village

CHAPTER THREE

CHANG SHOU: RICE, PRIVATE TENANCIES AND INTERVAL CROPS

The second village studied is in the far south of the island. Certain aspects of its land and water supply are, in the context of the three localities selected, peculiar to the southern one. Moreover agricultural production includes two interval crops as well as two crops of rice and a system of private tenancies has developed for these interval crops.

THE SETTING

The southern village studied is some nine miles from Pingtung city, in the far south of Taiwan, served by regular bus services. A shared taxi from Pingtung city costs only NT\$5 per person. It is situated on the sandy Pingtung plain. A stream forms a well-defined village boundary on three sides and is a source of irrigation water. Two crops of paddy rice are harvested every year, at earlier times than elsewhere, because of a favourable climate. Rice, sown in December and transplanted in the middle or later January, will begin to be reaped in the early or middle May, one month earlier than in the central locality studied and two months earlier than in the north. Rice, sown at the end of April and transplanted in later May or early June, will be reaped in the first part of October or even at the end of September. Because of the hot climate, the growing time needed for the second crop of rice is far less than that required for the first but

the quantity harvested from the second—here as in the north—is much less than that from the first because of natural hazards.

It is before the harvest of the “late crop” that the interval crops which now are called “small crops” come to be planted in the paddy field in between the rice rows. The most important of the interval crops are cucumbers, egg-plants, green beans and string beans, tomatoes, tobacco, small red beans, soy beans and sweet potatoes. The land in southern Taiwan yields four crops each year, two of rice and two of interval crops.

The settlement pattern in southern Taiwan is nucleated. Taiwanese farmhouses, built on three sides of a square, partially surround a courtyard, the ownership of which is never subdivided, even after the division of family property among the brothers. The wings of the farmhouse are outbuildings, used for domestic animals and for the storage of fertilizer. In addition livestock raising is very common. Sows are to be seen wandering everywhere with their bellies almost scraping the ground. Though power-tillers have been introduced, there must still be more than one hundred oxen and water buffaloes in the village.

A temple in the village is the focus of various village-wide religious activities. As a local public works (community development) project in 1969, a recreational activity centre was built next to the temple. The village assembly meets there once every three months (but in the south as in the north people are not certain when exactly meetings are held) and as kindergarten for the children in the village. Otherwise it is virtually unused. Some environmental sanitation improvement has been achieved as well and a road asphalted. There is a primary school in the village with almost 1,000 students drawn from the neighbourhood.

POPULATION AND FAMILY STRUCTURE

The 326 households in the village comprise some 2,029 people. It would appear from the overall village age composition that birth control programmes promoted by the government in recent years may not have been without effect in as much as it seems that villagers for economic reasons, and because of the heavy burden of baby care, now hesitate to have more than four or five children. But this is still far from the government preferred norm of two. There is a small obstetrical clinic in the village soon to be in charge of a graduate from nursing school. A family planning counsellor works from the district-level health centre at times. The kindergarten in the village is run by a district-level KMT office but because it is poorly staffed and has few facilities, many families prefer to send their children to a Christian kindergarten not far away though this costs more money.

A problem that the village must face is its dependent population of 852 members. This accounts for some 42% out of the total population of the village. 773 inhabitants (38%) are below 14 years; 79 people (4%) are more than 64 years. A high proportion of dependent population tends to be one of the major reasons in Taiwan, as for instance in India for becoming poor. On average, there are 6.22 members in each of the households ranging from 27 members to 1 member only. Table 14 shows the average household sizes in this village:

Table 14. Household Size in Chang Shou

Size	1	2	3	4	5	6	7	8	9	10
Households	9	15	18	43	51	66	55	25	12	10
Total	9	30	54	172	255	396	385	200	108	100
Size	11	12	13	14	15	16	19	22	27	Total
Households	5	4	2	3	2	2	2	1	1	326
Total	55	48	26	42	30	32	38	22	27	2,027

In the 38 households sampled, of the total of 250 members, 35 have moved to live outside. Not all of these have established their new places or residences. Of the 35 persons (27 males and 8 females) who no longer live in the village, ten are students. The remaining 25 persons have moved out for employment to many places in western Taiwan but especially Kaohsiung. Probably it is relatively easy to get information about employment in the newly established processing zone there. Employment is also sought through the personnel columns in the newspapers and friends made during military service, these new ways supplementing the old, which depended on relatives or other people of the village. 15 to 25 persons in our example send economic assistance to their families month by month. The ablest one can afford as much as NT\$1,200. Others can manage sums of at least NT\$200 or 300 per month. The ten students on the other hand, are in need of financial support to be sent to them.

Table 15. Population Composition in Chang Shou

Division Per- centage	Male Numbers of popu- lation	Per- centage %	Female numbers of popu- lation	Per- centage %	Sub-total numbers of popu- lation	Per- centage %	Sex pro- portion
0- 4	124	6.21	94	4.63	218	10.84	131.91
5- 9	141	6.94	122	6.01	263	12.95	115.57
10-14	156	7.68	136	6.07	292	14.38	114.70
15-19	162	7.98	126	6.21	188	14.19	128.57
20-24	87	4.28	89	4.38	176	8.66	97.75
25-29	70	3.45	61	3.06	131	6.51	114.75
30-34	73	3.59	55	2.71	128	6.30	132.75
35-39	54	2.66	53	2.66	107	5.32	101.88
40-44	64	3.15	60	3.06	124	6.21	106.66
45-49	43	2.10	45	2.21	88	4.31	94.45
50-54	37	1.82	33	1.62	70	3.44	112.12
55-59	24	1.18	28	1.38	52	2.56	95.71
60-64	13	0.64	10	0.49	23	1.13	130.00
65-69	16	0.78	14	0.69	30	1.47	114.28
70-74	9	0.44	12	0.59	21	1.03	75.00
75-79	5	0.24	7	0.34	12	0.59	71.43
80-84	4	0.19	4	0.19	8	0.38	100.00
85-89	3	0.14	4	0.19	7	0.33	75.00
90+	0	0	1	0.04	1	0.04	
Total	1,085	53.47	944	46.53	2,029	100.00	

Marriage has been another major element in population mobility. 15 women in our sample married into the village mostly from a neighbouring place where the farmers of this village buy their daily necessities and fertilizer, etc. Relationships through commerce and marriage are the bases of frequent

and intimate interactions between the two settlements.

In rural Taiwan today, the social organization of a village is deeply affected by that of a *hsiang*. The village office is an administration unit under the *hsiang* office. The village head and a village secretary on the *hsiang* staff explain and enforce government regulations. The village head is elected by the villagers, since 1955 for a three year period and since 1961 for a four year period. The institution dates from 1946 when at first the head was appointed by the government. The village secretary who is not a native villager is appointed by the *hsiang* office. He has an office in the village but mostly he is to be found in the *hsiang* office where all the village secretaries assemble. The village office is at the residence of the village head. When the village head has something to announce he does so over a loud speaker. There are 16 administrative units *lin* within the village, each comprising about 20 households, with an elected unpaid chief. As no one wants to be a *lin* chief someone has to be selected.

Of the six sections of the FA, that with the most sound organization and the most effect in the village is the 4-H extension club which organizes three classes in the village: home economics class, food processing class and rice research class. A young man is in charge of the rice research and food processing class. The members—about 20—jointly rent a piece of land to study rice planting under his direction. Sometimes there is a recreational activity. However, since it is the FA which provides the funds, it is the FA which decides which activities should be promoted, and which not, and now the organization is declining because villagers are no longer much interested in it.

Some villagers are also members of the Kaohsiung Fresh Fruit Co-operative Association. Anyone who grows banana may join it for the price of four NT\$10 shares. Membership is everlasting. If the member some day no longer plants banana, he loses only voting rights. One of the villagers is in charge of banana purchasing in the village.

The water conservancy association has a small station under which a small irrigation group in the village with an elected unpaid head takes charge of watching to see whether, for instance, the dyke is in good order or not. He must encourage people to keep the waterways free from obstruction. His hardest work is to accompany fee collecting personnel of the station on their rounds to collect water fees from individual farmers who do not want to pay easily.

As the elected village head is responsible for a great deal of administration but receives only symbolic office expenses of NT\$350 and no salary, the position is best called one of obligation. To be a village head is to have social status but the election campaign costs money. The two main factions in the village are local expressions of regional factions in the area. Election struggles between the two groups are intense. The power of the village head extends to religious affairs. It is, for instance, due to the present one that the village temple was completed. Before he turned his attention to this two private individuals had attempted to collect donations but they failed. The village head then in that status promoted funds raising. At the re-election of the village temple committee members he was elected again as one of them.

Between religious and administrative organization, there are

many subtle interrelations. For instance, the village temple contributed to village construction work. In 1968, when fluorescent lamps were to be set along the village road, the *hsiang* office required the village to bear one-third of the cost, around NT\$10,000. As the village office did not have so much money, the village head acquired the loan from the village temple committee. When, last year, the roof of the CD centre was blown away by a typhoon the village temple committee announced that it would raise NT\$1,700 to replace it.

LAND AND WATER

There are 223 *chia* of arable land in this village, 162 *chia* of paddy field and 61 *chia* of dry field. Each of the 38 households studied intensively has, on average, about 1 *chia* under cultivation. 29 households are owner-farmers, with 29 *chia* of land under cultivation; 5 households are semi-owner-farmers with 8 *chia*. Of these 4 *chia* are rented. 0.47 *chia* is rented under the 1949 37.5% legislation. 3.55 *chia* is rented under other arrangements, which will be described in a moment. Four households are tenants with 1.41 *chia*. Of these four have 1.11 *chia* of 37.5% land. The other one rents 0.3 *chia* from a landowner.

The method under which most land changes hands in this locality is that of inheritance. Equality in the distribution of land on inheritance is still a prevailing social ideal. Should, say, a more educated son receive a smaller share than his less educated brother, this is on the theory that he has already received part of the family wealth in the form of school fees. Nevertheless, for property to be distributed in this realistic way, mutual consent must be established first. It is usually forthcoming

but in some instances the functions of the witness to the transaction might have to extend to negotiation as well as being just ritual. In the past, a local gentry or elder kinsman acted as witness. Now in this village it is mostly the village head.

It is what has been received from an ancestor that, on inheritance, must be equally distributed. The buying and selling of land comes within a different social category of transactions—all the more so as such land purchases here are made usually by people from Pingtung city who use the land thus acquired for fishponds rather than fields. Land values, five years ago, were high because, before it lost the Japanese market due to the competition with Latin America's banana, banana cultivation was highly profitable. Land for which NT\$420,000 per *chia* was paid in 1967 could realize no more than less than half that amount in 1971.

Under the law, the government has bestowed the right of an equal share to inherited property to daughters as well as to sons, with the aim of promoting their social status. In this southern village, again as throughout Taiwan generally, in practice customarily this dowry a daughter takes with her on marriage is considered to be a share of the family wealth. In one case that came to notice, however, the parents asked their daughter at the time of her marriage for a written certificate to the effect that she gave up her legal right to the inheritance of land because her dowry (including a TV set, a refrigerator and other household goods, besides money) had been well prepared. Women have an advantage that men do not have at marriage in that they have the chance thereby of moving into a richer family. On marriage, a woman leaves her family of birth and becomes a full member

of her husband's family. A full assessment even of this one aspect of but one element in the status of women, however, would need to assess the value and meaning of the bridewealth that a girl's family (of birth) receives from the family into which she marries.

Under 1949 rent reduction legislation, tenants have an improved security of tenure inasmuch as if the landlord wishes to sell his land, he must first obtain his tenant's agreement to the proposed sale. Sometimes, indeed, it is the tenant who is the buyer, at a price perhaps at about half of the market price. Where the landlord is poorer than his tenant, he might have recourse to what remains, under the *hsiang* government's landlord-tenant associations. Where, then, tenants have become landowners, this has been due sometimes not to the land-to-the-tiller but to rent reduction legislation. Some 64 own-land farmers in the village who became owners under the Sales of Public Land Act, which enabled land to be bought from the government, have this act to thank for their present status, 34.563 *chia* being involved. In the sample of 38, some 16 households bought a total of 11.07 *chia* under this Act. Purchases ranged from 2.5 to 0.1 *chia*. The prices they paid varied owing to the land being in different classes as can be seen from the following four examples:

Table 16. Sales of Public Land in Chang Shou

Ex-amples	Land grade	Area	Plant	Price per chia (kgs)	Price (kgs)	Tenure (years)	Paid each year (kgs)	Paid each season (kgs)
A	15	0.1316	Sweet potato	21,000	2,764	10	276	138

B	16	Sweet potato	19,500	6,448	10	645	323
C	10	Rice	10,500	2,920	10	292	146
D	12	Rice	8,550	2,073	10	207	104

Own-land farmers can become landlords under a private system of tenancy that has been brought about because of shortage of labour or because a family has moved out of the village but wishes to retain its land there. Private tenancy agreements are oral, not written, and short term. A favoured short term arrangement is one that leases out land only for the interval crops. 4 households in the sample of 38 have a total of 3.85 *chia* under private tenancy at the present time. In one instance, villager A rented 0.2 *chia* privately because the landowner moved to Taichung city. Renter and owner have been good friends since childhood. In addition, villager A has the reputation of being trustworthy. He pays 800 *jin* each 0.1 *chia*, each year. This is a higher rent than the 37.5% fixed rent, i.e. about 450. In 1972, the landowner took back the land and sold it to someone else. Villager A did not dispute this. Under the 37.5% tenancies, security of tenure is very high. It is partly because of this that *nouveau* landlords, for instance, do not wish to be subject to the law.

Another example of private tenancy is between a nephew and his uncle. The latter wanted to rent out his land after moving to Pingtung city. The rent is 50% of yield. An example of short-term private tenancy entered into for the period of interval crops only is villager B, with 1.4 *chia* of paddy-field. After reaping a second crop of rice, he cultivated just 0.2 *chia*

of Dutch beans renting out the remaining 1.2 *chia*. For each 0.1 *chia*, he received NT\$500 in rent. Totally, then, he could receive NT\$6,000 by renting out 1.2 *chia* during the interval crop season.

Another villager rented in 1 *chia* for tobacco cultivation and paid NT\$6,100.

Land consolidation in this *hsiang* started in the winter of 1970, after the second rice harvest. The planting of interval crops was suspended in that year for a period of about four months, when the consolidation was being affected. Officially, land consolidation is supposed to improve the environment for agricultural production, to increase the efficiency of land utilization, and thus to be a step in the promotion of the prosperity of the farms. Therefore, it is supposed to be a reform which farmers will very much welcome. But consolidation was as little welcomed by farmers in this southern as in the northern locality studied. They think that the only advantage they obtained from it was that the road was widened.

The disadvantages of land consolidation as implemented have been several. For instance, some land which was well drained is now water-soaked, either because of flooding or because the new channels have their "watertail" higher than their "waterhead". The construction fee per *chia* amounted to NT\$13,950. When the programme was announced it was said this would be NT\$7,000-NT\$9,000 per hectare, including the cost of surveying, supervision, administration, temporary personnel expenses as well as the construction cost. As elsewhere in Taiwan farmers complained to us that too much land had been taken from them for new water channels and farm roads—they said 10%. A calculation made from the local land administration office data on 80

pieces of land shows that farmers did, in fact, lose 0.09 *chia* for each one consolidated. The land consolidation implementation, in effect, had taken no notice of public opinion expressed beforehand about local conditions. They said that as the rules for the operation were all laid down in an official guide, no local consultation was necessary even with the village unit IA heads.

The system of land tenure discussed in the following Chapter is common to the whole island. It is to be noted here, however, that in this southern locality there is an instance of two of a small amount of jointly-owned land, e. g. land retained by a father which is jointly-cultivated and, by implication, therefore, jointly owned by his sons to provide support for him. It is common for disputes about who should pay land tax to arise.

We turn, finally, to irrigation. As demands for irrigation fees are issued to one individual only, disputes such as might arise about shared responsibility for land tax do not arise about water costs. Irrigation in this southern locality is by pumps as well as channels. In addition, some farmers have access to brook water, which is free. The method differs, therefore, from that in the other two localities studied. It was essentially the introduction of the pump here about 23 years ago that allowed all farmers to put their land under double crops of rice.

For water from the channels under IA control, farmers must pay rent twice each year, no matter whether the supply of water to them is enough or not. Rent is collected just after the harvesting of the first and second rice crops, i.e. June and December. As farmers tend always to delay payment of these dues, it is stipulated that defaulters will be fined NT\$1 for each three days for the first month, more in the second month, but as

this fine rate is still lower than the interest from the bank the farmers do not take it very seriously. Land is classified into several grades (but there are no conspicuous boundaries) and rates of fees levied are according to the distance from the channels or ditches. The following tables show fees collected in 1970:

Table 17. Water Fees in Chang Shou
First Season (January-June) 1970

Normal fee		Fee using remaining water	
Classification	Per chia	Classification	Per chia
	NT\$		NT\$
1	547	1	1,866
2	530		
3	525		
4	410		
5	198		

Table 18. Water Fees in Chang Shou
Second Season (July-December) 1970

Normal fee		Fee using remaining water	
Classification	Per chia	Classification	Per chia
	NT\$		NT\$
2	566	2	1,315
3	549		
4	438		
5	210		

Farmers wanting to construct a pump must apply to the Electric Company for electricity. Because the management of water utilization is subject to the Irrigation Association, so it is impossible for individuals to request to construct a private pump. Farmers, therefore, dig a little hole and then enlarge it to become a fish-pond and then apply for electricity for a fish-pond. They can use the power for a pump afterwards. At present, there are 11 pumps in the village constructed under Chiu Ju Irrigation Station. Two of these are publicly, and nine privately, owned. If a pump is built on someone else's land the owner of that land may have some of his land irrigated from it free of rent. There are, however, many formulae under which the costs and benefits of pumps are shared among the members of the pump "company", as it is called. The management of the company is rotated among members usually once each year. The manager collects money from members and pays it to the Electric Company and hires a worker to administer the supply of water and be responsible for maintenance. At the end of his term of office all the members will contribute say NT\$50 to buy food which they bring to cook and eat together in his house.

Water fees in this village, then, are of two kinds for two sources of water. As shown in the figures on the costs and benefits of rice cultivation they—together—average NT\$1,021 per *chia* for the first crop and NT\$1,006 for the second inclusive of e. g. electrical fees and the salary of the pump operator. There is now a tendency to transfer privately owned pumps to public ownership. Take, for instance, the pump owned by 26 farmers who organized a company in 1965 and irrigated 11.3978 *chias*. The pump site was provided by one of the members uncon-

ditionally: Per each irrigated *fen* of land NT\$400 was charged for constructing expenses. Each member had to act as operator in turn. So in 1971 the seventh person was undertaking the job. In that year a proposal was suggested to merge the company into I. A. and in November of that year Chiu Ju Irrigation Station inspected the site. The main reason for the farmers wanting to give up their pumps was the problem of management. For instance, some farmers had no money to pay the fee, while some others refused to pay and complained that insufficient water had been supplied to them. Should the electrical fee not be paid, the power supply would be cut off. Disputes and conflicts arose between the man in charge and other members. After the change of ownership the IA will be responsible for paying the fee to the Taiwan Electrical Company even if some members don't pay. And no more will members themselves have to act as water-operators.

RICE

The procedures of rice cultivation are as follows. The rice seedlings are planted 4-5 days before the Winter Solstice (Dec. 21st in the solar calendar). If one's own paddy field is still under interval crops, seedlings must be planted on someone else's land rented for the purpose. Even the interval crops have been gathered in the paddy field and will be in need of turning over by a power-tiller or buffalo. Then it needs to be smoothed for the convenience of transplanting. After 35 days the seedlings can be transplanted. On the 12th day after transplanting farmers begin the first stage of weeding. After the 12th day, the second stage of weeding is done. A third weeding will be necessary

later. Fertilizer must be applied immediately after each weeding.

Insecticide is sprayed as needed, about seven or eight times each crop. Finally, there is harvesting. The length of the period from transplanting to harvesting depends on the variety of rice used. For example, Kaohsiung No. 1 takes 115 days, Kaohsiung No. 10 takes 135 days and Kaohsiung No. 135 some 130 days. The second crop grows faster. Kaohsiung No. 1 takes only 100 days, Kaohsiung No. 10 only 110 days and Kaohsiung No. 5 about 115. Some farmers in this village begin their second harvest at the end of September.

The differences between the early and late crops are that, because of the hotter weather from May to November, the later crop has a shorter-growing period. The early crop needs much more fertilizer, because the later crop has the benefits of the rainy season and rain is a natural fertilizer. The early crop needs less insecticide because the weather is colder. Rain in the second crop causes loss of insecticide so spraying then needs careful timing. Some farmers use farmyard manure for the early crop, but not for the late crop because it is better to keep this expensive input for interval crops. One carload of farmyard manure costs NT\$ 300-400. The yield of the earlier rice crop reaches 12,000 *jin* per *chia*. The later yields only 8,000 catties because rainfall is less when early crop is growing. The heavy rain at the time of the second crop inhibits yield. Output from the second crop is low also because of typhoon damage.

Based on the sampled families, the costs and returns of rice cultivation are shown in Tables 37, 38 and 39 in Chapter Five.

The costs of rice cultivation are estimated by farmers as being per 0.1 *chia* more than 500 *jin* of unhulled rice. The costs

of the fertilizer and farm chemicals account for about one-fourth of the total costs. Since 1970 the price of fertilizer has been reduced somewhat but the quality of farm chemicals has worsened. Farmers say that good and bad farm chemicals are sold in markets indiscriminately because there is no special agency to ensure quality control. It is complained also that rice prices are too low because when villagers sell their rice they receive only NT\$2,550 per 1,000 *jin*. A couple of months later prices rise perhaps as high as NT\$ 3,000 per *jin*.

The power-tiller was introduced in this village in 1965 or 1966 to take the place of water buffaloes. A buffalo could plough only 0.2 *chia* of land each day. Once it had been ploughed, four workers per 0.1 *chia* were needed to make it suitable for transplanting. A power-tiller can plough 0.8 *chia* of land each day and transplanting can be started immediately afterwards (so the rate is 1:32). It used to take about one month to finish the transplanting. Now it only takes 10 days. Because the power-tiller at about NT\$56,000 each is very expensive, few farmers can afford to buy one and those who can and do must, because their holding is small, hire it out—at night as well as day, in the period of transplanting—to make it economic. The price of buffaloes, however, is also high, at more than NT\$30,000 for a pregnant cow and the price of a strong buffalo can reach NT\$20,000.

The main new technique in rice cultivation, according to farmers, is that of chemical weeding. They consider that, properly done, this could improve the profitability of rice farming by saving them time. They are, however, not sure how best to apply herbicide and it is very costly. The introduction of chemical weeding about three years ago also saves labour as farmers no

longer need to kneel in the fields to weed. 18 of the 38 households use it already.

After meeting one's own consumption needs, loan repayments, and rent, the most common way of disposing of surplus in the village is to sell to merchants who visit farmers after harvest and make a down-payment after the price has been agreed. The villagers say "After deducting wages, farm chemicals and fertilizer debts, there is little money left so how can we deposit rice with the mill? The paying of wages cannot be delayed and we have no cash. We have, therefore, to sell our rice though we know the price is too low". Depositing rice with the rice husking mill is, however, the second commonest way. It enables farmers to draw cash, the equivalent of the market price of rice, when they need money. But once rice has been deposited it cannot be withdrawn. There are three rice-husking mills in the village, but their scales are small. They can make little profit after paying freight and warehouse expense and there are the mice to contend with which account for high losses. But the miller has the opportunity to sell the rice when its market price is highest.

No farmer in this village deposits with the FA because farmers would need to provide transportation themselves, which is provided for them by the mills, to the FA.

INTERVAL CROPS

Cucumber can be planted 10 days before the harvest of rice, one line of cucumber seeds between every five lines of rice. About 35 days later, the picking of cucumber can be started, farmers going out to gather them as soon as the sun rises, so as to meet the demand of the market. The market price depends

always on the time when cucumbers are provided. But it is common for the market to be flooded by over—in the year after that in which there was under-production. Table 19 based on the families sampled, shows the cost and benefits of cucumber raising on a total of 2.33 *chia*.

Table 19. Cucumber Cost and Returns in Chang Shou

Area	2.33 chia
Gross receipts NT\$/per chia	252,838,381.91
Cost of hired labour	3,167.38
Fertilizer	6,784.33
Farm chemicals	3,025.49
Other cost	5,165.24
Total cash cost	18,142.45
Seeds	532.19
Farmyard manure	4,403.43
Others	25.75
Total non-cash costs	4,961.37
Total crop costs	23,103.82
Net return to cultivator	2,733.09
Man-days	340.13 days
Wage (NT\$)	11,420.60
TOTAL COST	34,524.42
Net return to tenant capital	-8,687.50

Beans are another interval crop. After cucumber cultivation, it is not necessary to take down the sticks because the sticks can be used for string beans as a fourth crop. String beans do not need tying up, as do cucumbers. Nonetheless, it is necessary to check that they have climbed up by their own efforts. Further

jobs are weeding, fertilizing, spraying of insecticide. Cucumber needed irrigation in addition. The growing and gathering periods of Dutch beans are about 50 days and thus not dissimilar from those for cucumber. The growing period of small red soybean is about 90 days but then they must be gathered in all at once.

Some farmers raise interval crops instead of either the first or second rice crops. The profitability of interval crops, other than tobacco (see below), is due in large part to the establishment nearby of a local market. In the past, also, lack of adequate water supply was an adverse factor before pumps became common. It takes only 15 minutes to get to the new market which was founded by 9 shareholders none of whom are Chang Shou villagers. The market charges 5 NT\$ in each 100 NT\$ of sales for casual sellers but peddlers are charged differently. The market keeps the records which serve as the basis for taxing by government. Another way of selling is known as that of the dodgers market because tax is evaded. The farmers weigh what they have to sell, come to an agreement with the peddlers on the price and then deliver their produce to the collection station directly where it is packed in bulk without further weighing. Producers prefer this way of selling because the peddlers are interested only in (re-) selling—they say taxation is not their business. If one peddler will not buy it another will.

Since the end of World War II merchants have come to the village to purchase from the farmers, in recent years driving small trucks. Almost every farmer has sold produce in this way. Information on market prices travels quickly. If the prices offered by these merchants are lower than those obtainable in the market they will deliver directly to the market if they can

find transportation. But few farmers are fortunate enough to be able to arrange for transportation. The prices, however, they can get from merchants are not subject to strict inspection as is the case in the market because it is not easy to open the well-bound sack and then to repack it. Also, it takes much time and labour to deliver to the market where in any event one then has to wait for cash. Most farmers as a rule, therefore, simply wait in the field for the merchants to come. The market's shareholders of course try to defend their own interests by reporting merchants to the government as tax evaders.

Tobacco was introduced by the Japanese in about 1924 or 1925 when about four households planted it on a total of 0.8 *chia*. After the introduction of drying rooms, anyone wanting to plant tobacco had to be equipped with a drying room before government permission to cultivate could be given.

Today, tobacco cultivation is still under strict government control. All purchases are made by the government. Having obtained a government licence to plant, cultivation begins in early September. After 40 days the tobacco sprouts can be transplanted. Further jobs are more fertilizing and irrigating. The leaves can be gathered after 60 days (on sandy land) or 80 days (heavier land). Workers must be hired to tie up the leaves and to send them for drying. 18,000 roots can be raised on each *chia*, yielding on average 3,500 *jin* but yields of 4,000 *jin* are possible. The production costs about NT\$35,000 per *chia*. The profit is very high, as shown in Table 20. The prices are guaranteed.

Table 20. Tobacco Costs and Returns in Chang Shou

Area	4 chia
Gross receipts NT/per chia	62,131.38
Cost of hired labour	4,596.00
Food for workers	50.00
Fertilizers	7,477.50
Farm chemicals	1,363.50
Others	6,095.00
Total cash cost	19,582.00
Seeds	90.25
Farmyard manure	5,175.00
Total non-cash cost	5,265.25
Total crop cost	24,847.25
Not return to tenant	37,285.13
Man-days	196.88
Wage	10,495.00
Total cost	35,342.25
Net return to tenant capital	26,789.13
Production	1,278.75 Kgs.

Farmers submit their tobacco to Chiu Jú Co-operative Farm where it is graded, inspected and weighed. Despite precautions taken, in the re-checking, as a result of informal social relationships that may arise between the various parties concerned, standards tend as a rule to vary somewhat.

LABOUR

Farm labour in this southern village is fully utilized, cultivating four crops on a 365-day year basis. Almost every farmer

is busy in the paddy field every day. Naturally the working hours vary in different seasons. In winter the daytime is shorter so farmers have to go back to field immediately after finishing lunch without taking a nap at noon. Their working hours then are 8 hours a day from 8 a.m. to 5 p.m. In summer, with its longer day and sweltering weather, farmers usually nap after lunch. Working hours then are approximately from 7 to 11 in the morning and 2 to 6 in the afternoon.

The busiest periods in rice growing are those of rice planting and harvesting. The busiest days on interval-crops are during gathering. Temporary workers are employed mainly only at these times. If, as is often the case, there are no temporary workers available, the farmers must start work before dawn and remain in the field even after sunset.

A majority of farmers, besides growing rice and interval crops, engage in other farm activities such as raising chickens, ducks and other domestic fowls, pigs and cattle. Some working hours must be spent taking care of these animals even on the busiest days in crop cultivation. Domestic animals provide one of their sources of income. Oxen can assist them in cultivating. Cattle and pigs can be sold and chickens and ducks are for domestic consumption. The most profitable of these activities is that of hog husbandry. Farmers are always busy. It is almost impossible to find a young man in the village in daytime. Everyone who can work does so including children under 15 and old men over 64 aged 70 to 80 can be found helping, especially when the interval crops are gathered. After school, all children assist their parents in the paddy field. Their working capacity even at transplanting sometimes is scarcely less than that of adults. It is

the shortage and the high wages of labour that farmers say is the source of most of their problems in agriculture today. In 1971 the daily wages for the weeding and gathering of interval crops was NT\$30, for ploughing NT\$120, and for spraying insecticide NT\$60. Payment to the power-tiller driver was at the rate NT\$90. In 1969, the daily wage for weeding was only NT\$25, for spraying NT\$25, and for ploughing NT\$90. Before 1968, the levels were nearer NT\$20, NT\$40 and NT\$70. Wage-labour costs for harvesting fluctuate from NT\$1,600 to 2,000 per *chia*. For workers coming from Pingtung city and north of that, cigarettes and sometimes meals also must be provided. For local workers it is necessary to provide only cigarettes and drinking water but at a wage at the top of the NT\$1,600-2,000 scale. Farmers prefer to hire local workers even at NT\$2,000 per *chia* because they say they work harder.

Soon wages may go up again. In February 1972 the wages of workers for transplanting and payment to power-tiller had risen from NT\$900 to NT\$1,100. The daily wages of a worker for ploughing had increased from NT\$120 to NT\$150. Farmers have to accept this in silence. As the price of daily commodities is rising too, they say how can one object to higher workers' wages? And, can you let your land become a desert just because you don't want to spend more money to hire workers?

Exchange labour is a general phenomenon in agricultural villages. Among the 38 households studied in depth 26 make use of this for weeding, transplanting, gathering and harvesting—all activities are included. Exchange labour is commonest for weeding except in households using chemicals.

CAPITAL

The shortage of capital is a serious problem. The interest rate on loans from the FA is about 1.3% per month. A loan of NT\$20,000 can be obtained from the FA but first a farmer must find two guarantors whose land will be mortgaged. Farmers cannot find such guarantors even among their relatives. If the would-be borrower's own land has been mortgaged the FA will refuse to lend him money. Almost all household land in this village has been mortgaged.

The procedure of borrowing money from an individual is less difficult but the interest rate is higher—between 1.5% to 2.0% per month in this village. Farmers survive only by short-term loans free of interest from intimate friends or relatives who trust them.

Another way of raising capital is through a *biau huei*, a loan-club of cash or rice. The initiator of this association is called "club-head". A man will seek to establish such a club when he is desperately in need of money—for a wedding, a funeral, educational expenses or just ordinary consumption purposes.

The proceeds of the first procurements belong to the club-head. Proceeds of the next procurements go to the club tail member offering the highest interest. Bids are made by secret ballot.

Table 21. Mutual Credit Association in Chang Shou

Members meeting	1	2	3	4	5		Total amounts
1	—	100	100	100	100	100	500
2	100	77	77	77	—	77	408

3	100	80	80	80	100	—	440
4	100	—	83	83	100	100	466
5	100	100	95	—	100	100	495
6	100	100	—	100	100	100	500
Total amounts submitted	500	450	435	440	500	477	

The members of such organizations are relatives or friends of the initiator. Their original purpose was for a number of people to assist each other and to help the organizer to survive particularly hard times. Now one joins "just because it is difficult to refuse to get involved". Today in this village there are few rice clubs only. Cash clubs are confined to salaried people who join at the invitation of their colleagues. Loan clubs among farmers are almost always rice clubs transacting amounts sometimes of 1,000 *jin* of rice. Because rice can be harvested only twice for each year, farmers can only have two meetings each year. In earlier times the organizer hosted all members at a sumptuous feast. Now he offers one decagram of gold to each member because, as it is said, there is no time to have a meal together. Rice can be substituted by the equivalent in cash in accordance with the market price stated in the newspaper.

Among the 38 sample households, 26 are participating in these mutual credit and savings societies but some say they will never join one again—they have experience now of such a club going bankrupt.

CHAPTER FOUR

FU KUEI: VILLAGE, FARMERS AND BRICKLAYERS

The village selected for a locality study in central Taiwan, will be called here Fu Kuei. It is located in about seven kilometres south of Changhua city in the geographical region of the alluvial fans of the river Choshui just north of the Tropic of Cancer and subject to great seasonal variation in both temperature and rainfall. The summer is long (from April to October) and hot, but the winter is very short and mild. Of the annual average rainfall of about 1,500 mm more than 80 per cent falls during the summer. The winter is relatively dry and windy. Crops depend almost entirely on water supplied by irrigation. Climatic conditions are favourable for agriculture throughout the year. The typhoon season in this region is roughly from July to October. Typhoons are greatly destructive sometimes even of the second crop as well as the first.

VILLAGE SOCIAL STRUCTURE

Travel to the village from Changhua city is easy with local bus services running six times daily. The bus fare is only NT\$ 3.00. Another way to get to the village is to take a train or bus from Changhua to Hua Tan town, for NT\$ 2.00, and then to hire a taxi or to walk the remaining one kilometre to the village. Passengers on the local buses are women, children and old men only. Roads to and through the village are asphalt-

surfaced. Bicycles and motorcycles are the most common means of transport among villagers. Men ride them to Chuanghua city to work. Many villagers are employed there as bricklayers. It is a centre also for shopping and for medical treatment. In Hua Tan town there are offices relating to village affairs such as the town office, the police station, the farmers' association, and the irrigation station. Lu Kang is an old town which was once an important port second only to that of Tainan city in the south of Taiwan during the late seventeenth century. It is still the main religious centre in this central region with villagers going there to buy religious objects such as ancestor tablets, tombstones and Buddha pictures etc., and to worship the Goddess Matsu. It is said that the Lu Kang Matsu temple is the second oldest on the island.

The village seems to have been founded before the early eighteenth century. The oldest tombstone I could find there is one erected during the Ch'ien-lung period (1736-1795) in the Ch'ing dynasty. The most important irrigation system functioning today in this region was constructed in 1719. It irrigates about twenty thousand *chia* of paddy-fields. The ancestors of the village came originally from the Ch'uan-chou prefecture of Fukien province on mainland China. Since it was founded its inhabitants have been farmers with very little land, most being tenants whose landlords lived in the city or town. There was a landlord in the village about seventy years ago, a Hsiu Ts'ai, a holder of the first degree of the former examination-system in dynastic China. None of his great grandsons have more than one *chia* of paddy-field now.

The village was rather poor in the past as compared with

its surroundings. It is said that the extent of the cultivated land of the village has remained steady around 120 *chia*, of which only about 40 *chia* were owned by the villagers before the 1949 land reform. Land scarcity has pressed most of men to seek work elsewhere. The villagers of Fu Kuei are famous for brick-laying. In the past the wages of a bricklayer was quite low, about two *sheng* (1 *sheng*=1.8 litres) of rice per day. But now wages are at least NT\$100 per day, i.e. two *tou* (1 *tou*=18 litres) of rice. Therefore the village has become rich. A village temple was built ten years ago. Fu Kuei villagers are proud of this and more and more men engage in bricklaying.

That the village is rich is evident in the condition of its housing. Now almost all the houses in Fu Kuei are constructed of fired brick. In the past they were built of bamboo and mud bricks. Some of them even are two storeys and of reinforced concrete. The members of the same patrilineage tend to live close together. Brothers or cousins usually live on three sides of a square which gives dwellings an U shaped plan, the centre being occupied by a common courtyard. The houses are built in close proximity. About 80 per cent of households cluster around the village temple. The remainder are divided into two small settlements, each formed principally by a single lineage.

The village temple is located in the centre of the village. An old couple live there and run a small shop, selling incense and paper money to be offered to the deities. During the day it is men, especially old men, who gather there to chat and to play Chinese checkers. At night women come and ask the shaman about their misfortunes. There is a community activity centre at the entrance of the village built two years ago under the

Community Development Programme. It is open only during daytime, as a kindergarten sponsored by the Farmers' Association. It is closed at night. The village meeting is held there once every three months. In front of the village temple are two fishing ponds owned by two lineages respectively. It is in these ponds that most families wash their clothes. Just south of the ponds is the village cemetery. Some rich families have their own tombs in their own fields.

The village has no running water. Water for household use is from pumps. Most of these are handpumps—only a few are motor-powered. Electricity was introduced in the early 1930's. The village has a daily mail delivery by a regular postman from Hua Tan post office. Here as throughout Taiwan a newspaper, Hsin Sheng Pao, is sent free of charge by the government to the ten Lin-chang or neighbourhood-heads daily through the village secretary. A small spinning factory in the village has a telephone.

DEMOGRAPHY

One of the population statistics sources for the village of Fu Kuei is the list of donors for the festival of the eighteenth of the sixth month in lunar calendar, the most important festival in the year's cycle. Festival expenses are collected from each man and boy—women and girls on this occasion are not accounted. Contributions are compulsory. For example, NT\$2.00 per head was exacted in 1971. Table 22 shows the data available since 1955 on the number of males in the village.

Table 22. Male Population Totals in Fu Kuei 1955-1971

1955	567	1964	708
1956	587	1965	713
1957	592	1966	746

1958	634	1967	753
1959	666	1968	766
1960	670	1969	784
1961	693	1970	801
1962	710	1971	798
1963	—		

According to the census records in Hua Tan town office, the present population structure of the village is as given in Table 23.

Table 23. Age Distribution in Fu Kuei, 1971

Age	Males		Females		Total	
	Number	%	Number	%	Number	%
0-4	116	6.20	104	5.56	220	11.76
5-9	121	6.47	122	6.52	243	12.99
10-14	151	8.07	124	6.63	275	14.71
15-19	130	6.95	115	6.15	245	13.10
20-24	90	4.81	80	4.28	170	9.09
25-29	64	3.42	55	2.94	119	6.36
30-34	54	2.89	57	3.05	111	5.94
35-39	61	3.26	63	3.37	124	6.63
40-44	44	2.35	36	1.93	80	4.28
45-49	32	1.71	35	1.87	67	3.58
50-54	32	1.71	31	1.66	63	3.37
55-59	24	1.28	20	1.07	44	2.35
60-64	26	1.39	21	1.12	47	2.51
65-69	12	0.64	16	0.86	28	1.50
70-74	8	0.43	8	0.43	16	0.86
75-79	5	0.27	3	0.16	8	0.43
80-84	2	0.11	3	0.16	5	0.27

85-89	1	0.05	3	0.16	4	0.21
90+	0	0	1	0.05	1	0.05
Total	973	52.03	897	47.97	1,870	100.00

These figures include those who have moved out, but whose census registrations still list the village as their place of residence. The actual population of the village is thus less than the figures.

About one-third of the village population, 87 households, have no cultivated land and are virtually labourers. Many of them are bricklayers. Some live in the village and work in surrounding cities and towns. Some go as far as Taipei returning home only occasionally. Their families remain in the village because housing in the towns is difficult to find. A bricklayer may stay at the construction field, but accommodation, if he is accompanied by his family, is difficult to find. In addition, in the village living standards are lower and villagers to some extent are mutually cooperative. Those who have their own lands and work in the city as bricklayers return home during transplanting and harvesting. A man can work as a bricklayer until he is about fifty years old. It is when his gait become unsteady that he returns to the village to engage in farming.

There are three mainland Chinese in Fu Kuei, retired soldiers who have married women from the village. One of them was an army surgeon. He practised in the village for a while. All other villagers are Taiwanese, i.e. people whose ancestors came to this island before World War II, speaking Minnan, a Fukienese language like Amoy. Some men and a few women over forty speak some Japanese in addition to their mother

tongue. Villagers under forty can speak Mandarin, the official language of this country, more or less according to the amount of schooling they have received or their work experience. Generally speaking, because of military service, men speak Mandarin more fluently than women.

FAMILY

According to the census registration in the town office, the population of the village comprises 250 families, the average family size being 7.48 persons. The distribution of family size is shown in the Table 24.

Table 24. Family Size in Fu Kuei, 1971

Person	Families	Population	Persons	Families	Population
1	7	7	11	9	99
2	9	18	12	11	132
3	9	27	13	3	39
4	21	84	14	4	56
5	23	115	15	3	45
6	41	246	16	4	64
7	37	259	17	1	17
8	23	184	18	2	36
9	25	225	21	2	42
10	10	150	25	1	25
Total				250	1,870

By 'family' is meant here a unit of people who have a common budget and property. It usually includes members who work outside the village. From the viewpoint of co-residence, the core of a family is mainly the dependents of those who remain

in the village and who eat from a common stove, such as the old parents, women, and children. The villagers call a domestic unit 'a unit of stove'.

Suppose a young bricklayer marries and starts to have his own family. The girl he is going to marry would be usually a work-woman he met at the construction site. Very few marriages in this village are arranged by the parents today. The wedding ceremony is held in the village. Then the newly-married couple go to the city again. As soon as she nears childbirth, the bride is sent back to her husband's family. From now on she should remain in the village. If the bridegroom's parents are still alive, she will live with them and their unmarried children. If the father is still strong enough to be a bricklayer and continues to work outside, the family in the village will include a mother-in-law, a daughter-in-law and children.

When a family has two or more sons, it will be split after all the sons have married. The old couple with many sons may have their own economic unit or 'stove', after dividing up the land among their sons equally. But a part of the family land remains undivided. It is this that is cultivated among their sons' families in turn. The old couple bear only the costs of fertilizers, insecticide and seeds, but all products from that land are theirs. When one spouse dies, it would be impossible for a single old man or woman to run his or her own stove. He or she will then be supported by the sons' families equally, in turn.

Another old couple have chosen another solution for the family splitting problem. An old man told me proudly that he has two sons and both have their own families. He lives in the elder and his wife in the younger, son's family. Besides eating the

food offered by his son, he receives two hundred NT\$ per month from each son. His wife receives just one hundred from each son per month, because she does not smoke. His eldest son and grandson work as bricklayers in Taipei city. They send two thousand NT\$ back home for family support each month. He considers that receiving money from one's son is right. Earlier he had supported his own parents in the same way. He says that the four hundred NT\$ is his retirement pension.

Since most of the men work away from home, family finances are usually managed by women. The common property of a family is comprised mainly by immovables only. Partition divides the land and houses. It is not necessary that all earnings of each family member should be contributed to the common budget. Each member may present just a part. For example, a married couple of school masters live with their parents and brother's family, thus forming an extended family. Their salaries come to more than five thousand NT\$ per month. They hand only two thousand each month to their parents towards their living expenses. The remainder is deposited in a bank. They are planning to build their own house in town.

PUBLIC SOCIAL ORGANIZATIONS

Fu Kuei village is one of eighteen villages in Hua Tan *hsiang* (township) in Changhua *hsien* (county). A village is the basic administrative unit in Taiwan. The villagers elect their own village-head or *Ch'un-chang*, a representative to the *hsiang* council, and vote for *hsiang* mayor, *hsien* mayor, *hsien* assemblymen, and *sheng* (provincial) assemblymen. Fu Kuei village is divided into ten *lin* (neighbourhoods). Each *lin* has its leader, *lin chang*,

selected from among themselves. The job of the *lin* leader carries no pay, only a newspaper from the government free of charge as already mentioned. *Ch'un chang* receives a small stipend, NT\$ 350 per month. Theoretically he stands between the villagers and local government. The village meetings which are held once every three months are organized and conducted by him. A village secretary sent by the town office helps him in dealing with the official affairs handed down from the town office, such as registration and census taking, collecting land and income tax etc.

Two candidates ran for the last *Ch'un chang* election held in 1969. Both are in their late forties and part-time small farmers. One has 0.3949 hectares of paddy-field and is working in a Sino-Japanese belt factory in Changhua city. The other has 0.5807 hectares and sometimes acts as a middleman for the marketing of agricultural products. The latter won the election. He is the man who introduced mushroom cultivation into the village. Mushrooms have become the most important cash crop recently. Villagers voted for him because he has advised them on techniques to cultivate mushrooms.

The Fu Kuei village's representative to the *hsiang* council is a man of forty-two years old. He was a bricklayer, but now he is a contractor and has 0.5653 hectares of paddy-field. He has a fluent tongue and is nicknamed 'the boaster'. None of Fu Kuei villagers has stood as a candidate for an election beyond the *hsiang* level. This, villagers told me, is because the village is poor. The elections beyond the *hsiang* level need a lot of funds. Candidates often buy votes.

The Farmers' Association has agents in the village. The

Farmers' Association has about one hundred and fifty members in the villager. They elect three representatives, one for every fifty members, to the *hsiang* Farmers' Association's governing body. To be a representative in the village one needs more than thirty supporters. Some representatives are supported by their lineage members. Others have bought their votes. One vote costs about sixty or seventy NT\$, so to gather supporters to be a representative costs two to three thousand NT\$. This amount, however, will be recouped in electing the Association's directors. There are totally 55 representatives in Hua Tan *Hsiang* Farmers' Association. They select 11 members to be board directors. On this level a vote can be sold at a price of six thousand NT\$, sometimes more than ten thousand. Thus, to become a Director, one must spend about twenty thousand NT\$.

A Director can earn back the amount he paid out for his own election from the election of the chief Director. A chief Director is selected from among the 11. It is said that a chief Director spends usually more than two hundred thousand NT\$ for his election. Each ordinary Director can command about twenty thousand for his vote. If two competitors are pitted against each other, and the number of votes is five against five, the last vote can cost as much as fifty or sixty thousand

Almost all villagers know about these kinds of dealings. One of the Fu Kuei village's representatives has been elected as a board member. He is thirty-seven years old. As a student he was expelled from a junior high school after attending just for one year. His family has 1.0581 hectares of wet-field, but he has never worked in it.

A General Secretary is appointed by the chief Director to

superintend the operations of the organization. The main functions of the Farmers' Association are: extension services, credit, purchasing and selling. The last is the most important function for the villagers. Villagers exchange their rice for fertilizer, buy insecticide, pay rice for the land tax and for the compulsory rice sale to the government there. The 'small agriculture unit' in each village, is, however, just mere show on the part of the village extension service agent—it has no instrumental meaning whatsoever. In Fu-kuei the *Ch'un-chang* or village-head is also the unit-head.

The irrigation system is another external organization in the village. Fu Kuei village belongs to the irrigation area of Hua Tan Irrigation Working Station, Changhua Irrigation Association. The villagers elect a man as the 'small water unit-head' who is in charge of distributing the water and reporting any problems to Working Station in Hua Tan town. The unit-head of Fu Kuei is the man who is also a board member of Farmers' Association.

The final external or state force in the village is the political party. There is a Community Centre, which is the office of Kuomin-tang or Nationalist Party at the *hsiang* level, in Hua Tan town. For most of the villagers the political party is insignificant. Only some of those with external forces are members of the party. Some villagers who have local civil service and/or school jobs are members too.

For informal leaders in the village, in religious activities for instance, the village temple is their centre. They are older than the village officials mentioned above. Of the senior three of them the first is a man sixty-nine years old who retired from Taiwan Railroad. He had served as village-head or *Ch'un-chang* for the

past two terms. The second is sixty-eight years old and a retired school-master. He is in charge of all accounts as regards the village's religious rituals. The third one is sixty-three years old, a retired bricklayer. He knows some Chinese medical prescriptions and works as interpreter for the village's shaman.

The first mentioned above had once been a village official. The retired school-master was elected as a member of the land consolidation committee. He discharged his own job fairly and helped in exposing many illicit dealings. Some villagers dislike him, but most support him because of his fairness. His nickname is 'a man who knows only how to stand under a blackboard'. Even his sons criticize his stubbornness. They said that their father cannot be of use in other walks of life.

These informal leaders have gained the respect of villagers by virtue of their past. They are not driven by ill-ambition. Neither do they belong to any faction. They are supported by the community not by individuals. They display only community responsibility.

The following two examples of Community Development Programmes show the two different types of leadership, the traditional leaders and the new elite respectively, at work. The retired railroad-man, the traditional leader, once organized a project to construct a road between the village and Hua Tan town. He collected donations from farmers according to the land area they owned at the rate of four hundred NT\$ per *chia*. At that time the villagers had about one hundred *chia* between them. He collected about forty thousand NT\$ from the villagers. But the construction costs exceeded fifty thousand. The difference

he collected from emigrants from Fu Kuei village. The list of donors and a full statement of accounts was written on a board hung in the village temple.

In 1970, one of the new elite, the village representative to the *hsiang* council, was the organizer of a Public Works Programme promoted by the Taiwan Provincial Government. A part of the expenditure was donated by the villagers. He collected about thirty thousand NT\$ from them but failed to get any support from Fu Kuei emigrants. The villagers do not put much trust in their 'new elite'. Rumour had it that the village representative has made about fifty thousand NT\$ of unfair profits through this Programme. Villagers never doubt the accounting of affairs managed by the retired school-master. The new elite are supported individually, but not communally. They are rather agents in the village of external factions. They have established their power in the village because of the nexus of their external connections.

When the same village representative failed to be elected as a chairman of the Parents Teachers Association of the village primary school, he complained and said to me:

"Since the *hsiang* mayor wanted me to be the chairman of P. T. A., I had to attend that meeting. Before the voting I told all the members of the P. T. A. that the chairman for the next term will have a heavy responsibility, because the school has to expand its site. Of course, I could not tell them clearly to elect me as the chairman. I thought that such a suggestion would be enough. But most of them did not see my intention. They elected another man. I was so angry. I told them that the *hsiang* mayor had already promised me to help the school's

expansion. In return, I would have helped him to run the next *hsiang* mayoral election”.

The status of new elites in the power structure is closely implicated with economic advantages. The village representative, a bricklaying contractor, has more information about public constructions and is therefore in the best position to hand in a bid. The member of the board of the Farmers' Association and the villagehead, who is also the small agricultural unit-head, are the brokers of agricultural products. In this village, to get power is the step toward the acquisition of wealth. The villagers say that the new 'elites' are investing their capital in political power, by which they get economic advantage.

LAND TENURE AND LAND REFORM

The cultivated land of Fu Kuei village totals 112,2082 hectares. This is the figure after land consolidation in the process of which villagers lost about 9% of their land. Among them 102,5611 *ha*.

Table 25. Family Size and Land Holding in Fu Kuei

Area (hectare)	Families	Percent %	Total Area		Popula- tion	Average Size
			Ha	Percent %		
0.5-	76	46.63	22.3058	19.88	541	7.1
0.5-1.0	55	33.74	38.1570	34.01	458	8.3
1.0-1.5	19	11.66	22.6559	20.19	184	9.7
1.5-2.0	9	5.52	14.8051	13.19	75	8.3
2.0-3.0	2	1.23	5.4140	4.82	32	16.0
3.0+	2	1.23	8.8704	7.90	23	11.5
Total	163	100.00	112.2082	100.00	1,313	8.0

are privately owned. The remaining 10.0181 *ha.*, are rented-in land under the 37.5% share contract. 163 families cultivate the land. As shown in Table 25 most of the families (80.37%) in the village cultivate less than one *ha.* of land.

Table 26. Land Holding and Income Distribution in Fu Kuei

	Land Extent (hectare)	Total Income	Agricultural Income		Non-agricultural Income			
			Farm Amount	Farm I. Total I. %	Non-farm Income	Nonf. I. Total I. %	Remit	Remittance Total I. %
c-4-1	0	15,700	0	0	15,700	100	500	3
c-4-2	0	45,000	0	0	45,000	100	15,000	33
c-4-3	0	18,000	0	0	18,000	100	12,000	66
c-4-4	0	23,400	0	0	23,400	100	0	0
c-3-16	0.170	41,428	3,828	9	37,600	90	30,000	72
c-3-13	0.176	26,939	3,139	11	23,800	88	20,000	74
c-3-17	0.21	20,906	906	4	20,000	95	20,000	95
c-3-15	0.225	28,009	4,509	16	23,500	83	23,500	83
c-3-19	0.24	33,500	5,700	12	38,800	87	2,500	5
c-3-8	0.255	34,518	5,518	15	29,000	84	18,000	52
c-3-18	0.26	36,093	7,298	20	28,800	79	18,000	49
c-3-23	0.26	30,463	6,563	21	25,900	85	0	0
c-3-11	0.31	29,496	4,496	15	25,000	84	25,000	84
c-2-7	0.312	16,565	10,365	62	6,200	37	3,500	21
c-3-12	0.33	31,349	6,549	20	24,800	79	22,000	70
c-3-7	0.44	45,948	4,740	10	41,208	89	6,000	13
c-3-6	0.469	51,563	13,021	25	38,542	74	14,000	27
c-3-14	0.47	31,626	6,626	21	24,000	78	24,000	78
c-3-1	0.511	47,304	9,304	19	38,000	80	0	0
c-3-5	0.561	51,206	24,206	47	27,000	52	0	0

c-2-1	0.581	60,243	46,243	76	14,000	23	1,000	1
c-3-2	0.60	71,742	13,742	19	5,800	80	0	0
c-3-22	0.66	39,645	13,645	34	26,000	65	26,000	65
c-3-9	0.671	43,394	7,494	17	35,900	82	18,000	41
c-3-25	0.78	27,218	11,718	43	15,500	56	15,500	56
c-2-6	0.818	49,704	29,304	58	20,400	41	0	0
c-3-3	0.854	52,870	9,420	17	43,450	82	0	0
c-3-21	0.86	65,144	21,644	33	43,500	66	31,500	48
c-3-24	0.946	38,358	14,958	39	23,400	61	3,000	7
c-3-4	1.0	46,685	5,085	10	41,600	89	1,600	3
c-1-2	1.057	23,243	21,543	92	1,700	7	1,700	7
c-2-5	1.069	31,021	19,621	63	11,400	36	0	0
c-3-27	1.15	79,593	21,793	27	57,800	72	55,000	69
c-3-26	1.213	75,638	19,438	25	56,200	74	49,000	64
c-2-4	1.230	44,831	22,831	50	22,000	49	22,000	49
c-3-20	1.245	42,667	19,467	45	23,200	54	22,000	51
c-1-1	1.268	31,380	25,680	81	5,700	18	300	0
c-3-28	1.8	93,028	30,528	32	62,500	67	50,500	54
c-2-3	2.0	68,805	34,605	50	34,200	49	14,400	20
c-3-10	3.194	13,739	56,998	41	80,400	58	9,400	6
c-2-2	5.717	14,624	96,624	65	51,000	34	0	0
Total		1,939,257	659,157	33	1,282,100	66	574,900	29

The of coefficient correlation of land area and family size is quite low ($r=0.353$, $n=163$). Perhaps this is because the farmers in this village do not depend completely on agricultural economy. Other sources of income play an important part in their means of livelihood. Table 26, based on the 41 sampled families, indicates the weight of agricultural income according to their cultivated land area.

INHERITANCE

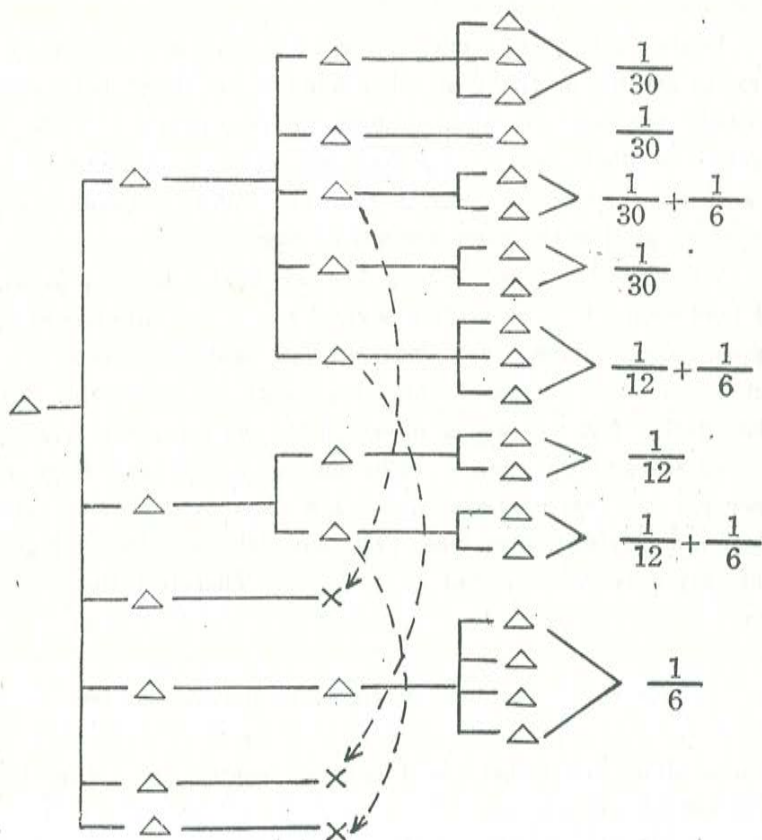
Like other patrilineal societies, the land is inherited among sons only. If there is no son, but only a daughter a husband will have been called-in for her. The land then will be inherited neither by her nor her husband, but their sons. A called-in husband has the right just of management, not of ownership. In most cases, women are excluded from land inheritance.

In the past, when a man was going to sell his land, he had first to ask his brothers' or other agnatic relatives' permission. Usually, any land he sold would be to his agnatic kin. Now a brother is allowed to sell his inherited land at will. The land is transferred to each son after the parents' family is divided with each son getting the same amount of land.

When brothers inherit, they usually have the same amount of land each. It is only after several years that differences will appear among them. For example, six brothers divided their father's property some twenty five years ago. At that time, their father had two pieces of wet field, one far away from the the village and one nearer. The eldest, second and third son each got 0.24 *chia* of distant land, and the fourth, fifth and sixth each 0.14 *chia* of nearer land. The wet field near the village is not only easy to reach, but more fertile. Therefore the area is smaller. There were disputes among the brothers during the partition of family land. The eldest son had about 0.5 *chia* registered under his own name. His brothers insisted that land should be divided among them too. He refused because, he explained, almost all of their father's land had been bought in by his earnings. The second son succeeded to his father's father's brother's family line inheriting an additional 0.09 *chia* as a result. Now the extents

of land owned by these six brothers are as follows: the eldest 1.0174 ha, the second 0.7873, the third 1.8406, the fourth 1.0174, the fifth 1.7992 and the sixth 0.0537.

Joint-ownership occurs only in the case of house land. Usually it is owned by brothers or agnatic descendents of a common ancestor. In the past some common 'ancestor-land' was held by a



certain lineage. Under the 1953 land reform programme, land under joint-ownership and land owned by family clans were compulsorily to be purchased by the government for release to the tillers. There is no longer now any jointly owned wet-field in the village at all. Each of two fishing ponds, however, is owned by lineages.

One of these ponds, owned by Lin lineage, has an area of 0.6437 hectares. The genealogical ties of this lineage are shown in the following figure. The fishing pond was bought by Lin family's ancestor in 1828. The second generation had six brothers. Three of them with no offspring of their own to succeed adopted their nephews as their heirs, shown by the dotted lines. The shares of ownership are divided *per stirpes*. During my stay in the village, the fishing pond was held and managed by the fourth generation. Management rights over it are allocated among them in turn according to the shares they held. Take the three sons of the eldest son's first son for example. They have jointly a one-thirtieth share of the fishing pond and they manage it once every thirty years. The cases of the two sons of the eldest son's third son are different. Besides having a one-thirtieth share jointly, they have a one-sixth share additionally, because their father succeeded to the third branch. They manage the fishing pond jointly once every thirty years and once every six years. And so on. Not all members of the Lin family are interested in managing the fishing pond. When their turn comes they may transfer it to someone else in exchange for a rent-fee from him. In 1971 the rent-fee was 8,000 NT\$, including land-tax. This example demonstrates that traditionally the ownership and management of land is separable. The land reform programme, however, especially the land-to-the-tiller Act of 1953, made them less so.

LAND REFORM

Land reform almost twenty years ago temporarily satisfied farmers who were looking then for land of their own. Now the villagers feel that to have their own land has no special importance for their livelihood. They have come gradually to the idea that though they are now 'owner-farmer' they cannot now completely depend on agriculture. The benefits of land reform rests more with the Government than themselves.

According to records kept in Hua Tan town office, 35,4264 *chia* of private farm land, but no public land, were resold by the Government to the Fu Kuei villagers under the land-to-the-tiller programme in 1953 at a price 2.5 times the total amount of its annual rice yield. The farmer-purchaser paid the price of the land, plus 4% interest, in equal, semiannual installments spread over a period of ten years, in rice e. g.:

Table 27. Prices of Land-to-the-tiller Conversions

Grade	Officially fixed yielding (per <i>Chia</i>)	Value per <i>Chia</i> (2.5 times yielding)	Examples	
			Land area	Price
5	10,960 <i>Jin</i>	27,400 <i>Jin</i>	0.3940 <i>Chia</i>	10,796 <i>Jin</i>
6	10,210 <i>Jin</i>	25,525 <i>Jin</i>	0.3868 <i>Chia</i>	9,873 <i>Jin</i>
7	9,550 <i>Jin</i>	23,875 <i>Jin</i>	0.9055 <i>Chia</i>	21,619 <i>Jin</i>
8	8,800 <i>Jin</i>	22,000 <i>Jin</i>	0.4866 <i>Chia</i>	10,705 <i>Jin</i>

The farmer-purchaser has had to pay the land tax since the first season of 1953 as an owner-farmer. Therefore he not only paid the land purchase price but also the land tax each year to the Government. Take the fifth grade for example. The first year each fifth grade *chia* had to pay the following amount of rice.

- 1) 2,740 *jin*, 1/10 of value per *chia*.
 plus 2) Land tax proper (cf pp. 157-158): The rate of land tax in 1953 was 14.16 kg. per tax-unit-dollar. It is calculated as follows.

$$14.16 \times 31.55 = 448 \text{ kg. } 448 \text{ kg} \times 10/6 = 747 \text{ jin}$$

- plus 3) Price difference of compulsory-sale-rice (cf. pp. 157-159): The price of compulsory-sale-rice was about 1/4 less than market price. Each 5th grade *Chia* thus loses about:
 $12 \times 31.55 = 378.6 \text{ kg. } 378.6 \times 1/4 \times 10/6 = 158 \text{ jin.}$

Total 3,645 *jin*. This amount is less than 37.5% farm rent, which is:

$$\begin{array}{l} 10,960 \text{ jin} \\ \text{(Official fixed yield per 5th} \\ \text{grade chia)} \end{array} \times 0.375 = 4110 \text{ jin per year.}$$

But from the second year, 4% interest was added so the payment was slightly higher than the 4110 *jin* 37.5% farm rent which the farmer-purchaser had paid to his landlord before the land-to-the-tiller programme.

Ten years later, the land become completely privately owned by the farmer-purchaser. However, the land tax was raised from 14.16 kg. per tax-unit-dollar to 19.37 kg. in 1962, 26.35 in 1967, 27.00 in 1968 for privately owned land, while 37.5% rent farm land has been at a rather low rate. After land reform, the farmers were freed from exploitation by a landlord and were incorporated more into the national society, but they have had to pay more to Government, though the amount is less than the rent paid before land reform to the landlord. Villagers described the land reform conducted by the Government as a kind of business which paid well for the Government which invested not a single penny.

Besides the land tax, for each hectare of all grades of wet-

field, NT\$ 803.90 of water fee per season was collected, i.e. NT\$ 1607.80 for the whole year in 1971. Based on the data of Fu Kuei sampled families, the land tax and water fee accounted for 35.52% (Hsing Fu 40.86%) of net returns to farmers who were cultivating rice. Land tax and water fee together accounts for 16.40% (Hsing Fu 24.05%) of total crop cost. As compared with the data of 1951-52 (8%)⁽¹⁾, the weight of land tax and water fee in total crop costs has been increasing sharply. The villagers would not be surprised if one day the Government should take the position of landlord. Traditionally, the central government has acted only as a tax gatherer. On the other hand, reducing the tax has been a symbol of a good government. Some villagers even said that in effect their land belongs to the nation and farmers are just its cultivators.

After the land reform, 'tenant-farmer' was no longer a term that referred to a certain social class. There are totally 10.0181 ha. of 37.5% rented-in land cultivated by 24 families in Fu Kuei village. None of the landlords are living in the village. Neither are they emigrants from Fu Kuei village. They are residents in the cities of Changhua, Taichung and Chiayi. They even do not come to the village to collect their rent. Their tenants pay land tax and water fee on their behalf and send the remaining rent in cash to them. Table 28 based on the records in Hua Tan town office, show the land area of each tenant and rent for it paid to landlords.

(1) Huang Jun-chih, *Rice Farming Economy in Taiwan* (in Chinese), Taiwan Studies Series No. 72, Bank of Taiwan, 1959, p. 24.

Table 28. Land Rents in Fu Kuei

Tenants	Land Grade	Area	Landlords	Yield per year	Rent per year
1	5	0.3865 <i>Chia</i>	1	4,236 <i>Jin</i>	1,588 <i>Jin</i>
2	5	0.3314	2	3,632	1,362
3	5	0.3731	2	4,089	1,533
4	7	0.7946	3	7,588	2,846
4	7	0.5986	4	5,716	2,144
5	5	0.1040	5	1,140	428
6	5	0.8589	5	10,236	3,837
7	5	0.5864	6	6,426	2,410
7	5	0.3041	7	3,334	1,250
8	6	0.3585	8	3,660	1,373
9	6	0.2506	9	2,559	960
10	6	0.7162	10	7,312	2,742
11	6	0.3264	10	3,333	1,250
12	5	0.2933	10	3,215	1,206
13	6	0.3317	10	3,386	1,270
14	6	0.0711	11	726	272
15	6	0.0711	11	748	281
16	6	0.0694	11	708	266
17	5	0.3404	12	3,731	1,399
18	6	0.3585	13	3,660	1,373
19	6	0.7633	14	7,793	2,922
20	6	0.3362	15	3,330	1,249
21	6	0.3127	16	3,193	1,197
22	6	0.4508	16	4,603	1,726
23	6	0.3717	16	3,795	1,423
24	6	0.2501	17	2,554	958

Most of the 'tenants' listed above have their own land. The following two examples show what it means to be 'tenants' nowadays.

Example 1: Tenant No. 17 (C-3-12 in Appendix One).

The only piece of land, 0.3404 *chia*, cultivated by this family, composed of husband, wife, four sons and two daughters, is 37.5% rented farm land. This land was handed down from the father of present family-head who is forty-one years old. The eldest son, twenty years old, who has just completed high school, is waiting for military service. The eldest daughter has had no more than elementary education. Of the others, except the youngest who is only five years old, one is in high school and two in primary school.

The family-head is a bricklayer who works in Taipei city. His wage is about NT\$120 per day, including meals and housing, usually just a hut near the construction site. His average number of working-days a year is about 270. He totally sent back about NT\$22,000 to his family last year. His wife, who directs all of the agricultural work, made NT\$6,549 last year. (For the details see Appendix.)

The wife also raises hogs. She sold three pigs last year from which she made NT\$7,000 income. But she said that this sort of transaction does not pay if the cost of fodder is subtracted. In addition, she works as a wage labourer. The wage rate for a woman labourer is about NT\$40 per working day. For 70 days' work last year she made NT\$2,800. The total income of this family in 1971 was NT\$31,349 including: 20.89% (6,549) from agriculture, 70.18% (22,000) of and 8.93% (2,800) from labour sold in the village. The income from

the rented-in land in this family account only one-fifth of their total income.

Example 2: Tenant No. 12, (C-3-24 in Appendix One).

Besides 0.2933 *chia* of rented-in land, they own 0.6655 *chia*. The family-head is fifty-three years old and is a full-time farmer. His family includes his wife, three unmarried daughters and three sons who are attending school. The family cultivated two seasons of rice, but no interval crop, in 1971. They made NT\$4,645 from their rented-in land, while they paid a total of NT\$2,898 to their landlord last year. This amount accounts only for 12% of the total family income. The rented-in land is not crucial for their subsistence.

Most of the 'tenants' have their own land in addition to the rented-in land, such as in Example 2 above. The biggest landlord in the village, C-2-2, besides the 4.5614 hectare which he owns has 1.1560 hectare of rented-in land. Another farmer is a tenant in one respect but rents out 0.2730 hectare to another family. There is no hard and fast category of 'tenants' nowadays in Taiwan.

According to the villagers' own estimations, the net return to private land cultivators from rice farming per year is about 7,000 *jin* per *chia*. If the land is 37.5% rented-in land the tenant must pay more than half of this yield, 4,110 *jin* for fifth grade land and 3,830 *jin* for sixth, to his landlord. The tenant makes only a very small sum from rented-in land. But no one will give up his rented-in land. Why? They are waiting for their landlords one day to sell their land. At that time the 'tenant' at least can get one-third docked off from the market price because of his 'cultivating right'.

'Cultivating right' comes in to existence only in case of 37.5%

farm land. There are a few cases in the village of land rented under oral contracts. One family sampled (C-3-25) has 0.0300 ha. rented-in land in addition to owning 0.7500 ha. This small piece of land was formerly owned by the family now owned by another family. In fact, it is close to another piece of land, 0.0480 ha, owned by the family and both pieces are in an orange orchard. According to the oral contract agreed to by the two families, C-3-25 pays 200 *jin* of unhulled rice per year for the rented-in land, an amount that is higher than a 37.5% rental fee. The C-3-25 family-head is a good and honest man. Villagers said that if all citizens of a nation were like him, then there would be no need of a government.

Generally speaking, villagers do not want to rent out their land to others. Even siblings do not trust each other over land. When land reform took place, where land was owned jointly by brothers or patri-cousins, and cultivated by each of them in turn (as with the management of the fishing pond mentioned above), or by one brother only because others were not in the village, there were disputes. Those who were cultivating it at the time registered as tenants and the land was compulsorily resold by the government to them. Some brothers therefore, gained land, while others lost. Because the land-to-the-tiller programme over-emphasized the uniformity of cultivators and land-ownership, villagers came to hesitate even more than before to rent out their land to others. I was told by villagers that to rent-in land without making a 37.5% rent limitation contract would be illegal if the term had exceeded three years. Therefore, no matter how small the piece of land is, the owner cannot but cultivate it himself.

LAND CONSOLIDATION

Land consolidation in Hua Tan Hsiang was completed in March 1968. Popular opinion locally was strongly against the original, costly, plan—it insisted rather that the government should construct all the drainage works before land consolidation was undertaken. Final agreement was reached only after many conferences. The compromise agreed on was that land to be consolidated be confined to the plain area only, that is the wet fields to the west of the railway in Hua Tan Hsiang. All the cultivated land of Fu Kuei village, except for a few orange orchards, was included in the project.

The initiator of land consolidation in Hua Tan Hsiang was not a farmer but the town-mayor. Hua Tan town office had been poor in resources and the town-mayor was looking for a source of revenue. He believed that the land price would be raised after land consolidation and land-jobbing would increase. Then the town-office would have a chance to collect transfer-tax. It was said the town-office made about two million NT\$ out of land consolidation and built a new office building and a town hall on the proceeds. Some villagers said that the government had eaten the profits of land reform for about twenty years, and then conducted the land consolidation. What will be the next profit making project?

Here let me give an example of land-jobbing. Family C-3-10 bought in 0.7626 hectare of paddy-field last year, at NT\$ 325,000 per hectare. So they paid NT\$ 247,845 for that piece of land. In addition to this price they paid NT\$ 26,000 in transfer-tax and NT\$ 4,000 in commission to the land-jobber.

Among the villagers five men competed to be members of

Hua Tan Hsiang Land Consolidation Committee. Finally the retired school-master was elected as a committee member representing the village of Fu Kuei. The election was held in the village temple. Religious functions came into full flourish in such a community crisis. On Chinese New Year in 1968, when the project was underway, the incense pot in the village temple burned out. This was a most unusual event. Villagers were anxious. The village shaman was called to the temple and held a seance immediately. He told the villagers that unavoidably there would be some disputes among villagers during the land consolidating period. Everyone should be calm, otherwise there would likely be loss of life.

Villagers said that there were fewer disputes in Fu Kuei village than elsewhere in the neighbourhood. One reason for this might be the fairness of the retired school-master committee member. Another is that the grades and prices of land in the village were rather equal. Nevertheless, there were many complications. Everyone was trying to move his land from remote places to a nearer location. It was said that one had to pay almost ten thousand NT\$ per *chia* because of unfair dealing. Some constructions were fraudulent works. The cement was stolen and sold secretly. The village representative, a contractor, was the buyer. A bag of cement cost only NT\$ 35 when he bought it but he resold at NT\$ 45 per bag. He made about one hundred thousand NT\$. On the contrary, the retired school-master himself was allocated only a poor piece of irregularly shaped land. There were also many tangles about residual land caused by squatting gangs not necessarily landless who occupied the residual land and demanded 'right-money' from the bidders for it.

A villager bided for a piece of residual land. A gang from another village came. One of them said he had already planted some grapevines on that land. He asked six thousand NT\$ for compensation. At first he was refused but he appeared in the villager's home so often, sometimes even lying on the bed of the villager's house and refusing to move. Finally he was given his four thousand NT\$. Since then he has not appeared again.

The village's member on the board of the Farmers' Association also tried to fish in troubled waters. He erected boundary marks on two pieces of residual land to show that he intended to buy them. But one of them was bided for by his good friend. He removed its boundary marks then without asking any compensation. The other piece, about 0.17 hectare, received no bids. Nobody wanted to have trouble with him, so finally the land was sold to him, on ten years' instalments, for the basic price.

The landlords lost 9% of their land and paid eleven thousand NT\$ of construction fee per hectare. Their land tax was not reduced in accordance with this loss of land. Instead, the government adjusted the land-grade. Every grade was promoted to the next higher grade after land consolidation. So there was no loss on the government side.

Generally speaking, the Fu Kuei villagers are, in principle, in favour of land consolidation if it could improve field-roads for better transportation. One farmer told me: "I have about one *chia* of paddy-field. In the past I had to spend more than five days in carrying farmyard manure from my house to field. Now, I just need one day to transport it by a bicycle-drawn trailer". Irrigation was improved too. There is no longer a 'Shui Wei T'ien' (field in the water-tail). But the drainage system was not

perfect, and individual holdings are still scattered. Because redistribution of land was so difficult only lands less than 0.1 hectare were combined with other pieces of land held by the same person.

It was because the land consolidation project in Fu Kuei village, despite all the problems, was rather successful that it was possible for the village to be selected as the first experimental site for joint-farming in Taiwan.

LAND TAXATION

Villagers think that land taxation is the main source of the government's income. In fact, land has always been the main object on which taxes have been levied throughout recorded Chinese history. When, at the beginning of their occupation, the Japanese authorities conducted a land survey, it was said that the villagers were reluctant to recognize their own land because they were afraid of heavy taxation.

As we have already mentioned, there are two kinds of fund-raising for community activities. One is based on labour, i. e., poll-tax collected for the eighteenth day of the sixth month festival. The other is based on land area, collected for constructing a road to Hua Tan town (see p. 138). Villagers consider that collecting tax according to land area is right. But they complain that the government seems to raise its funds mainly from farmers only though they are the poorest. Furthermore, honest farmers cannot evade land tax.

Each piece of land in the village is registered in the town office. The rate of payment of land tax is almost 100 percent. It is levied according to area and its grade. Cultivated land in

Taiwan is divided into twenty-six grades. For each grade there has been a standardized rate of tax (in unit-dollars) since 1944. Table 29 shows the amount of tax-unit-dollars levied on each grade per hectare⁽¹⁾. Ordinary paddy-fields are about tenth grade as a rule.

Table 29. Tax-unit-dollars Levied on Land in Taiwan

Grade	Tax-unit-dollars (per ha)	Grade	Tax-unit-dollars	Grade	Tax-unit-dollars
1	50.52	11	14.23	21	3.09
2	45.16	12	12.48	22	2.58
3	40.21	13	10.93	23	2.17
4	35.59	14	9.49	24	1.75
5	31.55	15	8.25	25	1.44
6	27.84	16	7.11	26	1.24
7	24.44	17	6.08		
8	21.45	18	5.16		
9	18.66	19	4.43		
10	16.19	20	3.71		

Land-tax is paid in kind. In 1946 each tax-unit-dollar was 8.85 kg. of unhulled rice. In 1947 for each tax-unit-dollar an additional 30%, 2,655 kg., of *hsien* tax was levied, making a total of 11.505 kg. per tax-unit-dollar. Another 30% of defence-tax was added in 1950. In 1953 the rate was fixed at 14.16 kg. per tax-unit-dollar, but in 1962 it was raised again to 19.37 kg. per dollar for private land, while the 37.5% rent contracted land still remained in 14.16 kg. In 1967 house hold-tax was added on to land tax

(1) Source: Yü-kang Mao: A Study on Food Policy in Taiwan (in Chinese), *Taiwan Bank Quarterly*, Vol. 22, No. 3, 1971.

and the rate became 26.35 kg. per dollar on private land and 17.65 kg. on 37.5% land. The national education system was extended from six to nine years in 1968. Each tax-unit-dollar was subject then to 0.65 kg. of educational tax, i. e. 27 kg. per dollar for private land and 18.30 kg. for 37.5% land. The increase in land-tax has raced ahead of that of the increasing of yields. This is shown in Table 30, taking a tenth grade example.

Table 30. Rises in Land Tax in Taiwan 1946-1968

Year	Weight of unhulled rice per dollar	Land tax per hectare (A)		Yielding per hectare (B)		(A)/(B)	
		Amount	Index	Amount	Index	%	Index
1946	8.85 kg.	143 kg.	100.0	4,227kg.	100.0	3.4	100.0
1947	11.505	186	130.1	3,931	93.0	4.7	138.2
1950	14.16	229	160.1	4,920	116.4	4.7	138.2
1953	14.16	229	160.1	5,624	133.0	4.1	120.6
1962	19.37	314	219.6	7,093	167.8	4.4	129.4
1967	26.35	427	298.6	8,176	193.5	5.2	152.9
1968	27.00	437	305.5	8,477	200.5	5.2	152.9

If we take the increase of production costs into consideration, the land tax has not loomed so large in any period in the past quarter century.

On top of the land-tax paid in kind, there is the compulsory-rice-sale to the government collected to ensure there is enough to cover the rice rations distributed to civil and military servicemen. For each tax-unit-dollar, 12 kg. of unhulled rice is collected. The price of the compulsory-sale-rice is calculated as follows:

$$\text{The price per kg.} = \frac{\text{Cash-costs per hectare}}{\text{Yield per ha. minus the amount of rice equivalent for non-cash costs}}$$

Each year, based on a sample of 800 households, the Food Bureau of Taiwan Provincial Government decides the price of the compulsory-sale-rice by the above formula. The price is set lower than the market price. One of the reasons for this lies in the formula itself, because the amount of rice equivalent for non-cash costs is less than the amount of rice produced by non-cash costs. The denominator is larger and the price is, therefore, lower. Table 31 shows the differences between the price of the compulsory-sale-rice and market price over the past two decades.

Table 31. Differences between Administered and Market Price of Compulsory Rice Sales in Taiwan 1951-1969

Years	The price of the compulsory-sale-price, per 100 kg. (A)	Market price (B)	(A)/(B) %
1951	NT\$ 75.00	NT\$ 102.19	73.39
1956	159.50	217.85	73.22
1961	283.00	386.34	73.25
1966	322.00	413.44	76.95
1967	341.00	448.56	76.02
1968	365.50	446.98	81.77
1969	381.50	458.85	83.14

We can say, as the villagers say, that the difference between two prices is another kind of land-tax.

Now let us see how the policy described above actually works in the village of Fu Kuei. The land tax is collected twice a year. 60% of it is collected in July after the harvest of the first crop, the remaining 40% in December after the second crop is reaped. Take the eldest brother of six brothers mentioned above for

example. He has two pieces of wet field; one is 0.8075 hectare and another 0.2099 hectare. Both pieces are of sixth grade and thus their rates of taxation are the same. In detail the taxes are as follows.

Table 32. Land Taxer Collected in Fu Kuei, 1971

Land Area	First crop	Second crop
0.8075 ha. Land tax proper	355.46 kg. ⁽¹⁾	236.90 kg.
Compulsory-sale-rice	161.88 kg. ⁽²⁾	107.90 kg.
Educational Tax	8.77 kg. ⁽³⁾	5.80 kg.
Total	526.11 kg.	350.60 kg.
Value of compulsory-sale-rice	NT\$ 676.60 ⁽⁴⁾	NT\$ 451.00
0.2099 ha. Land tax proper	104.61 kg.	69.60 kg.
Compulsory-sale-rice	47.64 kg.	31.70 kg.
Educational tax	2.58 kg.	1.70 kg.
Total	154.83 kg.	103.00 kg.
Value of compulsory-sale-rice	NT\$ 199.10	NT\$ 132.50

(1) This figure is calculated in the following way.

$$27.84 \times 26.35 \times 0.8075 \times 0.6 = 355.46 \text{ kg.}$$

tax-unit-dollar for grade 6 weight of rice levied on per tax-unit-dollar land area first crop's tax

$$(2) 27.84 \times 12 \times 0.8075 \times 0.6 = 161.88 \text{ kg.}$$

weight of rice levied on per tax-unit-dollar

$$(3) 27.84 \times 0.65 \times 0.8075 \times 0.6 = 8.77 \text{ kg.}$$

(4) The officially fixed price was NT\$ 418 per 100 kg. in 1971. Incidentally the market price was NT\$ 433.70 in July and NT\$ 496 in November. The value of compulsory-sale-rice is calculated as follows:

$$418 \times 161.88 = \text{NT\$ } 676.60$$

Based on the sampled families, the land tax accounts for about 10% of total costs. Villagers criticize the compulsory-sale-rice

price most of all. The subject has been placed on the agenda of Taiwan Provincial Assembly almost every year. Gradually the official and the market price have moved closer together. Now the United Daily News of 5th May 1972 has reported that the Provincial Government will pay market price for the compulsory-sale-rice from this year. The next struggle of farmers will be, firstly, to ask the government to withdraw the compulsory-sale-rice and then to allow payment in cash instead of in rice. Then the farmers would be free from being just rice-producers. They can cultivate any kind of crops, or use their land at will, as they like.

AGRICULTURAL DEVELOPMENT

Rice is the main crop in Fu Kuei village which is grown twice a year. At the end of January the seed is planted. Transplanting has been finished by mid-March. The harvest is in late June. Most of the villagers grow native rice in the early season. (In 1972 in the first season there were about 110 hectares of Indica and only 3 hectares of Japonica and 1.5 hectares of glutinous rice.) In the late season it is just the reverse. There is about 90% of Japonica rice. Seeding is undertaken in early July and transplanting later in the same month. Harvest is finished before mid-November.

In the past the interval crops were mainly sweet-potato and wheat. Now they are flax and rapeseed grown between the late and early seasons. But most villagers have given up the interval crops, because they are unprofitable. They count costs and benefits very carefully. In their daily conversations costs and benefits are one of the main topics not only of agricultural

activities but other aspects of life as well.

Some people were talking about a bride's dowries. Woman A said she had prepared for a truck to transport her daughter-in-law's dowries because it was said that she would have much furniture to accompany her, but in the event the truck was not fully loaded. Woman B said a little proudly that her daughter-in-law had a larger dowry including a refrigerator which woman A's daughter-in-law had not. Woman A retorted that woman B had paid NT\$ eight thousand of betrothal money more than her. Woman A paid sixteen thousand, woman B twenty-four thousand. This amount was just the price of a refrigerator. Woman A concluded that dowry accorded with the amount of betrothal money you were given. Suddenly, A's husband said that they lost two thousand NT\$ in taxi fares, while woman B did not since B's daughter-in-law is a girl of Fu Kuei village and did not need to hire a long-distance taxi.

Whether a new agricultural technology is economically profitable or not has been the main factor determining whether the villagers accept it or not. In the history of agricultural development in Fu Kuei village we find virtually nothing whatsoever of cultural resistance that is usually given so much prominence in other Asian studies.

VARIETIES

The villagers are concerned very much about the varieties of rice. The Japonica rice, Nakamura variety, was introduced into the village in 1922. People competed to plant it, because it made more profits than Indica. It was said at that time that

while price of Indica was only 27 Yen per hundred *jin*, that for Japonica was more than 50 Yen. There was a bad harvest of Japonica rice in 1925, because of lack of insecticide.

The Japonica rice is called *non-hue-a* or 'the farmers' association' so named because its seed is distributed through Farmers' Association. The villagers do not keep Japonica seed themselves, because they say it will deteriorate. They believe that Tainan No. 5 deteriorates most. Normally the stalk of Tainan No. 5 is green in colour when it is reaped. If you planted it a second time, the stalk would be taller and less green and the yield less.

Villagers produce Indica seed themselves, though the Farmers' Association also distributes it. The villagers believe that all Indica seeds produced by Agricultural Research Station will deteriorate. They would rather rely on their own seed.

One day at the end of 1971 some farmers were discussing the variety of rice they would plant in the next early season. They agreed *hong-lai-ku-a* was the most suitable variety. They said it was a native rice. Nobody knew its origin. They just know it was introduced by a man called *Hok-tien* from Ho Mei township. So it is also called *Hok-tien's* variety. It tastes slightly like Japonica and thus is also named *hong-lai-ku-a* (Japonica variation). At first Taichung Agricultural Research Station was unaware of its existence altogether. Now, known as Taichung Indica No. 2, it is distributed through Farmers' Association. But the villagers prefer original *hong-lai-ku-a* to Taichung Indica No. 2. They said that, like the native fowls, the original native rice will never deteriorate. The villagers share Indica rice seed among each other es-

pecially from a high yielding farm. Sometimes they even reap rice stealthily from someone else's farm to have good seed. Some villagers refuse to share with others. Since seed is not the single most important factor affecting yield, the method of cultivation is given much importance. It might be complained that they had shared only bad seed with others.

The village-head, who is also the small agricultural unit-head, has a piece of paddy-field for seed raising. Hua Tan Farmers' Association provides NT\$1,000 per 0.1 hectare. The villagers can watch the production of new varieties. In 1971 he grew a new variety of rice for wine brewing which had been introduced from the Philippines.

Each villager tends to plant the same variety as others. They are afraid of planting varieties others do not cultivate because then damage by disease and harmful insects would be more than others. If someone else's farm was sprayed with insecticide, but not yours, all the insects might appear in your farm. Or when others harvested and you did not, all the birds would crowd into your farm. For everyone to plant the same variety is a passive tactic against blight and harmful insects. The scheduled water supply also regulates the villagers to plant the same variety.

FERTILIZER

Chemical fertilizers were introduced into the village during the Japanese occupation but up until the end of World War II they were not regarded as very important. Mainly they depended on farmyard, green, and human manure. It is since the rice-fertilizer barter system was enforced in 1948 that villagers have

consumed more chemical fertilizers.

The ratio of fertilizers to rice has been adjusted many times. Table 33 shows the ratio, fertilizer 1 kg.: rice 1 kg., of four main fertilizers since 1948.

Table 33. Fertilizer-rice Exchange Ratios in Taiwan, 1948-1972

Year	Season	Ammonium Sulphate	Urea	Calcium Superphosphate	Potassium Chloride
1948	1st	1.54			
1949	1st	1.50		0.50	
1950	1st	1.20		0.40	
1950	2nd	1.00		0.40	
1955	1st	1.04	2.00	0.40	
1956	1st	1.00	2.00	0.50	0.90
1960	2nd	0.90	1.80	0.45	0.80
1964	2nd	0.88	1.80	0.45	0.80
1965	2nd	0.86	1.72	0.45	0.80
1967	2nd	0.85	1.70	0.45	0.80
1968	2nd	0.83	1.50	0.45	0.80
1969	2nd	0.79	1.36	0.45	0.80
1970	1st	0.68	1.09	0.45	0.80
1971	1st	0.58	0.89	0.38	0.62
1972	2nd	0.53	0.82	0.37	0.60

Besides the land tax and compulsory-sale-rice, the rice-fertilizer barter system is another instrument by which the government controls the rice market in Taiwan. The price of fertilizer is high and the government has made much profit from it. This is a question upon which there has been much controversy in Taiwan. As Table 33 above shows the government has gradually reduced the ratio but is still not enough to satisfy the

Table 34. Fertilizer Prices in Taiwan, 1971

	(1) Import Price NT\$/Ton	(2) Market- ing Fee NT\$/Ton	(3) Selling Price= (1)+(2) NT\$/Ton	(4) Rice Price NT\$/Ton	(5) Ideal Ratio= (3)/(4)	(6) Enforced Ratio
Ammonium Sulphate	1,884	413	3,297	5,348	0.43	0.58
Urea	4,128	537	4,665	5,348	0.87	0.89
Calcium Superphosphate	1,450	413	1,863	5,348	0.35	0.38
Potassium Chloride	1,556	399	1,955	5,348	0.37	0.62

farmers. In 1971 for example, the Government profited as shown in Table 34 (Items (6)-(5)).⁽¹⁾

This means that the government earns 0.15 kg. of unhulled rice by one kg. of Ammonium Sulphate, 0.02 kg. by Urea, 0.03 kg. by Calcium Superphosphate, and 0.25 kg. by Potassium Chloride. The average fertilizer used per hectare in Fu Kuei village is:

	<u>First Crop</u>	<u>Second Crop</u>
Ammonium Sulphate	700 kg.	800 kg.
Urea	0	50 kg.
Calcium Superphosphate	400 kg.	320 kg.
Potassium Chloride	200 kg.	80 kg.

In other words, in addition to the costs of fertilizers each year, a farmer who cultivates one hectare of paddy field will pay about 300 kg. of unhulled rice to the government through the rice-fertilizer barter system.

(1) Chieh-fang Chi: "A Study on the Rice-Fertilizer Barter Price and the Fertilizing amount in Taiwan" (in Chinese), *Taiwan Bank Quarterly*, Vol. 22, No. 1, 1971.

Some villagers, especially those with small farms, are not willing to exchange their rice with fertilizers at the Farmers' Association. The reasons they given are:

- (1) Small farmers produce the rice for home consumption only. They have no surplus rice to be sold or to exchange with fertilizer;
- (2) The procedures for exchanging fertilizer are too complicated for unlettered farmers to understand them;
- (3) There are so many requirements when rice is to be handed to Farmers' Association. It must be 100% Japonica with humidity at less than 13 degrees, six 'pecks' of it must weigh more than 57.6 kg., etc. Farmers usually have to run back and forth between Farmers' Association and home to exchange rice for fertilizer;
- (4) Sometimes the Farmers' Association does not distribute fertilizers on time;
- (5) Not all kinds of fertilizer distributed by Farmers' Association are needed by farmers. Some of them are not useful.

Villagers who do not want to, or who cannot, deal with the FA, buy their fertilizer on the blackmarket, though at a slightly higher price. This fertilizer has reached the market from the Farmers' Association. Traders take responsibility for rice-fertilizer barter instead of the farmers. In return, the traders make about NT\$10 profit per pack (about 30 kg.) when they resell to farmers.

There is a small fertilizer trader (C-2-5) in Fu Kuei village. He made about NT\$2,000 profit last year. Most of the villagers go to Hua Tan town to buy their fertilizers. They pay in cash or, sometimes in kind postponed until it is harvested.

Chemical fertilizer in Fu Kuei has almost taken the place of human manure. The villagers consider that human manure is insanitary.

Some villagers were discussing the Community Development Programme. Under this Programme each household had to build either a toilet or a pump. Each household paid only NT\$ 900. The remainder, more than NT\$ 1,000, was provided by the Programme. Many villagers selected toilets because they said, "nobody would collect human feces for fertilizing now. It is insanitary to eat the vegetables fertilized by human manure. Furthermore, it is not paying work. A pack of chemical fertilizer, which costs just about one hundred NT\$, is more effective than fifty loads of human feces. Who would like to carry fifty loads of human feces just to save one hundred NT\$?"

Villagers do not neglect the importance of farmyard manure. Chemical fertilizer, they said, is like western medicine which is efficient and quick but not enduring. Farmyard manure is like Chinese medicine, slow but sure and enriching.

INSECTICIDE

In the past villagers treated blight and harmful insects with kerosene. Insecticide was introduced into the village about twenty years ago. The hand-duster is common on the larger farms. It costs only about six hundred NT\$. Eleven of the twelve families with more than one hectare have it. One cultivating 1.35 hectares of orange orchard, the largest scale orange-farmer in this village, has even five hand-dusters (C-3-28). Of eleven families, who have between 0.5 and one hectare of cultivated land, four have dusters but only one of the fourteen families cultivating less than

0.5 hectares has one. The family-head of this family is one of the three professional sprayers in the village.

Insecticide is considered to be a very dangerous material. It has been known to be used for suicide in rural Taiwan. Some villagers would not like to spray insecticide themselves, though they have their own hand-dusters. They hire labourers to do it. Three professional sprayers, a wage-earning class, in the village, are described as more or less 'no good' men. One is the man who wants only to work easily and to receive more wages. The second one was once a bricklayer. He has a very forceful personality. He worked earnestly, but refused to follow any suggestion given by his boss. It was said that after some disputes with his boss while he was working in Taichung city he just walked home at night with his luggage in a towering rage. Since then he has given up bricklaying and has worked as a sprayer of agricultural medicine. He enjoys a more unrestricted life in this new job. The villagers like to hire him because he does careful work.

The third one is a cripple. Nobody would hire him for normal work. He cannot but engage in this job which is considered to be dangerous. Once he said:

"Because people are afraid of being poisoned, they ask me to spray their farms. This is so-called 'paying money and let others die'. I can only work four or five hours a day. Otherwise, I would be poisoned. If I had a headache, I stop spraying immediately and go to clinic for an injection. The antidote is provided free of charge by the insecticide shop. Once I was almost going to die. At six o'clock of that morning, I felt unwell. I went to the clinic. The doctor was so

unwilling to wake up because he receives only five NT\$ each time. He looked at me askance and started to rinse his mouth slowly. I couldn't bear it. I walked back home. When I arrived there I collapsed. My wife sent me to Changhua Christian Hospital. They saved me from death. The sprayers in the neighbour village are considered useless men too. One of them liked money so much that finally he was poisoned and died in the field."

A sprayer can make more than one hundred NT\$ each working day. It is higher than normal wage and the working hours are about four or five hours shorter. Since it is a seasonal job, people cannot depend completely on it. C-3-16 for example, worked about forty days and made NT\$4,600 last year.

There are three mist blowers in the village. Each mist blower costs about three thousand NT\$, five times that of the hand-duster. These implements are almost not used at all because they do not pay commercially as can be shown by a comparison of the profits made.

Hand-duster	Mist-blower
Each implement costs NT\$ 600	NT\$ 3,000
Each hectare sprayed 50 tubes	Each hectare blown 50 tubes
Earns NT\$3 per tube	Earns NT\$3 per tube
Spray 40 to 50 tubes per day	Blow 70 tubes per day
Operated by one man	Operated by two men
No fuel	One gallon (NT\$27) for each 50-tube
Labourers earn more than NT\$ 120 per day	Each of the two operators earns NT\$ 85 per day

In 1970 an extensive spray programme was carried out by a helicopter. The result was poor because the villagers said the medicine lodged on the upper leaves and could not reach the bottom. They prefer hand-dusters to other kinds of implements.

There is a confusing array of kinds of insecticide sold in the market, some of which are phoney or diluted with water. Chemical weeding has just been introduced into the village. Villagers still doubt its efficiency.

POWER-TILLER

The power-tiller has been taking the place of draught cattle since it was introduced into the village more than twenty years ago.

Some villagers were discussing power-tillers and draught cattle. They said: "Now, there is only one buffalo in this village and even this one is not used for tilling, but for traction. It is so quick! There were about sixty buffalos in the village ten years ago, weren't there?" Buffalo is not profitable now. When it is not tilling you must take care of it and when it is, it works only slowly. By buffalo it takes seven days to till one *chia* which delays transplanting too much. Transplanting must be finished within one week when the water-supply is started. When power-tiller was first introduced into the village the villagers disliked it. They said it did not turn over the soil sufficiently so the field was weedy and had a lower yield. Subsequently the villagers found that they had taken a wrong view. Paddy-fields tilled mechanically gave higher yields than those worked by buffalos because power-tiller ploughs deeper—about six

inches compared with the buffalo's three or four. Since then the villagers have given up their buffalos and use power-tillers.

There are seven power-tillers in Fu Kuei village each costing about NT\$57,000. Most are hired out to others to get a better return on capital. Seven power-tillers are not enough for 120 hectares of paddy-fields. So more are hired from outside. The wage of labour from outside is usually less than that within. During the period of field study the power-tiller costs were five hundred *jin* of unhulled Indica or about NT\$1,400 per *chia* for the first crop. These cover three kinds of work: turning over the soil for sunning, breaking up the soil and preparing it for transplanting. A power-tiller can till 0.8 hectare in an eight-hours day. It was said that a power-tiller driver can make more than three hundred NT\$ per day, excluding the fuel fee. During the farming season some power-tillers work day and night, operated by two men, one resting in the field while the other is working. At this point in the cycle time is money.

The consolidation of rice varieties in Fu Kuei has made the villagers depend more on power-tiller. In the past, when several varieties were planted, transplanting took longer than now because each was transplanted at a different time. Buffalo-tilling was less unsuitable for transplanting then. Because only one major variety is planted now transplanting must all be finished at the same time.

A tractor was introduced into the village in 1971. It costs the same to hire it as the power-tiller. The tractor tills the soil deeper but it destroys the foot-path between fields so the villagers are still hesitant to use it. It belongs to Hua Tan Farmers' Association.

An agricultural mechanization centre, the thirtieth of thirty-four such centres in Taiwan, was established by the Hua-t'an Farmers' Association in January 20, 1972. It provides mechanized agricultural team services for farmers. But because the fee they charge is not less than private one they have not attracted farmers very much. In addition, they only work for large farm-units—the land area must be at least five hectares.

AGRICULTURAL MANAGEMENT

The villagers recollect that they made a profit from agriculture in the past, although since just before the end of World War II it has been difficult to make a livelihood from agriculture. All the rice produced was collected by the Japanese authorities. The farmers ate sweet potatoes. Their prospects were gloomy. Some of them even killed and ate their draught cattle in desperation. But this period of depression quickly passed. A prosperous period for agriculture followed. Around 1950, land-rent reduction and land ownership reform were carried out. Agriculture flourished for about a decade. Especially after the August Seventh flood in central Taiwan in 1959, the rice price started going up. The villagers say that at that time they had the world before them. It is only relatively recently that agriculture has been getting worse and worse. Increases of costs, especially those of labour, have wrought a great transition in agriculture management in rural Taiwan from labour-intensive to capital-intensive farming.

The villages reckon costs and wages in terms of weights of

rice. On my first visit to the village people complained to me about the hardness of agricultural life. They gave the costs of rice cultivation per *fen* (1/10 *chia*) as follows.

Seeding (including rent, fertilizers) about 25 <i>jin</i> of rice	
Labour for preparing the soil	50
Labour for transplanting	40
Labour for weeding	50
Insecticide	50
Fertilizer	100
Harvesting wages	100
Land-tax and water-fee	120

According to their estimation, the total cost per *fen* is about 500 *jin* of unhulled rice. The average yield per *fen* in Fu Kuei village is about 1,000 *jin* for the first and 700 for the second crop. This estimation comes very close to the findings of our subsequent investigation.

Let us look some of the items in more details.

- 1) Seeding: Each *fen* needs seven *jin* of seeds. Not all fields are suitable for use as seed-beds. A less windy field is needed for the nursery. Most villagers therefore must rent seed-beds at a cost twice that the rice sowed. So each *fen* needs seven plus fourteen of rent-rice, making a total of twenty-one *jin*. The other four are for fertilizer and wages of the labour needed to prepare the seed-bed soil. The owners of seed-beds land make very good profits. Ten *jin* of seeds sow an area of eight *p'ing* (坪). 300 *p'ing* make one *fen*, thus the owner of seed-bed makes 600 *jin* net profit. Take a farmer who has about 1.2 hectares paddy-field for example.

Fortunately, he has about one *fen* near the village where it is less windy. He sows about 95 *jin* of seeds in part of this plot himself renting out seed-beds to others, in the first season of the 1972 to four villagers who sowed about 35, 25, 60 and 90 *jin* respectively. Thus he made 400 *jin* profit. The owners of seed-beds must provide the water needed. The only disadvantage to them of renting out seed-beds is the loss of soil involved.

- 2) Fertilizers: According to the standard fertilizers mentioned in the preceding section, the amount of fertilizers and their bartered rice per *fen* were as follows (taking the second crop as an example)

Ammonium Sulphate	80 kg. \times 0.58 = 46.40 kg.
Urea	5 kg. \times 0.89 = 4.45 kg.
Calcium Superphosphate	32 kg. \times 0.38 = 12.16 kg.
Potassium Chloride	8 kg. \times 0.62 = 4.96 kg.

Total 67.97 kg., i. e. 113 *jin*.

- 3) Wages for preparing the soils also as described above, the power-tiller owner charges 500 *jin* per *chia* for preparing the soil. Each *fen* is allotted 50 *jin*.
- 4) Wages for transplanting: 40 *jin* of unhulled rice value about NT\$ 110, covering NT\$ 80 for transplanting and NT\$ 30 for transplanting.

We will not examine the further minor items in rice cropping here making up the 500 *jin* total costs per *fen*, but before turning to the costs and benefits of different crops, however, we must pay particular attention to the labour problem. As we have seen, almost half of total costs, namely 240 *jin*, are paid in labourers' wages.

LABOUR

The wages of labour have been rising in the past. The wage for labour preparing the soil for example, was only 350 *jin* five years ago. One villager said:

"In the end of World War II, the wage for transplanting three *fen* was only one *tou* (斗) and two *sheng* (升) of rice. But now it is quite different. The wage for transplanting one *fen* is NT\$ 80. One man can transplant three *fen* in two and half days. Therefore, a transplanting labourer earns NT\$ 100 per day, that is two *tou* of rice. This is good! A man can live on his labour."

Needless to say, it is industrial development in Taiwan that has caused wages to go up. As a result two tendencies are observable in agricultural labour in rural areas nowadays.

1) The emergence of seasonal labour-teams

'Hidden unemployed population' in rural areas was once the main topic discussed by agricultural economists in Taiwan. Now they are concerned mainly about labour shortage in rural areas. Today hidden unemployment is just a passing phase during the farmers' slack season. Labour shortage strikes during transplanting and harvesting. Recently, because the hidden rural unemployed have been gradually absorbed into urban population, the labour shortage problem during the farmers' busy season seems to have become worse. The appearance of the seasonal labour-team is one of the solutions.

A seasonal labour-team is formed during the farmers' busy season. After which it breaks up. A labour-team is sometimes subdivided. A harvesting team for example is usually composed

of ten labourers: four for cutting, four for threshing, one for binding the stalks and one for filling the sacks.

A contractor or *pao-t'ou* manages several labour-teams. He is like a broker who must have a wide circle of acquaintances. He gets NT\$100 commission per labour-team for arranging each *chia's* work. The villagers would not negotiate with labour-teams directly. One of the villagers had the following experience.

Two years ago, a villager hired a labour-team himself from another place. He welcomed them at Hua Tan railway station and hired taxis to take them to the village. After the labour-team had lunch offered by the villager, the labourers turned away their faces. They said that they would not be able to reap the rice without a threshing machine. The villager was so angry. He wanted them to vomit out what they had just eaten.

If the labour-team had been arranged through a contractor, the villager would have had a guarantee. Credit is everything for a contractor. Once a contractor who could not send a labour-team on time was beaten up by farmers but recognized that he had no grounds on which to complain.

A labour contractor in a neighbouring village arranges labour-teams for Fu Kuei villagers. During the transplanting and harvesting periods, he gathers labourers from the southern part of Taiwan, where rice grows earlier. These labourers stay at his home and eat there when they are not hired out. Sometimes there are conflicts between farmers and the contractor. For example; during transplanting, besides paying wages, the employer must offer snacks twice a day to labourers, one at ten o'clock in the

morning and another at two o'clock in the afternoon. Sometimes when the work is a matter of one day for three labourers, the contractor might send four or five persons to the farm. The employer has to prepare more snacks. Or, when the work is a matter of one day for five persons, the contractor might send two labourers to the farm. The farmer would then be busy in preparing the food for two more days. The former kind of incident is commonest at less busy times. The contractor sends all his men to the farm in order to save on his food outlay.

The most difficult labourers to deal with are those hired for first crop harvesting. The farmers are in a hurry to reap their rice and then to transplant the second crop absolutely as soon as possible. But labourers end work earlier and dress up to go to the movies. In this way they ask for extra over-time pay.

2) Establishing the wage system

There is no longer any exchange of labour in the village. As we have seen most of the villagers are bricklayers working on a daily rate wage system. Some villagewomen follow their husbands to work in the construction sites. Villagers have therefore long been accustomed to wage employment. The effect of the labour shortage during farmers' busy periods recently has been to establish the wages system in rural areas all the more.

Besides the work done by contract, such as preparing the soil, transplanting and harvesting, villagers also hire labourers by daily wage for other kinds of work. The wages in 1971 were: man-labour NT\$ 80 per day and woman-labour NT\$ 50 at peak and NT\$ 70 and NT\$ 40 respectively during the slack season. The wages of agricultural labour is slightly less than that of bricklayer gets about NT\$ 100 per day:

Some kinds of work, such as cutting off the mushroom roots, are counted by half-day units or by the hour. Woman-labour during slack season for example costs, NT\$20 an half day and NT\$5 per hour. The working hours are eight hours per day. We can see that some labourers hired by others are still working at their own fields during rest time.

The wage system is very firmly established. I saw a father distributing wages to his wife and children as if their work was considered as overtime. He explained that his wife and children share in the family's farm-work as a matter of course in the daytime, but if he asked them to do farmwork at night it would go beyond what is proper if he did not pay them for overtime. Once he forgot to pay an overtime wage to his wife during harvesting. She went on strike. She just dressed up and sat in the house watching television. Her husband had to hire other labourers. It did not pay him.

The entrenchment of the wage system has increased the cash costs of farming. When the villagers complained about the hardness of agricultural management, one of the problems they pointed out was that they have to hire labour for every kind of farm-work. How to reduce the wage costs seems the most important step for improving the agricultural development in Taiwan today.

Now let us analyse in more detail the costs and benefits of the main crops in Fu Kuei village.

RICE CULTIVATION

Although the basic calendar used by the Chinese in Taiwan is lunar, the agricultural calendar is based on 24 *chieh* or 'periods'

which indicates the exact position of the earth in its solar orbit at various periods. In other words, agricultural work is based on the solar system.⁽¹⁾ The following, based on an interview, is the working schedule for a first crop (Taichung Indica No. 2) and a second (Tainan Japonica No. 5) in the solar calendar.

First Crop		Second Crop
Jan. 20-25	Selecting seeds and immersing in water	July 2-4
Jan. 26-30	Sowing	July 5-7
Mar. 8-20	Transplanting (24 cm. × 24 cm.)	July 24-30
Mar. 24-31	First weeding and fertilizing	Aug. 7-16
Mar. 31-Apr. 6	First insect prevention	Aug. 21-25
Apr. 5-12	Second weeding and fertilizing	Aug. 24-27
Apr. 18-26	Third weeding (first crop only) and fertilizing	Aug. 30-Sept. 2
Apr. 28-May 7	Sunning the field	Sept. 4-11
May 10-14	Fertilizing the rice heads	Sept. 12-15
May 15-19	Second insect prevention	Sept. 25-28
May 20-25	First cutting of the grass of foot-paths and cleaning out the Deccan grass	Sept. 18-22
May 28-June 2	Third insect prevention	Sept. 30-Oct. 3
June 4-7	Second cutting of the foot-path grass and cleaning out the Deccan grass	Oct. 7-13
June 7-10	Fourth insect prevention	Oct. 18-25
June 21-30	Harvesting	Oct. 31-Nov. 12

(1) For further details see Bernard Gallin: *Hsin Hsing, Taiwan; A Chinese village in change*. 1966. pp. 54-55.

As the schedule shows, the weeding of second crop is done once time less than that of first crop. This is also shown in the hired labour costs. Based on the sampled families, the costs and benefits of the rice cultivating in Fu Kuei village are shown in the following table.

Table 35. Rice Cultivation Costs and Returns in Fu Kuei 1971

Item	First Crop	Second Crop
Cost of hired labour	NT\$ 7,304.54	NT\$ 6,272.24
Food	495.60	399.68
Fertilizer	2,663.02	2,615.25
Farm chemicals	1,103.15	1,245.18
Water etc.	775.35	775.35
Land tax	1,853.15	1,471.92
Transport cost	575.44	341.80
Interest	5.56	0
Other cost	309.68	120.34
Total cash cost	15,085.49	13,241.76
Gross receipt	25,774.67	21,518.64
Cost of seeds	191.80	218.86
Amortization	238.23	139.71
Others	412.65	198.33
Total non-cash cost	842.68	554.12
Total crop cost	15,928.17	13,795.88
Rent of leasehold	424.05	480.72
Landlords contribution	0	0
Net Income to landlord	424.05	480.72
Crop cost to tenant	16,352.22	14,276.60
Net return to tenant	9,422.45	7,242.04

Man-Days	49.77	48.19
Wage	1,493.10	1,445.70
Total cost	17,845.32	15,722.30
Net return to tenant capital	7,929.35	5,796.34
Production	6,177.01 kg.	4,467.87 kg.

As the table shows the wages of hired labour for the first and the second crops is different. The former is NT\$1,032.30 more than the latter. Besides the fact that the second crop is weeded one time less than the first, the difference in yield of the two crops is significant. Since the yield of the second crop is less than the first one, harvesting wages are different. According to a villager's estimation, the differences are counted in the following way.

	First crop	Second crop
Rice reaping NT\$/ha.	2,300	1,800
Drying rice in the sun NT\$/ha.	500	400

Furthermore, the wages needed for labour preparing the soil is unequal between the two crops. The second crop does not need to turn over the soil for sunning (see p. 172), so wages paid are less than the first one. The former is about NT\$1,200 per *chia*, the latter NT\$1,400.

Because the climate at the time of the second crop is worse and changeable, this is the season of blight and harmful insects. Farm chemicals costs are higher than for the second crop. The other cash costs include mainly the rent of seed-beds (see p. 174) and of bicycle-drawn trailers for transporting stalks home.

ORANGE ORCHARDS

Since the profit to be gained from rice cultivation, as we have just seen above, is quite low, some villagers have changed their land from paddy-field to fruit gardens including oranges and vineyards. Based on data on the sampled families, the average costs and benefits of orange cultivation are as follows

Gross receipts NT\$/hectare	48,467.65
Cash Costs NT\$/ha.	30,551.10
Non-Cash costs NT\$/ha.	3,022.06
Total crop costs NT\$/ha.	33,573.16
Labour supplied by household NT\$/ha.	3,275.70
Total Cost NT\$/ha.	36,848.86
Net profit NT\$/ha.	11,718.79
Yield per ha.	9,096.50 kg.

One thing that must be pointed out here is that an orange tree reaches its high productive period only five years after it has been planted. Not all farmers in the village have the capital to invest that this requires. The total area under orange orchard in Fu Kuei village is about four hectares.

MUSHROOMS

This is a new cash crop for which extension services are provided systematically by the Government. It has become a welcome crop since it was introduced into the village about ten years ago. Because, its growing period is during the otherwise slack season, that is between second and first rice crops, it occupies only a small piece of land. The mushroom-bed, when it is no longer growing, is the best farmyard manure, and most importantly it is more profitable than other crops.

The total cultivation area of mushroom in Taiwan is decided by Provincial Government and Mushroom Canning Factories each year. Quotas are then distributed to the Farmer's Associations according to their production in the past few years. In 1971, Hua Tan Farmers' Association was allocated 23,520 *p'ing* (one *p'ing*=about six square feet). One Farmers' Association works as a broker to arrange a contract between factories and farmers. The contract indicates the amount of *p'ing* and the price to be collected by factories. The Fu Kuei villagers were allocated totally 4,740 *p'ing* in 1971, ranging from 30 to 300 per household. In principle, the cultivation area of each household is decided by its ability to cultivate, i. e., its labour and capital. In fact, the persons well connected socially with the Farmers' Association, on one ground or another, get the larger allocations. The village-head gets the largest allocation of all—300 *p'ing* in 1971. From each *p'ing* he was entitled to sell 15 kg. mushroom at the price of NT\$15 per kg. to the contracted factory. Each *p'ing* produces about 20 kg. The costs of mushroom growing, according to a villager's estimation, are as follows (100 *p'ing* for example).

Rice stalks 15,000 <i>jin</i>	6,000
Fertilizers	1,670
Fungus	1,800
Soil	500
Wages	1,520
Subtotal	NT\$11,490
Mushroom house (first year only)	7,000

From 100 *p'ing* one is entitled to sell 1,500 kg. mushrooms to the canning factory making a total of NT\$22,500 gross receipts, i. e.,

NT\$4,000 net profit in the first year and NT\$11,000 from the second year. In addition to the quota of mushrooms sold to the canning factory farmers sell any surplus output on the market at different prices.

Mushrooms growing is a favourite crop of the villagers but it is allowed only under contract. Because the yield is normally more than 15 kg. per *p'ing*, mushrooms often flood the market producing an unsteady price usually below the factory price. Each year therefore the allocation of growing area for mushrooms is an important aspect of the social politics of the extension section of the Farmers' Association in this locality.

I was told that a man in a neighbouring village had a license to grow 1,000 *p'ing* of mushrooms but, as he had no mushroom house, he bought from others at the market price, about NT\$6 per kg. in 1971, then resold to the canning factory. He earned about NT\$8 per kg. easily. From 1,000 *p'ing* one is entitled to sell 15,000 kg. In other words, he made about NT\$120,000 profit within three months.

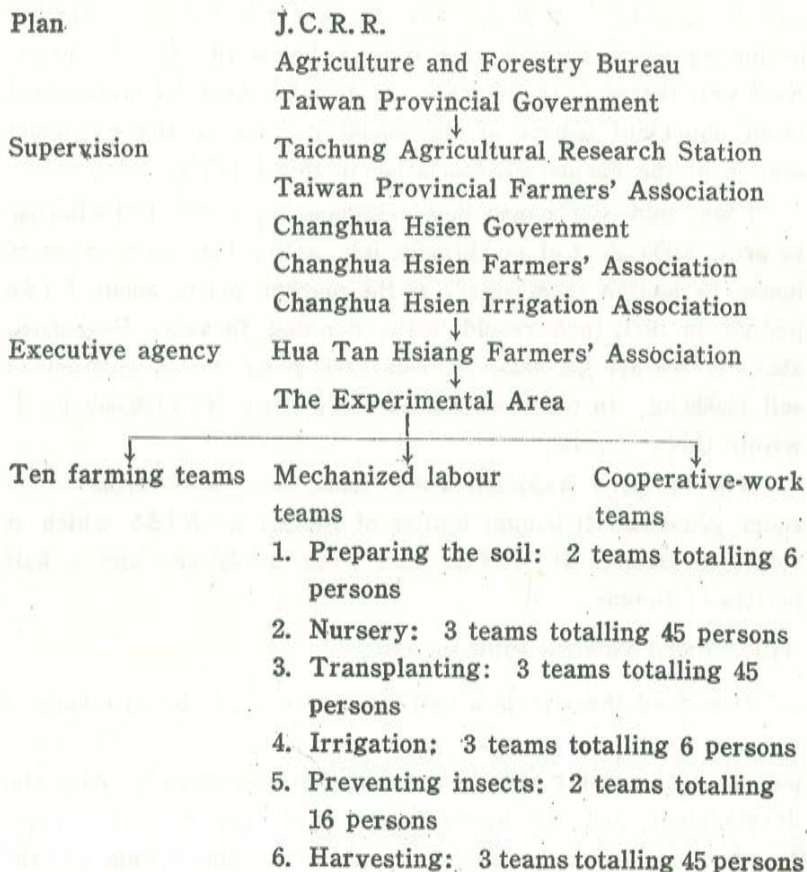
The Farmers' Association also made some profit from mushroom growing. It bought bottles of fungus at NT\$5 which it resold to farmers at NT\$12. One *p'ing* needs one and a half bottles of fungus.

THE JOINT-FARMING PROGRAMME

Described thus far is a pattern characterized by shrinkage of the cultivated land size of farming units under the land-to-the-tiller policy, an increasing agricultural labour-wage caused by industrial development, and the necessity of mechanization. The joint-farming programme conducted mainly in Fu Kuei village was the

first attempt in Taiwan to try to solve these problems simultaneously.

The programme was called "The Experimental Area for Promoting the Modernization of Agricultural Management". The agencies in charge of it are shown in the following chart.



It was derived from 'Outlines of the Present-day Rural Economy Construction' set by Second General Assembly of the ruling Nationalist Party, in March 1970. It aimed mainly:

- 1) To expand the farming management unit without changing the land-to-the-tiller policy of private land ownership. As the chart shows, ten farming teams were formed. Each team was composed of farmers who owned land next to each other within an area of ten hectares. The land of each team, i.e. about ten hectares, was to be regarded as a unit for agricultural management.
- 2) To promote the mechanization of agriculture. All works are to be carried out by mechanized labour teams as shown in the chart. Seedlings were nursed in electrized green-houses. This is the first instance of this technique seen in Taiwan. All machines were offered by J.C.R.R. free of charge. These efforts towards mechanization were aimed to reduce the production costs, especially the expense of hiring labour.
- 3) To encourage farmers to organize themselves to work cooperatively. Because of mechanization in farming, farmers would economize on labour. Surplus labour would be organized into several working teams for side line productive activities such as raising chickens, mushroom growing.

As soon as this programme was publicly announced several places competed to be chosen as the site. Finally Fu Kuei village was selected. As to the reasons some villagers said it was because most of them have the same surname, Shen, as the

J. C. R. R.'s chairman. From the view-point of agricultural development, Fu Kuei village provided the following conditions—land consolidation had already been carried out; draught animals no longer existed in the village, as power-tillers had completely taken their place of animals; rice varieties have been unified and the villagers have experience in transplanting and harvesting almost at the same time; the villagers organized themselves cooperatively for insect prevention in 1970 with quite successful results; and most of the villagers are themselves engaged in bricklaying. As we have seen almost all farming work is done by hired labour-teams.

In the meantime, Hua Tan Farmers' Association tried their best to get this programme to carry out in this village, because it was financially sponsored, to the extent of about nine hundred thousand NT\$, by J.C.R.R. To obtain the villagers' approval, the Farmers' Association propagandized extensively. The villagers gained the impression that they would be landlords, while the Government would be their tenant. They would just hand over the usage of their land to the programme and would receive not less than the net profit they had made in the past few years. Some villagers even believed that the net profit would exceed 8,000 *jin* of unhulled rice each season per hectare and the Government would buy them at a higher price than normal.

Thus, from the beginning, this programme was considered by the villagers as part of the business of the Government. Furthermore, the experimental area, about one hundred hectares, covered the cultivated land of four villages. Although more than half of the land belongs to the villagers of Fu Kuei, in no way is any social responsibility for it common or shared among the

four villages. Moreover, of the agencies listed in the chart, not all of them were involved in the programme as implemented. An agricultural technician sent from Taichung Agricultural Research Station was put in charge of all farming work.

In one word, the programme was unsuccessful. Not only were the production costs not reduced, but the yield decreased sharply. Based on the data prepared by the Department of Agricultural Economy, National Taiwan University, assigned by J. C. R. R. to evaluate this programme, the costs and benefits of the first and second rice crops are as follows. The bracketed figures are based on the families sampled in the present study.

	First	Second
Seedlings NT\$/ha.	1,289.3	671.4
Insecticide	880.5	559.0
Chemical weeding	114.2	263.0
Fertilizer	3,128.6	3,124.6
Hired labour	8,100.7	5,254.6
Guidance fee	30.0	0
Fuel	144.7	293.1
Machine repair	12.5	102.7
Agric. equipments	196.0	26.8
Interest	507.5	557.0
Stamp	4.7	3.2
Others	31.2	9.9
Sub-total	15,015.3	11,286.6(13,475.0)
Water fee	803.9	
Land tax	1,807.3	
Total	17,626.5(17,845.3)	
Yielding kg./ha.	3,680.3 kg. (6,177.0 kg.)	2,247.8 kg. (4,467.9 kg.)
Gross receipt	15,961.5 (25,774.7)	11,149.1 (21,518.6)

If we were to add in the amortization of agricultural machines or the interest on machines' capital, the production costs would be much higher.

The failure of seedlings in the first crop was a fatal blow because it meant that transplanting was not finished on time. According to the villagers' experience, transplanting must be finished before *Ch'ing Ming*, one of the 24 *Chieh* of the Chinese solar system, which is around April 5th. But transplanting in experimental area was still being undertaken even after *Ch'ing Ming*. Furthermore, since the seedlings transplanted by machines were shorter than those done by hand, the control of water supply presented a difficult problem. If the field were to be supplied with too much water, some seedlings would have been drowned. If not enough water had been supplied, some part of the land would have exposed to the sunshine and weeds would have overrun it. In the event not enough water was supplied and the experimental area was overrun by weeds. The non-experimental land was clear of them.

Some villagers talking about the failure of joint-farming said:

"Usually the weeding of one *fen* paddy-field only needs one woman-day, but the case of the experimental area took four or five days, because on the one hand, the fields of experimental area were overrun with weeds and on the other the labourers were poor. Some woman workers were utterly absurd. They took off their shoes and necklaces just before they started to work. They were without any experience on field workers. Only joint-farming would have hired them."

In the the second crop, in order to reduce the growing-days of rice, the joint-farm was planted with Taichung No. 186. The original plan was to sow rape-seeds as the interval crop. Since the yield of the second crop was terribly low and no one was sure that interval crops would be a success. In the end none were planted.

Needless to say, some technical faults were caused by personal factors. There was very little communication between the agencies in charge of this programme and the villagers. The agricultural technician sent from Taichung Agricultural Research Station—who was put in charge of all farming works of experimental areas—and the villagers found themselves in complete disagreement about where the seedlings' green-houses should be located. The technician insisted that three green-houses should be built next to each other, in order that they could be looked after easily. This meant that they would be located all in the neighbouring village. The Fu Kuei villagers were surprised by this decision. More than half of the experimental field belonged to them. Therefore they considered that at least two of the green-houses should be built in their village. They made petitions and finally two of the three green-houses were built in Fu Kuei village. Since then the technician was on bad terms with the villagers. The villagers told me that their suggestions were completely useless as a 'dog barking at passing trains'.

The lack of participation of the villagers in this programme was apparent. The varieties and farming schedule were decided by the technician as also were the kinds of agricultural machines. I attended an examination meeting after the second crop was

harvested. The topics discussed at that meeting were how to compensate the loss of the villagers caused by joining this programme, not on how to improve the joint-farming.

The compensation problem was settled smoothly. Each *fen* of paddy field was paid 300 *jin* of unhulled rice for the first crop (land tax and water fee excluded) and 200 *jin* for the second crop (land tax and water fee included). These amounts are almost equal to net profit of land managed privately.

Another aim of the programme, that of encouraging farmers to organize themselves for cooperative work, was not realized. Although Hua Tan Farmers' Association reported that ten cooperative teams were formed for raising chickens, growing mushroom and vegetables under this programme, they were not really cooperative organizations. Since each team could get NT\$5,000 fund from Farmers' Association, it was just the farmers who were on good terms with Association's staff who formed this kind of team. They just gathered five to eight of their friends or relatives' seals to impress on the application for the fund and listed their names on a board just before the henhouses or mushroom-houses to show they were doing something cooperatively. In fact, they were owned and managed individually.

This programme also supported five housewifery improvement teams. Three teams were formed by the Fu Kuei villagers. Each team was composed of ten housewives. It aimed to make full use of surplus labour and of increasing agricultural income resulted from joint-farming for improving the sanitation of houses. (In practice there was no team-work at all, though each team listed one leader and one secretary. Each household just received NT\$1,400 for remodeling its kitchen.

The experimental joint-farming was tentatively a two-year programme. In the first year the government had spent about two million NT\$ for 100 hectares experimental area. The second year programme was postponed. None of the villagers petitioned to extend the programme. Neither did the Hua Tan Farmers' Association.

The villagers have realized that in their experience the large scale mechanized cultivation of rice is almost impossible at present. The cooperative team-work that the government aims at sponsoring degenerates always just into formalism. The villagers, when they examined the result of joint-farming, pointed out that the advantages of the programme were: 30 households in the village got a grant of NT\$1,400 each for improving their kitchens, the programme spent NT\$142,000 for improving the irrigation system and field roads, and some people got NT\$5,000 each for building their henhouses or mushroom-houses. None of them mentioned that they had learned any new agricultural technology through this programme.

Hua Tan Farmers' Association, the agency which distributed many kinds of grants to the villagers, suffered nothing, since almost all funds were supplied by J.C.R.R.. Instead, the Hua Tan Farmer's Association took over all the agricultural machines in the experimental area and an agricultural mechanization centre was established in January 1972. For the Farmers' Association it is more important for a new source of revenue to be tapped than an agricultural development programme to be successful or not. This programme has left no trace behind it in the Fu Kuei village. The villagers again cultivated their own land themselves in the following year.

CHAPTER FIVE

CONCLUSIONS

The purpose of this concluding chapter is limited to making some contrasts and comparisons between people's livelihoods in Fu Kuei, Chang Shou and Hsing Fu. The larger task of attempting an integration of our findings of these three localities with other village studies, and similar research in Taiwan, must remain for a more comprehensive analysis than is possible here.

The Historical Context

Soon after China ceded Taiwan to Japan in 1895, the island's new rulers embarked on scientific and technological programmes that resulted in the new variety of rice they called *ponlai* after one of the names by which Taiwan was known to them.⁽¹⁾ The recent 'green revolutions' in rice output in, for instance, some districts of Ceylon, the Philippines, Indonesia, Malaysia, Thailand and South Vietnam, attributable to the use of seeds capable of very high yields if heavily supplied with fertilizer, has in effect an historical precedent in Taiwan. To explain this briefly the indigenous (*indica*) varieties of rice already cultivated on the island, being not rich in gluten, were not to Japanese taste. At home in Japan the supply of rice no longer was enough to meet demand. Originally Japan's territorial interest in Taiwan had been indeed, primarily in terms of sugar and rice. The first priority

(1) Originally *Ponlai* was a legendary island in the East China sea. After the Japanese took over Taiwan they called it 'the island of *Ponlai*'. The new variety of rice was named the '*Ponlai*' variety by the Governor-General of Taiwan, Izawa Tokio, in 1926.

under colonial rule came to be seen as that of breeding a better variety of rice for the export market. Thus in Taiwan were the seeds of the first green revolution sown. They culminated in production increases on a scale originally unanticipated at the end of the 1920's especially in the economic context of an external market, in the politics of imperialism, and in the social and cultural circumstances of what in post-colonial situations in Africa and Asia many years later became known as development administration.

As soon as the Japanese occupied the island they completed a large scale land survey which had been started by the Ching dynasty. Since then each plot of land has been registered and taxed. Also an extremely detailed household registration was instituted at the beginning of the century which has continued down to the present day. Next the Japanese state took over the ownership and management of the irrigational facilities which up till then had been mostly under private ownership. Thereafter it was through the two main means of land taxation and water fees that the state exercised control over the villages. It was under these and other conditions of close control that the 1895-1945 series of agricultural developments had been conducted successfully. When the Nationalist Government moved from Nanking to Taipei it inherited the physical and social infrastructure laid by the Japanese. Through the 1949-1953 land reforms the process of the incorporation of rural society into the state continued. At the same time the thrust of industrialization as a principle force of social change, felt deep in the countryside, continued. To what extent were the Taiwanese in any sense assimilated under colonial rule? To what extent was the island

Japanized in the first half of the twentieth century? In addressing himself to this question Chen Shao-hsing⁽¹⁾ first asked whether the Chinese on the mainland were assimilated under Mongol (88 years) or Manchu (268 years) rule. He answered that while change did take place it was very limited. About Taiwan he notes that from the outset and sporadically afterwards there was considerable opposition to Japanese rule on the island (in which some Japanese in the motherland joined). Because the cultural introductions that were made into Taiwanese life and language came essentially 'from above', and were without local roots, the 'ordinary folk' society and culture was, Chen argues, on the whole unaffected by them. He notes further, in terms anticipatory of development sociology today, that the new cultural traits introduced into administration and production in Taiwan "...were not Japanese (though they were introduced by colonial rule) but western...which the Japanese had adopted themselves only shortly before." His main argument is that just as the Japanese was adopting certain elements of westernization while remaining themselves so also were the Taiwanese adopting external traits while remaining Taiwanese.

Continuities in society and culture include, for instance, the persistence in Taiwan of the primacy of inheritance over succession with both being expressed by the same term, *ch'eng chi*.⁽²⁾ Japanese society is in contrast. In Japanese kinship

(1) Chen Shao-hsing 'Taiwan as a laboratory for the study of Chinese society and culture' in *The Bulletin of the Institute of Ethnology*. Academic Sinica No. 22, Autumn 1966, pp. 1-8. The second author is indebted to Robert Silin for discussions on the work of this Taiwanese sociologist.

(2) Sung-hsing Wang, *op cit* 1971, pp. 228-230.

inheritance is strongly influenced by succession and, indeed, one term, *sozoku* or more precisely *katoku sozoku* (succession to a household), is used for both. Japanese legal scholars, after having studied Chinese family institutions in Taiwan, came to see that the two were distinctly different: The object of *ch'eng chi* is property, but the object of *sozoku* is the authority to which the property is attached. As soon as Taiwan was ceded to Japan, the Japanese authority added the item of *katoku sozoku* in the census registration, though it was disappeared immediately after the retrocession of Taiwan to China at the end of World War II. In describing his own native village, Taitou of Shantung province, Martin C. Yang⁽¹⁾, in saying that the continuity of a family line depends not only on having generation follow generation but also upon the uninterrupted transmission of the family's common property through the patrilineal descendants, concludes that inheritance is of special importance.

The only really apposite sense in which the concept 'dual society' was applicable to Taiwan was when, during the colonial period, the colony Taiwan and the mother country Japan, could be aptly described as in a dual relationship. Schooling as well as other life experiences in Taiwan in the medium of the Japanese language reflected this. As under colonialisms elsewhere, what was involved must have been something like the partaking of a foreign experience on one's own doorstep with the difference that, in addition to its importance locally as a source and a legitimation of personal style, the implanted social system also set the frame for the survival and careers of ambitious men who, either unwilling

(1) Martin M.C. Yang, *A Chinese Village: Taitou, Shantung*, 1945, pp. 9.

or uninterested in going into opposition or independent paths, were co-opted or sought co-optation. The planned extent of the diffusion of Japanization (or westernization) that was aimed at by the colonial power after its first years on the island especially must in any event not be over-estimated. Thus school enrollment was highly selective and male-oriented and the curriculum limited. As has been sharply observed⁽¹⁾

“... What the Japanese themselves referred to as the industrialization of Taiwan was nothing but a corporate superstructure placed on an agrarian base. This was not capable of diffusing an industrial culture thoroughly among the general population because it had been devised to prevent this very thing.”

Industrialization studies under either the colonial or the present regime must bear other kinds of considerations in mind also. That economic change may not necessarily be accompanied by social change or might even be an obstacle to it is an important general consideration to be brought to bear in Taiwan studies.⁽²⁾ An economic boom may be conducive, in some ways, for instance to a social stasis. However much social obstacles may inhibit economic growth, the latter can also be an inhibiting factor on social change especially where administrative and political are sharply distinguished from social aspects. In some situations some sectors of life may change, or remain the same, at times independently of others.

-
- (1) C. W. Barclay, *Colonial development and population in Taiwan*. Princeton University press, 1954, pp. 42 cited by Burton Pasternak *Kinship and community in two Chinese villages*, Stanford University Press, 1972 pp. 130. Pasternak discusses Japanization in rural areas in the context of his own field material in part of his concluding chapter.
- (2) Raymond Apthorpe, *op cit* 1972 pp. 17 ff.

Once colonial pressure to acquire new ways was released the extent to which fundamental local social realities had not been weakened significantly became plain.⁽¹⁾ If, in the case of Taiwan, anti-colonialism had not reinforced or strengthened the kinds of social phenomena that are usually called nativistic, this might have been because, despite significant incidents, the genesis of anti-colonialism was cut short in Taiwan by World War II which led to the termination of Japanese rule so to say by a third party.⁽²⁾ Incidents of resistance to Nationalist rule after 1945 have therefore, a special significance in the history of Taiwan seen from the present day.

The Three Villages

The differences in social structure in Hsing Fu, Chang Shou and Fu Kuei can best be seen as due largely to the varying degrees of penetration of the external forces as described above.

In the southern locality Chang Shou the religious aspect of life is still important as a basis of leadership in the community. The village-head and representatives to the *Hsiang* assembly, the agencies of national administration at the village level, are also the members of the village temple committee. In other words, to be a leader in Chang Shou, one needs religious-communal support. Also in the south are some privately-owned pumps in addition to those taken charge of by the Irrigation

(1) Cf. M.H. Fried: 'Taiwan...is no more deviant from abstract... Chinese norms than any other province I have visited.' Some Political Aspects of Landship in a Modern Chinese City, in M. J. Schwartz, V.W. Turner, A Tuden (editors) *Political anthropology*. Aedine, Chicago, 1966, P. 285.

(2) E. P. Tsurumi, *Japanese Colonial Education in Taiwan 1895-1966*. Ph. D. thesis, Harvard, 1971.

Association. In 1965, for example, 96 households were involved in constructing a pump which irrigates 11.4 *chia* of paddy fields. In this village, on which fewer external forces impinge, the villagers depend more on agricultural production. They raise four, or even five, crops a year. Besides two crops of rice, they cultivate tobacco and vegetables. Rice and tobacco cultivation are under the control of the government and make steady profits. By cultivating vegetables, some villagers made as much profit as others suffered losses. All villagers are interested in interval crops. They still invest their capital in agricultural production.

The situation in the central locality is slightly different. The 'new elite' formed by members of national administrative agencies at the village level is more important in the community. Some conflict has arisen between them and traditional leaders. Most of the village men are bricklayers, working in nearby towns or as far away as Taipei city. Agriculture is not the main means of making a living in Fu Kuei. Less than 40% of its income comes from the farm. Villagers cultivate rice on their land. They are less interested in interval crops. They just raise two crops of rice a year depending for this almost entirely on hired labour. To cultivate rice is the safest way of keeping land in use. Most villagers cultivate rice by the same method, using the same varieties, transplanting at the same time, and investing the same amounts of fertilizers and insecticide. Yields are almost uniform.

The northern locality represents another extreme example of agricultural development in Taiwan. Hsing Fu lacks the 'village solidarity' that is characteristic of the southern and the

Table 36. Size distribution of rice holding in three localities, 1971

Size of holdings (<i>chia</i>)		Number of holdings	Per cent of total land
0.00-0.49	{ C	21	27.5
	{ S	17	23.9
	{ N	5	2.0
0.50-1.49	{ C	11	39.2
	{ S	17	53.7
	{ N	12	25.6
1.50-2.99	{ C	1	11.1
	{ S	3	22.4
	{ N	3	14.2
3.0 or more	{ C	1	22.2
	{ S	0	0
	{ N	7	58.2
Total	{ C	34	100.0
	{ S	37	100.0
	{ N	27	100.0

Average size of holding: C 0.63 *chias*.S 0.68 *chias*.N 1.60 *chias*.Range of size in region: C 0.11 to 4.80 *chias*.S 0.18 to 2.20 *chias*.N 0.13 to 4.20 *chias*.

central localities studied. Correlated with its scattered settlement pattern and different family environments is much variation in the management of farming. And as plots of paddy-field differ in their soil conditions different kinds and amounts of fertilizers are applied on different farms. Besides these ecological factors

Table 37. Rice output and gross receipts per *chia* in three localities, 1971

Size of holdings (<i>chia</i>)	Rice yields (jin/ <i>chia</i>)		Gross receipts (NT/ <i>chia</i>)		
	Crop I	Crop II	Crop I	Crop II	
0.0-0.49	C	10,160	7,231	25,050	21,103
	S	10,296	6,910	25,469	17,458
	N	5,277	3,435	13,719	11,426
0.5-1.49	C	10,484	6,973	26,088	21,352
	S	10,507	7,130	26,326	18,365
	N	4,761	3,661	12,389	11,285
1.5-2.99	C	10,750	7,842	26,553	24,309
	S	11,161	6,518	28,984	16,450
	N	3,967	2,820	10,315	8,741
3.0 or more	C	10,416	6,967	25,729	20,930
	S	—	—	—	—
	N	5,125	2,959	13,327	9,567
Average	C	10,409	6,294	25,775	21,519
	S	10,604	6,940	26,719	17,717
	N	4,870	3,130	12,667	9,928

the industrial development in the nearby city of Taoyuan is also responsible for differentiation among villagers. Most of farmers in this northern locality are, however, still trying to make the best of their land within the limitations of climate. Besides planting two crops of rice they cultivate vegetables and water melon. There is, nevertheless, a tendency in some cases for rice planting to be considered as a kind of routine work to which not a great deal of special attention is paid. Northern farmers look

for profit from other crops or they turn to fishpond or hog raising to cover the losses made in rice cultivation.

Of the three localities studied, the ecological environment in the north is the worst for agriculture. Taking the average size of rice holdings the northern one is the largest among three localities though the yield per *chia* is the lowest, as shown in Table 37.

In a sense, the northern and the southern localities have a certain similarity. Unlike the central locality, the farmers in both the north and the south seek to utilize their land as profitably as possible. But they are two extreme examples of agricultural development in Taiwan to-day. The villagers in Chang Shou are a rather homogeneous group of farmers. There is no basis of livelihood in the village other than that which land represents if capital can be found. It must be cultivated with as many crops as possible. Land in the north is the means of livelihood for only those of the population who have not taken, or who cannot take, advantage of industrialization. Therefore in both localities the input of household labour in rice farming is as high as two or three times the central one. This is also reflected in the total cash costs of rice cultivation in these two localities. On the other hand the cost of hired labour and the total cash costs are the highest in the central locality as shown in Table 38 and 39. This is because in Fu Kuei, villagers have started to lose their interest in farming and most of them engage in bricklaying in addition, so farm work is done by hired labourers. It was because of this high labour cost and having a rather uniform pattern of rice cultivation that this village was chosen as the first experimental site for a joint farming project.

RICE FARMING IN TAIWAN

Table 38. Inputs per *chia* in rice farming in three localities, 1971

Size of holdings (<i>chia</i>)	Hired labour (NT\$)		Household labour (man-days)		Seeds (NT\$)		Fertilizers (NT\$)		Other farm chemicals (NT\$)		
	Crop I	Crop II	Crop I	Crop II	Crop I	Crop II	Crop I	Crop II	Crop I	Crop II	
0.0-0.49	C	6,064	5,040	2,059	2,120	199	228	2,404	2,380	1,282	1,417
	S	3,465	3,444	3,332	3,444	388	399	2,727	2,395	2,025	2,329
	N	2,388	2,506	23,059	23,059	261	320	1,882	1,882	847	847
0.5-1.49	C	6,976	5,954	1,693	1,586	204	231	2,560	2,470	1,045	1,288
	S	4,199	4,242	3,135	3,194	328	331	2,526	2,245	2,063	2,400
	N	3,405	3,590	5,445	5,410	225	263	2,187	2,211	427	424
1.5-2.99	C	7,953	7,780	625	800	185	213	2,125	2,375	1,000	1,333
	S	4,839	4,841	3,004	3,038	272	274	2,322	1,931	1,607	1,932
	N	2,616	2,690	3,443	3,443	260	298	1,032	1,032	249	249
3.0 or more	C	9,092	7,600	875	688	165	190	3,433	3,276	1,037	914
	S	—	—	—	—	—	—	—	—	—	—
	N	1,140	1,130	3,299	3,273	268	281	1,663	1,665	360	357
Average	C	7,305	6,272	1,493	1,446	192	219	2,663	2,614	1,103	1,245
	S	4,170	4,182	3,152	3,220	330	335	2,528	2,211	1,952	2,278
	N	1,955	2,008	4,260	4,234	256	280	1,712	1,720	371	369

Table 39. Costs and returns from rice farming in three localities, 1971

Size of holdings (<i>chia</i>)	Total cash cost per <i>chia</i> (NT\$)		Total crop cost per <i>chia</i> (NT\$)		Returns to cultivator per <i>chia</i> (NT\$)		Rate of profit on total cost	
	Crop I	Crop II	Crop I	Crop II	Crop I	Crop II	Crop I	Crop II
	0.0-0.49	C 13,692 S 11,209 N 8,792	11,760 10,779 9,033	14,750 12,395 9,635	12,430 11,160 9,934	9,713 12,140 4,082	8,012 5,745 1,489	57.8 77.2 12.5
0.5-1.49	C 14,798 S 12,248 N 8,187	12,892 12,184 8,567	15,717 12,432 8,640	13,435 12,496 9,053	10,366 12,698 3,557	7,917 5,868 2,013	59.5 81.6 25.3	52.7 37.4 13.9
1.5-2.99	C 15,905 S 11,430 N 6,475	15,302 11,252 6,689	16,423 13,738 6,935	15,856 13,133 7,200	10,129 15,247 3,076	8,453 3,316 1,291	56.4 91.1 29.7	59.8 20.5 12.1
3.0 or more	C 16,944 S — N 5,111	14,647 — 5,256	17,546 — 5,804	15,087 — 5,946	6,993 — 7,237	4,494 — 3,030	38.0 — 79.5	28.5 — 32.9
Average	C 15,095 S 11,821 N 6,116	13,239 11,635 6,381	15,937 12,716 6,767	13,796 12,314 6,998	9,411 13,137 5,636	7,241 5,268 2,494	55.7 82.7 79.5	46.8 34.9 25.9

Some General Considerations

Farmers in none of the localities studied are self-sufficient villagers. While the local and mainly agricultural community into which one is born is still of strong social importance in matters of identity, the rural societies we investigated comprise not peasants, or post-peasants, but farmers. By this term we refer to men and women living in the countryside who, as small scale private entrepreneurs, aim to maximize the profitability of their farms according to the market about which at any particular time they are rather well informed. We found also that farmers' own estimates about production quantities such as yields per *chia*, and overall costs and benefits, came very close to our own figures as calculated from case data.

Concepts of peasants, post-peasants, farmers and so on have been given a variety of meanings. Not least it would be here *nung* (農), a single categorical term that classically in Chinese has served for both tenant and landowner, that we would translate as farmer. Then, in addition, we have a particular reason for wishing to avoid here to speak of peasants in any way. The concept of limited good so closely associated with theories specifically of 'peasant society' in social anthropological studies refers principally to the outcome of a competitive process. That already is looking some way ahead. In the localities studied it was less the outcome than the initial conditions of what sometimes was seen simply as a struggle for survival of which farmers were most keenly aware. It is the inequalities of opportunity in Hsing Fu, Chang Shou and Fu Kuei that are seen there to rank as the most basic conditions of life.

There is another convenience of the concept of farmer for the purpose of rural studies in Taiwan. It has so distinctly such an occupational ring that to speak of part-time farmers presents no special difficulty. As the idea of peasant, on the other hand, tends to stand more for a supposed whole way of life than anything else, who could even contemplate speaking of part-time peasants?

Especially over the past fifteen years or so, rural social class distinctions have come no longer to rest to any systematic degree on either the tenurial status of one's land or, as a rule, its extent. On the whole neither educational standing nor occupational status in the countryside relates principally to rural landholding or rural wealth measured or measurable in other terms. The decline of land as an indicator and, indeed, as a source of status, must be seen partly as a reflection of its declining significance as the single most scarce factor of production in a system of social relations in which economic considerations tend always to be given much prominence. In terms of the applicability of materialist philosophies of social analysis to the understanding of interpersonal as well as certain group social relationships, Chinese society as we know or have observed it provides peculiarly fertile ground rather than the opposite. At the same time, however, the most characteristic social forces for change which are engendered by and in the prevailing social structures appear less predisposing than this might suggest for structural or radical change than for affirmations, at any rate, about the wisdom of exemplary model reforms. This is only as one would expect would be normative in a social pattern in which lines of authority and command tend to be so singular in nature that

even a very limited pluralism can appear to be subversive. Social differentiation here tends to be of the order mainly of culturally very similar enterprises proliferating. While, however, there is a tendency to wait to see what the results of innovations will be before imitating them, there is also, again as one would expect in situations where inequalities of opportunities are keenly felt, the proverbial view that 'prosperity never lasts longer than three years'. By this it is meant that it is important to get to the beginning of the line as soon as possible before overproduction brings the prices down. In this regard, evidently, an idea of limited good does have some currency, as it does presumably in all kinds of societies. But it is still related in the localities studied to the initial availability or otherwise, more in this case, of capital than anything else.

A further related general feature is an intense social emphasis on the correct performance of a task, strictly in conformity with established procedures. Sometimes this can seem to an outsider at any rate as comparable to a pride in a formalism for its own sake. For intensive agriculture and multiple and interval cropping this can be a particularly important social value.

As with all norms, their pattern of distribution and incidence in a society is itself of great importance—for all other than formalist analyses. With agricultural as other kinds of practices, therefore, general remarks of the nature just ventured will require considerable qualification in the circumstances of individual cases if, that is, they apply at all. Returning to social aspects of land for instance, distinctions are made in all three localities between the inheritance of family, that is to say ancestral-land, land which itself was inherited, and the passing-on

of land which has been commercially bought. The latter is a personal matter subject though it may be to the requirements of the state and the civil code. The former is deemed firmly to be within the private sector over which state control would be repudiated. Here, incidentally, is another instance of the subtlety of the interpenetration of the public and private sectors. While the incorporation of the former into the latter is increasing this is by no means either a one way process or a very exclusive one. It is more a double one of mutual accommodation rather than a single one of incorporation.

Historically farmers in Taiwan were pioneer settlers opening a frontier. Now, as we have noted, they are smallholders accustomed to state intervention though such experiences as the introduction of japonica rice varieties and land reform. In our three localities as generally in Taiwan there been remarkable lack of cultural resistance to these changes. No special crop or variety of seed for instance, or agricultural practice, is sacrosanct because it has been handed down from the ancestors. On the contrary, farmers throughout the island pursue profit, merit and longevity in this world. Religious activities as they are organized may be of considerable economic significance, and the pursuit of economic prosperity is for the benefit of one's descendants as well as oneself. But rather than religion being a force so to say for or against for instance the rise of capitalism, we would on balance conclude that there is a neutral causal (or functional) relationship rather than either a positive or negative one between religion and economy. It is true that strong patri-lineality continues to be a characteristic of religious belief. But it could be seen as a mitigating factor even of this that farmers

say that to maintain prosperity for more than three generations is impossible. The first generation makes a fortune, the second defends it, the third spends it. This warns that even if one is rich no one can afford to be idle or lazy. And, in addition, industriousness is to be cultivated for its own sake.

Public Policy Implications

While there are complaints for instance that quotas, for mushroom and asparagus cultivation for instance, are not administered fairly by the officials concerned, the farmers in our three localities do not object to the quota system in principle. We have seen also that while the government is blamed for the lowness of rice prices, it is praised for their relative stability. There are other indications also that nationwide planning of agricultural production could be effective at the local level. This being so, and because rice farming has a low level of profitability for the farmer despite the use of high yielding varieties, high agricultural skills and a high degree of commercial orientation, some consideration should be given to the public policy implications of our study though it was not carried out specifically with the purpose in view of making particular policy recommendations.

In any review of public policy possibilities that might help improve farmers' livelihoods to be borne in mind always is the shortage of rural labour caused by the comparatively higher returns to be gained from employment in industry. But the factor prices of all inputs are high for farmers compared with those in neighbouring countries. Diversification is limited more by capital shortage than by any other single consideration. Farmers growing *pong lai* do not have the option which *chai lai*

afforded them of reducing or varying the inputs relative to the same amount of land or water. The changes, therefore, that amounted in Taiwan to a green revolution in rice cultivation in the late 1920's especially have been overtaken by events in other than the agricultural-scientific domain and in the social situations into and with the aid of which the new varieties were introduced and adopted. A new generation of problems has arisen.

Basically four lines of options for public policy could be isolated for discussion for a start.

First, the prices of expensive technological inputs such as fertilizer could be greatly reduced. Change introduced by lowering the prices of key inputs would allow rural livelihoods to be improved without it being necessary at the same time to change the bases on which they are founded.

A second option, which also would allow the existing pattern of farming to continue, would be to raise the price of rice paid to the farmers to a degree that would bring it more in line either with production costs or consumption considerations or a combination of both. At present changes, controlled by government, are tied to the retail price index (which has increased in recent years at a rate well below that of price increases of inputs).

Thirdly, the existing pattern of agricultural activities could be changed in the direction of less labour-intensive activities, such as dairy farming. This clearly would mean a change in the existing bases of livelihoods depending on the degree of complete change or the extent of diversification attained.

A fourth possible line of action would be to encourage a move away from a labour-intensive towards a capital-intensive development of the same general pattern of agriculture that

prevails now. That mechanization has not proceeded very far in Taiwan to date is in part due probably to the fact that its introduction has thus far been seen by the policy-making authorities responsible more as alternative to, not concomitant with, organizational change in management. But there is in addition the extent to which in any event mechanization has been seen to be of dubious benefit, without new modes of financing being found at the same time. This fourth possible policy is to be grouped more with the third than the first and second options above.

To improve farmers' livelihoods in the island as a whole of course different policies will be required in different regions.

APPENDIX ONE*

Presented in this Appendix are the original data on agricultural costs and receipts collected on the 109 farm families studied in detail. In addition to data on the first and second rice crops there are figures on: hogs, flax, vegetables, mushrooms, citrus, guava, tobacco and banana. Data is presented first for the northern (N), then the central (C) then the southern (S) locality.

The following notes are explanatory of the individual items.

- (1) Crops/livestock: including all productive activities of the sampled families.
- (2) Area/amount: the units of rice, vegetables, citrus, tobacco and flax are *chia*; the unit of mushroom is *p'ing* (six feet square); and hogs are counted by the head.
- (3) Production: the total production of (2). Mushrooms are given in kg. Other crops are shown in *jin*. Most of vegetables could not be described by farmers in weight: they remembered only how much money they received from selling them.
- (4) Price received / NT\$100 *jin*: mainly applies to rice and vegetables, if the figure of item (3) is given. Figures for hogs are per *jin*. The price of rice differs between Indica and Japonica, the latter being higher than the former.
- (5) Gross receipts: (3) \times (4). In most cases of vegetables,

* Data collected on other aspects of the total sample of 109 rural families ('stoves') studied are given in the text.

farmers gave figures for gross receipts only.

- (6) Hired labour: generally speaking the wage in the north is NT\$100 per man-day, the central NT\$70 and the south NT\$60.
- (7) Workers' food: money spent on food offered to the workers.
- (8) Fertilizers: most fertilizer is bartered for rice. The figures here are changed into cash according to market price.
- (9) Farm chemicals: usually bought by cash.
- (10) Water fees: the water fee paid to Irrigation Association.
- (11) Land tax: though the paddy field land tax is paid in kind (rice) to the government, it is here changed into cash.
- (12) Transportation: includes the wages of labour moving reaped rice from field to house and from house to Farmers' Association for storage. In other words, the item (6), i.e. hired labour, does not include the labour wage for transportation. In the central locality for example, the labour wage for moving rice from farm to house is about NT\$300 per *chia* for the first crop, and from house to F.A., i.e. dry rice, about NT\$35 per 1,000 *jin*. Some households have no such expenses, because they do not employ labour for this purpose. In such cases, the transport costs are included in 'labour supplied by household'. In the south there are many draught-cattle, so almost no figures for transportation costs are given. Furthermore, vegetables are sold to middlemen who come to the village and collect for themselves.
- (13) Annual interest: the interest on capital borrowed for production purpose.
- (14) Other costs: in the north they include the mechanization

costs. In the central locality they comprise mainly the rent of the seedbed. In the south they are irrigation costs except for the water fees paid to Irrigation Association, i.e. power fees for pumps and wages for managing the pumps. They also, in the south, include the cash rent paid to landlord in the cases of growing vegetables and tobacco during the interval crops. They also include bamboo-sticks for bean and tomato cultivation and fuel for tobacco growing.

- (15) Total cash costs: i.e. (6)+(7)+(8)+(9)+...(14).
- (16) Seeds: Farmers usually have their own seeds, but sometimes they buy seeds for cash.
- (17) Amortization: the average expense for buying agricultural equipments each crop in the central and in the north. In the south almost no figure is given because the villagers there said they could not estimate them. Instead, they would count them under the item (14). Therefore, in the south item (17) is under the head of 'farmyard manure'.
- (18) Others: mainly means the estimated costs of farmyard manure in the central locality.
- (19) Total: i.e. (16)+(17)+(18).
- (20) Total crop cost: i.e. (15)+(19).
- (21) Rent of leasehold: including both the rent of private rented-in land and of the land under 37.5% share contract.
- (22) Landlord's contribution: if the land is rented in under 37.5% rent, the landlord's contributions are fixed. Landlords pay the land tax and half of water fee of the paddy-field in question. The amount of land tax is unknown to tenants, though they pay the same amount of water fees as their

landlords. Therefore, in many cases figures for this item are not available.

- (23) Net income to landlords: this means (21) - (22). Since few figures of (22) are available, this is lacking in most cases.
- (24) Crop cost to tenant: should be (20) + (23), but since few figures of (22) are available and, therefore, there is a lack of data for (23), this item equals (20) + (21).
- (25) Net return to cultivator: i. e. (5) - (24).
- (26) Labour supplied by household, man-days: labour estimated by the cultivator for growing the crop in question.
- (27) Total wage equivalent: the estimated wage of the labour supplied by household differs in each of the localities; NT100 per man-day in the north, NT30 in the central (because most labour is supplied by housewives and women's wages are lower than men's) and about NT40 in the south.
- (28) Total cost: = (20) + (27).
- (29) Net return to tenant: = (5) - (28) or (25) - (27).
- (30) Yield (*jin*) per *chia*: = (3)/(2). The figures of the north were estimated by the cultivators themselves, so the figures are not always exactly = (3)/(2).

N. B.

n. a. = not applicable.

No farm = a landless household in the village (C38, C39, C40, C41) N6 has hogs only, C13 and C35 citrus only, C8 has mushrooms only.

Dbean = Dutch beans (as garden peas are known locally after they were introduced by Dutch settlers in the seventeenth century.

Index number	N-1		
	Rice I	Rice II	Hogs
(1) Crops/livestock			
(2) Area/amount	3.1	3.1	
(3) Production	13,950	10,850	
(4) Price received/NT100 <i>jin</i>	260	310	
(5) Gross receipts	36,270	33,635	13,000
Cash costs/NT			
(6) Hired labour	5,000	5,000	
(7) Workers' food	750	750	
(8) Fertilizers	3,100	3,100	
(9) Farm chemicals	1,500	1,500	
(10) Water fees	2,170	2,170	
(11) Land tax	2,821	3,363	
(12) Transportation	175	175	
(13) Annual interest	?		
(14) Other costs			2,500
(15) Total cash costs	15,516	16,058	2,500
Non cash costs			
(16) Seeds	725	768	
(17) Amortization	1,000	1,000	
(18) Others			1,000
(19) Total	1,725	1,768	1,000
(20) Total crop cost	17,241	17,827	3,500
(21) Rent of leasehold	0	0	
(22) Landlords contrib'n.	0	0	
(23) Net income to landld.	0	0	
(24) Crop cost to tenant	17,241	17,827	3,500
(25) Net return to cultivator	19,028	15,807	6,500
Labour supplied by household			
(26) Man-days	135	135	45
(27) Total wage equivalent	13,500	13,500	4,500
(28) Total cost (20+27)	30,741	31,327	8,000
(29) Net return to tenant	5,528	2,307	2,000
(30) Yield per <i>chia</i> (<i>jin</i>)	4,500	3,500	
(31) Cash cost/total crop cost	90	90	71
(32) Cash cost/total cost	50	51	31
(33) Rate of profit on sales (28/5)	15	7	20

RICE FARMING IN TAIWAN

Index No.	N-2			N-3		
	Rice I	Rice II	Hogs	Rice I	Rice II	Hogs
(1)						
(2)	*0.9	*0.9		†2.2	†2.2	
(3)	4,500	3,150	400	9,900	8,000	440
(4)	260	310	16	260	310	16
(5)	11,700	9,765	6,600	25,740	24,800	7,260
(6)	4,908	4,908		8,640	8,940	
(7)	630	630		2,280	2,280	
(8)	1,775	1,775		2,470	2,470	
(9)	225	225		500	500	
(10)	385	385		1,330	1,330	
(11)	891	1,023		1,638	1,953	
(12)	82	82		160	160	
(13)	0			768	768	
(14)			200	1,644	1,864	2,000
(15)	8,896	9,029	200	19,430	20,265	2,000
(16)	234	251		572	682	
(17)	500	500		250	250	
(18)			1,000			2,000
(19)	734	751	1,000	822	932	2,000
(20)	9,630	9,780	1,200	20,252	21,197	4,000
(21)	2,704	3,224		1,770	1,525	
(22)	644	714		0	0	
(23)	2,060	2,510		1,770	1,525	
(24)	11,690	12,290		22,026	22,722	
(25)	9	- 2,525		3,717	2,078	3,260
(26)	90	90	45	75	75	45
(27)	9,000	9,000	4,500	7,500	7,500	4,500
(28)	20,690	21,290	5,700	29,522	30,222	8,500
(29)	- 8,990	- 11,525	900	- 3,782	- 5,422	- 1,240
(30)	5,000	3,500		4,500	3,636	
(31)	92	91	16	96	96	50
(32)	43	42	3	66	67	23
(33)	- 77	118	14	- 15	- 22	- 17

* Includes 37.5% tenanted land 0.8 † Includes 37.5% tenanted land 0.4

APPENDIX

219

N-4			N-5			
Rice I	Rice II	Hogs	Rice I	Rice II	Hogs	Veg.
*2.4	*2.4	5 (900)	0.22	0.22	4 (200)	1.5
10,800	7,200	900	1,300	900	400	
260	310	16	260	310	18	
28,080	22,320	14,850	3,380	2,790	7,200	
4,320	4,470		400	500		
1,140	1,140					4,725
2,670	2,670		420	420		
520	520		400	400		
1,400	1,400		154	154		1,950
1,456	1,736		400	400		
185	185					
?	?		1,267	1,267		
1,950	1,950	4,500			1,200	
13,641	14,071	4,500	3,041	3,141	1,200	6,675
624	744		52	62		
1,000	1,000		400	400		
		5,000			4,800	
1,624	1,744	5,000	452	462	4,800	
15,264	15,815	9,500	3,493	3,603	6,000	6,675
3,283	2,542		n. a.			
0	0		n. a.			
3,283	2,542		n. a.			
15,265	15,815		3,493	3,603	6,000	6,675
12,815	6,505	5,350	113	813	1,200	3,675
90	90	80	150	150		45
3,000	9,000	8,000	15,000	15,000		4,500
24,265	24,815	17,500	18,493	18,603	6,000	11,175
3,815	2,495	2,650	15,113	15,813	1,200	8,175
4,500	3,000		5,909	4,091		?
89	88	47	87	87	20	100
56	57	25	16	17	20	60
14	11	18	?	?	17	?

* Includes 37.5% tenanted land 0.8

RICE FARMING IN TAIWAN

Index No.	N-6		N-7		N-8		
	Hogs	Rice I	Rice II	Rice I	Rice II	Hogs	
(2)	2	1.2	1.2	1.2	1.2	2	
(3)	200	4,800	4,200	7,200	3,360	360	
(4)	16	260	310	260	310	16	
(5)	3,300	12,480	13,120	18,720	10,416	5,940	
(6)	0	1,800	2,000	1,560	1,860		
(7)	0	540	600				
(8)	0	900	900	1,905	1,905		
(9)	0	500	500	500	500		
(10)	0	840	840	840	840		
(11)	0	1,092	1,302	1,092	1,302		
(12)	0			85	85		
(13)	0	?		?			
(14)	0	?		?			
(15)	0	5,672	6,142	5,982	6,492	4,800	
(16)	0	221	263	260	310		
(17)	0	700	700	200	200		
(18)	0	0		0		2,000	
(19)	0	921	963	460	510	2,000	
(20)	0	6,593	7,105	6,440	7,002	6,800	
(21)	n. a.	n. a.		n. a.			
(22)	n. a.	n. a.		n. a.			
(23)	n. a.	n. a.		n. a.			
(24)	0	6,593	7,105	6,440	7,002	6,800	
(25)	0	5,887	6,014	12,280	3,414	860	
(26)		45	45	90	90	45	
(27)		4,500	4,500	9,000	9,000	4,500	
(28)		11,093	11,605	15,440	16,002	11,300	
(29)	0	1,387	1,514	3,280	5,586	5,360	
(30)	0	4,000	3,500	6,000	2,800		
(31)		86	86	93	92	70	
(32)		51	53	39	41	42	
(33)	?	11	11	17	54	90	

APPENDIX

221

N-9			N-10	
Rice I	Rice II	Hogs	Rice I	Rice II
0.81	0.81	2	1.5	1.5
4,050	2,430	400	3,500	2,000
260	310	16	260	310
10,530	7,533	6,600	9,100	6,200
2,760	3,060		3,000	3,000
360	360		900	900
1,550	1,550		1,155	1,155
220	220		500	500
567	567		1,050	1,050
737	878		1,365	1,365
70	70		100	100
?			?	
6,264	6,705	6,600	8,070	8,332
208	248		390	392
100	100		50	50
		2,000		
308	348	2,000	440	442
6,572	7,053	8,600	8,410	8,774
n. a.			n. a.	
n. a.			n. a.	
n. a.			n. a.	
6,572	7,053	8,600	8,410	8,774
3,957	479	— 2,000	590	— 2,574
60	60	45	45	45
6,000	6,000	4,500	4,500	4,500
12,572	13,053	13,100	12,910	13,274
— 2,042	— 5,520	— 6,500	— 3,910	— 7,074
5,000	3,000		2,333	1,333
95	95	77	96	95
50	51	50	62	63
— 19	— 73	— 96	— 43	— 114

RICE FARMING IN TAIWAN

Index No.	N-11		N-12		N-13	
	Rice I	Rice II	Rice I	Rice II	Rice I	Rice II
(2)	0.8	0.8	0.2	0.2	3,9875	3,9875
(3)	4,565	3,705	900	600	21,931	11,960
(4)	260	310	260	420	260	320
(5)	11,869	10,485	2,340	2,520	57,021	38,280
(6)	4,010	4,310	350	350	2,000	2,000
(7)	720	720	80	80	400	400
(8)	1,192	1,192	350	350	8,533	8,533
(9)	400	400	60	60	1,993	1,993
(10)	581	581	140	140	2,789	2,789
(11)	755	900	182	217	3,628	4,326
(12)	55	55	15	15	500	500
(13)	?		?		?	
(14)	?		?		?	
(15)	7,713	8,158	1,197	1,232	19,844	20,542
(16)	173	206	40	70	1,856	1,600
(17)	250	250	75	75	2,000	2,000
(18)	0		0		0	
(19)	423	456	115	145	3,856	3,600
(20)	8,136	8,614	1,312	1,377	23,700	24,142
(21)	n. a.		n. a.		n. a.	
(22)	n. a.		n. a.		n. a.	
(23)	n. a.		n. a.		n. a.	
(24)	8,136	8,614	1,312	1,377	23,700	24,142
(25)	3,733	1,871	1,028	1,143	33,320	14,137
(26)	60	60	8	8	135	135
(27)	6,000	6,000	800	800	13,500	13,500
(28)	14,136	14,614	2,112	2,177	37,200	37,642
(29)	- 2,267	- 4,128	228	343	19,820	637
(30)	5,500	4,464	4,500	3,000	5,500	3,000
(31)	94	94	91	89	87	85
(32)	54	56	57	56	55	55
(33)	- 19	- 39	10	14	35	2

APPENDIX

223

N-14				N-15		
Rice I	Rice II	Hogs	Wmln.	Rice I	Rice II	Hogs
*4	*4.2		0.2	4	4	20
23,000	14,700	1,350	0	18,000	8,000	4,000
260	310	16	NT4,000/0.1	260	420	16
59,800	45,570	22,275	8,000	46,800	33,600	66,000
			2,000	8,920	8,920	
2,600	2,600			2,820	2,820	
780	780			8,000	8,000	
7,570	7,948		1,460	1,200	1,200	
900	900		600	2,800	2,800	
1,750	1,890		140	3,640	4,340	
3,750	4,114		364	300	300	
320	336		300	?	?	
?		4,700		?		34,000
?		4,700	4,564	27,680	28,380	34,000
17,700	18,598		120	1,040	1,240	
				2,000	2,000	
1,040	1,092			0		4,000
740	740	7,200		3,040	3,240	4,000
0		7,200	120	30,720	31,620	38,000
2,240	2,372		4,684	n. a.		
18,162	19,192	11,700		n. a.		
10,140	12,090	n. a.		n. a.		
3,780	3,780	n. a.		n. a.		
6,360	8,310	n. a.		n. a.		
24,522	27,502	11,700	4,684	30,720	31,620	
34,270	18,067	10,575	3,316	16,080	1,980	28,000
			15	45	45	40
135	135	137		4,500	4,500	4,000
13,500	13,550	13,700	1,500	35,220	36,120	42,000
38,022	31,002	25,400	6,184	11,580	2,520	14,000
21,778	4,567	3,125	1,816	?	2,000	
5,750	3,500			4,500		
97	96	40	98	90	89	89
47	59	18	74	78	78	89
36	10	14	23	25	7	21

* Includes 37.5% tenanted land 3.0

RICE FARMING IN TAIWAN

Index No.	N-16		N-17		
	Rice I	Rice II	Rice I	Rice II	Hogs
(2)	0.17	0.17	0.6	0.6	2
(3)	1,100	500	3,600	2,400	
(4)	260	310	260	310	16
(5)	2,860	1,550	9,360	7,440	12,000
(6)	350	350	3,010	3,185	
(7)			630	630	
(8)	430	430	2,580	2,580	
(9)	75	75	262	262	
(10)	112	112	450	450	
(11)	325	348	600	650	
(12)			130	130	
(13)	?		?		
(14)	?		?		2,400
(15)	1,292	1,316	7,662	7,887	2,400
(16)	52	62	130	155	
(17)	0		250	250	
(18)	0		0		500
(19)	52	62	380	405	500
(20)	1,344	1,378	8,042	8,292	2,900
(21)	n. a.		n. a.		
(22)	n. a.		n. a.		
(23)	n. a.		n. a.		
(24)	1,344	1,378	8,042	8,292	2,900
(25)	1,515	171	1,318	752	9,100
(26)	14	14	8	8	45
(27)	2,800	2,800	800	800	4,500
(28)	4,144	4,178	8,842	9,092	7,400
(29)	- 1,284	- 2,628	518	- 1,552	4,600
(30)	6,471	2,941	6,000	4,000	
(31)	96	95	95	95	83
(32)	31	31	87	87	32
(33)	- 45	- 170	5	- 21	38

APPENDIX

225

N-18			N-19	
Rice I	Rice II	Hogs	Rice I	Rice II
3.02	3.02	3	1	1
18,120	9,060		5,500	4,500
260	310	16	260	310
47,112	28,086	16,600	14,300	13,950
2,300	2,300		5,630	5,930
690	690		1,350	1,350
2,430	2,430		2,580	2,580
800	800		300	300
2,114	2,114		700	700
2,748	3,276		910	1,085
110	110		130	130
?			?	
150	150	3,000	?	
11,342	11,890	3,000	11,600	11,900
260	248		208	248
200	200		200	200
0		2,000	0	
460	448	2,000	408	448
11,802	12,338	5,000	12,008	12,348
n. a.			n. a.	
n. a.			n. a.	
n. a.			n. a.	
11,802	12,338	- 5,000	12,008	12,348
35,309	15,747	11,600	2,292	1,602
120	120	45	45	45
12,000	12,000	4,500	4,500	4,500
23,802	24,338	9,500	16,508	16,843
11,507	3,747	7,100	- 2,208	- 2,898
6,000	3,000		5,500	4,500
96	96	60	96	96
48	49	32	72	70
24	13	43	- 15	- 21

RICE FARMING IN TAIWAN

Index No.	N-20			N-21		N-24	
	Rice I	Rice II	Hogs	Rice I	Rice II	Rice I	Rice II
(2)	3.8	3.8	6	0.13	0.13	0.13	0.13
(3)	15,200	7,600	1,080	585	520	600	400
(4)	260	310	16	260	310	260	310
(5)	39,520	23,560	17,820	1,521	1,612	1,560	1,240
(6)	5,000	5,000		830	830	100	100
(7)	1,000	1,000				0	0
(8)	6,099	6,099		200	200	200	200
(9)	1,600	1,600		135	135	50	50
(10)	2,660	2,660		91	91	91	91
(11)	3,458	4,123		118	141	118	141
(12)	285	285				10	10
(13)	?			?		?	
(14)	500	500	15,000	?		?	
(15)	20,542	21,267	15,000	1,374	1,397	569	592
(16)	988	1,178		39	46	39	31
(17)	3,000	3,000		0		20	20
(18)	0		2,000	0		0	
(19)	3,988	3,988	2,000	39	46	59	51
(20)	24,530	25,255	17,000	1,413	1,443	628	643
(21)	n. a.			n. a.		n. a.	
(22)	n. a.			n. a.		n. a.	
(23)	n. a.			n. a.		n. a.	
(24)	24,530	25,255	17,000	1,413	1,443	628	643
(25)	14,990	8,305	820	107	168	931	597
(26)	135	135	90			10	10
(27)	13,500	13,500	9,000			1,000	1,000
(28)	38,030	38,755	26,000	1,413	1,443	1,628	1,643
(29)	1,490	15,195	8,180	107	168	68	403
(30)	4,000	2,000		4,500	4,000	4,615	3,077
(31)	84	84	88	97	97	91	92
(32)	54	55	58	97	97	35	36
(33)	4	64	46	7	10	4	32

Note: N-22, 23, are not farming families

APPENDIX

227

N-25			N-26		N-27	
Rice I	Rice II	Hogs	Rice I	Rice II	Rice I	Rice II
0.85	0.85	3	0.8	0.8	0.81	0.81
4,000	3,000	600	2,800	2,800	3,600	3,200
260	310	16	260	310	260	310
10,400	9,100	9,900	7,280	8,960	9,477	10,044
1,400	1,400		4,630	4,630	1,670	1,895
420	420		380	380	150	150
2,193	2,193		2,580	2,580	2,785	3,025
500	500		600	600	200	200
595	595		520	520	488	488
773	922		728	868	678	809
100	100		85	85	150	150
?			n. a.		n. a.	
?		7,200	n. a.		n. a.	
5,981	6,130	7,200	9,528	9,763	6,121	6,717
234	279		208	248	162	217
20	20		100	100	50	50
0		1,000	n. a.		n. a.	
254	299	1,000	308	348	212	267
6,233	6,429	8,200	9,785	10,071	6,333	6,928
n. a.			n. a.		n. a.	
n. a.			n. a.		n. a.	
n. a.			n. a.		n. a.	
6,233	6,429	8,200	9,835	10,071	6,333	6,928
4,166	2,670	1,700	— 2,555	— 1,111	3,143	3,116
40	40	45	60	60	30	30
4,000	4,000	4,500	6,000	6,000	3,000	3,000
10,233	10,429	12,700	15,835	15,071	9,476	10,044
166	— 1,329	— 2,800	— 8,555	— 7,111	143	116
4,705	3,530		3,500	3,500	4,444	3,951
96	95	88	96	92	95	96
58	59	57	85	83	65	62
2	— 15	— 28	— 105	— 63	2	1

RICE FARMING IN TAIWAN

Index No.	N-28		N-29		N-30	
	Rice I	Rice II	Rice I	Rice II	Rice I	Rice II
(2)	0.92	0.99	1.1	1.1	3.1	3.1
(3)	4,140	4,000	3,710	3,850	17,980	12,400
(4)	260	310	260	310	260	310
(5)	10,764	12,400	9,646	11,935	46,788	38,442
(6)	3,715	3,890	2,430	2,750	2,700	2,700
(7)	660	660	360	360	810	810
(8)	2,309	2,510	1,669	1,730	5,848	5,848
(9)	600	600	400	400	1,000	1,000
(10)	598	650	345	358	2,015	2,015
(11)	837	1,085	877	1,085	2,821	3,348
(12)	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
(13)	n. a.		n. a.		n. a.	n. a.
(14)	n. a.		n. a.		n. a.	n. a.
(15)	8,719	9,405	6,078	6,682	15,194	15,721
(16)	239	279	208	208	806	961
(17)	100	100	100	100	3,000	3,000
(18)	n. a.		n. a.			
(19)	339	379	308	308	3,806	3,961
(20)	9,058	9,784	6,386	6,990	18,994	19,527
(21)	n. a.		n. a.			
(22)	n. a.		n. a.			
(23)	n. a.		n. a.			
(24)	9,058	9,784	6,386	6,990	18,994	19,527
(25)	1,705	2,616	3,260	4,945	27,994	18,913
(26)	45	45	27	27	120	120
(27)	4,500	4,500	2,700	2,700	12,000	12,000
(28)	13,558	14,284	9,086	9,691	30,994	31,527
(29)	-- 2,795	-- 1,884	560	2,244	15,994	13,527
(30)	4,500	4,040	3,373	3,500	5,800	4,000
(31)	96	96	95	95	79	80
(32)	64	66	67	69	50	51
(33)	-- 26	-- 15	6	19	35	33

Index number		C-1		
(1)	Crops/livestock	Rice I	Rice II	Citrus
(2)	Area/amount	0.53	0.53	0.2
(3)	Production	5,830	3,975	6,000
(4)	Price received/NT100 <i>jin</i>	247	310	250
(5)	Gross receipts	14,400	12,322	15,000
	Cash costs/NT			
(6)	Hired labour	4,558	3,604	3,000
(7)	Worker's food	320	250	300
(8)	Fertilizers	1,300	1,300	950
(9)	Farm chemicals	583	1,006	820
(10)	Water fees	429	429	160
(11)	Land tax	980	773	662
(12)	Transportation	620	200	
(13)	Annual interest			
(14)	Other costs	196		
(15)	Total cash costs	8,986	7,562	5,892
	Non cash costs			
(16)	Seeds	98	111	50
(17)	Amortization	200	100	200
(18)	Others	520		500
(19)	Total	818	211	750
(20)	Total crop cost	9,804	7,773	6,642
(21)	Rent of leasehold			
(22)	Landlords contrib'n.			
(23)	Net income to landld.			
(24)	Crop cost to tenant	9,804	7,773	6,642
(25)	Net return to cultivator	4,596	4,549	8,358
	Labour supplied by household			
(26)	Man-days	28	35	50
(27)	Total wage equivalent	840	1,050	1,500
(28)	Total cost (20+27)	10,644	8,823	8,142
(29)	Net return to tenant	3,756	3,499	6,858
(30)	Yield per <i>chia</i> (<i>jin</i>)	11,000	7,500	30,000
(31)	Cash cost/total crop cost	92	97	89
(32)	Cash cost/total cost	84	86	72
(33)	Rate of profit on sales (28/5)	26	28	46

RICE FARMING IN TAIWAN

Index No.	C-2			C-3		
	Rice I	Rice II	Veg.	Rice I	Rice II	Mushrm
(2)	0.46	0.46	0.29	0.58	0.58	300 (<i>ping</i>)
(3)	5,520	3,910	580	5,800	3,777	
(4)	247	310	475	275	280	14 & 5/kg
(5)	13,413	12,121	2,755	15,950	10,556	67,500
(6)	3,712	2,808	360	3,298	2,577	4,840
(7)	200	150	50	500	300	300
(8)	1,171	1,200	600	1,325	1,149	2,000
(9)	736	920	300	649	783	100
(10)	372	372		469	469	
(11)	966	768		1,218	848	
(12)				518	220	
(13)						
(14)						
(15)	7,297	6,308	1,310	7,977	6,832	31,750
(16)	69	96		260	124	
(17)	100	100	30	100		
(18)	400	150		720		
(19)	569	346	30	1,080	124	
(20)	7,866	6,654	1,340	9,057	6,956	31,750
(21)						
(22)						
(23)						
(24)	7,866	6,654	1,340	9,057	6,956	31,750
(25)	5,547	5,467	1,415	6,893	6,600	35,750
(26)	24	20	10	40	25	140
(27)	720	600	300	1,200	750	4,200
(28)	8,586	7,254	1,640	10,257	7,706	35,950
(29)	4,827	4,867	1,115	5,693	2,850	31,550
(30)	12,000	8,500	2,000	10,000	6,500	18 (kg/ <i>ping</i>)
(31)	93	95	98	88	98	100
(32)	85	87	80	78	89	88
(33)	36	40	40	36	27	47

C-4				C-5		
Rice I	Rice II	Flax	Mushrm	Rice I	Rice II	Citrus
*4.8	*4.8	1.4	300 (<i>ping</i>)	0.93	0.93	0.35
50,000	33,440	2,316	5,600	9,500	5,400	8,000
247	280	395	14 & 5/kg	247	310	230
123,500	100,462	9,148	68,500	23,465	16,740	18,400
43,640	36,480	3,672	2,420	5,914	5,039	3,600
2,500	2,100	400	200	395	395	450
16,480	15,723	2,275	1,200	2,436	1,936	3,200
4,976	4,387		600	575	750	2,000
3,437	3,437			753	753	560
7,700	6,179			1,720	1,357	1,150
2,600	2,000			790	312	
81,333	70,306	6,797	42,795	12,583	10,542	10,960
790	912	490		158	230	400
1,200	800	200		161	40	200
900	400			400	400	350
2,890	2,112	690		719	670	950
84,223	72,418	7,487	42,795	13,302	11,212	11,910
5,710	6,473					
5,710	6,473					
89,933	78,891	7,487	42,795	13,302	11,212	11,910
33,567	21,571	1,661	25,705	10,163	5,528	6,490
140	110	40	150	45	45	60
4,200	3,300	1,200	750	1,350	1,350	1,800
94,133	82,191	8,687	43,545	14,652	12,562	13,710
29,367	18,271	461	24,955	8,813	4,178	4,690
10,416	6,967	1,654	18.67 (kg/ <i>ping</i>)	10,215	5,806	2,285
97	97	91	100	95	94	92
86	86	78	98	86	84	80
24	18	5	36	38	25	25

* Includes 37.5% tenanted land 1.1

RICE FARMING IN TAIWAN

Index No.	C-6		C-7			C-8
	Rice I	Rice II	Rice I	Rice II	Flax	Mushrm.
(2)	1.23	1.23	0.34	0.34	0.34	190 (<i>ping</i>)
(3)	12,300	8,610	3,550	2,570	845	
(4)	247	310	247	280	430	
(5)	30,381	26,691	8,768	7,196	2,834	42,000
(6)	8,277	7,400	2,130	1,692	460	
(7)	500	380	90	60	50	
(8)	3,000	3,200	790	660	525	
(9)	910	1,300	680	542		
(10)	990	990	272	272		
(11)	2,275	1,845	714	567		
(12)	726	447	100	82		
(13)						
(14)	494		222			
(15)	17,172	15,562	4,998	3,875	1,035	24,125
(16)	247	300	111	110	120	
(17)	200		80			
(18)	400	160	150			
(19)	847	660	341	110	120	
(20)	18,019	16,222	5,339	3,985	1,155	24,125
(21)						
(22)						
(23)						
(24)	18,019	16,222	5,339	3,985	1,155	24,125
(25)	12,362	10,469	3,429	3,211	1,679	17,875
(26)	50	42	27	35	12	90
(27)	1,500	1,250	810	1,050	360	2,700
(28)	19,519	17,472	6,149	5,035	1,515	26,825
(29)	10,862	9,219	2,619	2,161	1,319	15,175
(30)	10,000	7,000	10,441	7,600	2,005	17 (<i>kg/ping</i>)
(31)	95	96	94	97	90	100
(32)	88	89	81	77	68	100
(33)	36	35	30	30	47	36

APPENDIX

233

C-9			C-10		C-11	
Rice I	Rice II	Flax	Rice I	Rice II	Rice I	Rice II
0.31	0.31	0.31	0.11	0.11	0.6	0.6
3,565	2,542	558	1,210	946	6,900	4,982
247	310	395	247	280	247	247
8,805	7,880	2,203	2,988	2,648	17,043	15,444
2,418	1,936	360	561	487	4,920	4,368
250	200	45	20	20	350	200
714	667	468	220	200	1,400	1,600
301	572		100	87	650	820
251	251		89	89	480	480
651	517		231	183	1,260	1,002
180	60				200	120
118					234	
4,883	4,203	873	1,221	1,066	9,494	8,590
59	75	110	20	20	117	144
50	20				160	
200	50		55	150	240	
309	145	110	75	170	517	144
5,192	4,348	983	1,296	1,236	10,011	8,734
5,192	4,348	983	1,296	1,236	10,011	8,734
3,613	3,532	1,220	1,692	1,412	7,032	6,710
18	12	7	8	7	45	38
540	360	210	240	210	1,350	1,140
5,732	4,708	1,193	1,536	1,446	11,361	9,874
3,073	3,172	1,010	1,452	1,202	5,682	5,570
11,500	8,200	1,800	11,000	8,600	11,500	8,303
94	97	89	94	86	95	98
85	89	73	79	74	84	87
35	40	46	5	45	33	36

RICE FARMING IN TAIWAN

Index No.	C-12		C-13	C-14		
	Rice I	Rice II	Citrus	Rice I	Rice II	Mushrm
(2)	0.68	0.68	0.5	0.56	0.56	150 (<i>p'ing</i>)
(3)	6,365	4,154	4,800	6,076	4,032	3,050 (kg)
(4)	247	310	280	247	310	
(5)	15,722	12,877	13,440	15,007	12,499	35,500
(6)	5,849	4,623	4,200	4,114	3,386	3,578
(7)	340	200	400	280	200	520
(8)	1,510	1,600	3,600	1,150	1,230	1,900
(9)	992	1,200	2,800	728	670	
(10)	540	540	800	453	453	
(11)	1,407	1,119	2,005	1,036	876	
(12)	581	267	430	318	240	
(13)						
(14)	270					
(15)	11,489	9,549	14,235	8,079	7,055	22,678
(16)	135	140	450	99	99	
(17)	170	95	320	240	100	
(18)	350		1,100	300	150	
(19)	655	235	1,870	639	349	
(20)	12,144	9,784	16,105	8,718	7,404	22,678
(21)						
(22)						
(23)						
(24)	12,144	9,784	16,105	8,718	7,404	22,678
(25)	3,578	3,093	— 2,665	6,289	5,095	12,822
(26)	37	45	57	40	34	100
(27)	1,110	1,350	1,710	1,200	1,020	3,000
(28)	13,254	11,134	17,815	9,918	8,424	25,678
(29)	2,468	1,743	— 4,375	5,089	4,075	9,822
(30)	9,360	6,109	10,040	10,850	7,200	20 (kg/ <i>p'ing</i>)
(31)	95	98	88	93	95	100
(32)	87	86	80	82	84	100
(33)	16	14	33	34	33	72

APPENDIX

235

C-15			C-16		C-17	
Rice I	Rice II	Mushrm	Rice I	Rice II	Rice I	Rice II
0.47	0.47	60 (<i>p'ing</i>)	0.44	0.44	0.25	0.25
4,465	2,914	1,000 (kg)	3,960	2,420	2,500	2,000
247	310		247	280	247	280
11,028	9,036	12,200	9,781	6,696	6,175	5,600
2,735	2,116	1,100	3,058	2,175	1,457	1,282
150	100	200	180	150	50	40
1,031	936	679	920	872	485	540
940	728		500	736	237	200
380	380		352	352	202	202
869	686		814	642	462	365
426	240		230	162	110	30
181			202		100	75
6,712	5,186	6,699	6,256	5,089	3,103	2,734
91	105	720	86	86	50	50
50	50	300	70	150	50	
350					170	100
491	155		156	236	270	150
7,203	5,341	6,699	6,412	5,325	3,373	2,884
7,203	5,341	6,699	6,412	5,325	3,373	2,884
3,825	3,695	5,501	3,369	1,371	2,802	2,716
32	40	50	30	34	20	24
960	1,200	1,500	900	1,020	600	720
8,163	6,541	8,199	7,312	6,345	3,973	3,604
2,865	2,495	4,001	2,469	351	2,202	1,996
9,500	6,200	16 (kg/ <i>p'ing</i>)	9,000	5,500	10,000	8,000
93	97	100	98	96	92	95
82	76	100	86	80	78	76
26	48	33	25	5	36	36

RICE FARMING IN TAIWAN

Index No.	C-18		C-19		C-20	
	Rice I	Rice II	Rice I	Rice II	Rice I	Rice II
(1)						
(2)	0.67	0.67	2.4	2.4	*0.31	*0.31
(3)	6,365	3,685	25,800	18,820	2,945	1,922
(4)	247	280	247	310	247	280
(5)	15,721	10,318	63,726	58,342	7,274	5,381
(6)	4,556	4,140	19,088	18,672	1,767	1,481
(7)	300	200	1,400	1,000	110	60
(8)	2,109	1,366	5,100	5,700	620	704
(9)	670	593	2,400	3,200	360	320
(10)	543	543	1,944	1,944	220	220
(11)	1,119	978	5,040	4,008	453	350
(12)	341	237	1,300	1,100	120	75
(13)						
(14)	266		1,900	1,100	122	
(15)	9,904	8,057	38,172	36,724	3,772	3,210
(16)	133	151	444	510	61	61
(17)	100	50	500	370	50	
(18)	150		300	450	150	100
(19)	383	201	1,244	1,330	261	161
(20)	10,287	8,258	39,416	38,054	4,033	3,371
(21)					354	401
(22)						
(23)					354	401
(24)	10,287	8,258	39,416	38,054	4,387	3,772
(25)	5,434	2,060	24,310	20,288	2,887	1,609
(26)	30	25	50	64	15	20
(27)	900	750	1,500	1,920	450	600
(28)	11,187	9,008	40,916	39,974	4,837	4,372
(29)	4,534	1,310	22,810	18,368	2,437	1,009
(30)	9,500	5,500	10,750	7,842	9,500	6,200
(31)	96	98	97	96	93	95
(32)	88	89	93	92	78	73
(33)	29	13	36	31	33	19

* Includes 3.75% tenanted land 0.07

APPENDIX

237

C-21			C-22		C-23	
Rice I	Rice II	Veg.	Rice I	Rice II	Rice I	Rice II
*0.33	*0.33	0.33	0.18	0.18	0.21	0.21
3,630	2,640	592	1,792	1,054	2,200	2,200
247	310	510	247	310	247	310
8,966	7,392	3,019	4,326	3,312	5,500	4,340
1,963	1,860	600	500	420	1,350	1,170
170	120	80	150	180	325	280
670	700	620	660	510	786	786
400	450	300	150	240	180	210
130	130		142	142	178	178
			324	255	441	350
140	110		281	60	300	150
153			64		82	62
3,626	3,370	1,600	2,271	1,807	3,642	3,186
68	75		32	39	41	55
50			50		120	
200	150		300		120	80
318	225		382	39	281	135
3,944	3,595	1,600	2,653	1,846	3,923	3,321
1,729	1,960					
1,729	1,960					
5,673	5,555	1,600	2,653	1,846	3,923	3,321
3,293	1,837	1,419	1,673	1,466	1,577	1,019
30	27	21	13	11	15	20
900	810	630	390	330	450	600
6,573	6,365	2,230	3,043	2,176	4,373	3,921
2,393	1,027	789	1,283	1,136	1,127	419
11,000	8,000	1,793	9,956	5,856	10,476	10,476
92	94	100	86	98	93	96
55	53	72	75	83	83	81
27	14	26	30	34	20	10

* All is 37.5% tenanted land

RICE FARMING IN TAIWAN

Index No.	C-24		C-25		C-26	
	Rice I	Rice II	Rice I	Rice II	Rice I	Rice II
(2)	0.22	0.22	0.17	0.17	0.21	0.21
(3)	2,310	1,540	1,771	1,224	1,650	850
(4)	247	280	247	310	247	310
(5)	5,705	4,312	4,374	3,794	4,075	2,635
(6)	1,166	1,051	480	400	1,422	1,107
(7)	50	50	60	50	140	60
(8)	560	513	505	530	455	400
(9)	242	242	260	280	250	230
(10)	178	178	140	140	170	170
(11)	462	367	357	284	441	350
(12)	35		115	85	175	80
(13)						
(14)	82		68	51	82	
(15)	2,775	2,401	1,985	1,820	3,135	2,397
(16)	41	41	45	50	41	51
(17)	50		50	20	20	
(18)	100	100	200	170	160	
(19)	191	141	295	240	221	51
(20)	2,966	2,542	2,280	2,060	3,356	2,448
(21)						
(22)						
(23)						
(24)	2,966	2,542	2,280	2,060	3,356	2,448
(25)	2,739	1,770	2,094	1,734	719	187
(26)	16	15	20	16	10	13
(27)	480	450	600	480	300	390
(28)	3,446	2,992	2,880	2,540	3,656	2,838
(29)	2,259	1,320	1,494	1,254	419	— 203
(30)	10,500	7,000	10,417	7,200	7,857	4,048
(31)	94	94	87	88	93	98
(32)	80	80	69	72	86	84
(33)	40	31	34	33	10	— 8

APPENDIX

239

C-27			C-28		C-29	
Rice I	Rice II	Flax	Rice I	Rice II	Rice I	Rice II
0.26	0.26	0.26	0.24	0.24	0.41	0.41
2,350	2,100	572	2,640	1,968	4,510	2,952
247	310	430	247	280	247	310
5,804	6,510	2,459	6,520	5,510	11,139	9,151
1,320	1,100	240	912	1,198	3,526	3,075
100	80	30	60	210	200	150
640	520	415	560	520	1,100	1,220
300	360		470	500	500	640
210	210		194	194	332	332
546	434		444	400	861	684
178	100				193	152
88	66		250	200	158	
3,382	2,870	685	2,890	3,222	6,870	6,253
44	54	90	42	42	79	96
110			160	100	110	70
240			300	550	150	100
394	54	90	502	692	339	266
3,776	2,924	775	3,392	3,914	7,209	6,519
3,776	2,924	775	3,392	3,914	7,209	6,519
2,028	3,586	1,684	3,128	1,596	3,930	2,632
20	24	10	16	12	25	20
600	720	300	480	360	750	600
4,376	3,644	1,075	3,872	4,274	7,959	7,119
1,428	2,866	1,384	2,648	1,236	3,180	2,032
9,038	8,075	2,200	11,000	8,200	11,000	7,200
90	98	88	85	82	95	96
77	79	64	75	75	86	88
25	44	56	41	22	29	22

RICE FARMING IN TAIWAN

Index No.	C-30		C-31		C-32		
	Rice I	Rice II	Rice I	Rice II	Rice I	Rice II	Flax
(2)	0.86	0.86	0.66	0.66	0.26	0.26	0.11
(3)	9,460	6,000	7,920	5,346	2,470	1,872	264
(4)	247	310	247	310	247	285	430
(5)	23,366	18,600	19,562	16,572	6,100	5,335	1,135
(6)	2,813	2,182	5,940	4,896	850	540	120
(7)	180	150	350	280	60	?	15
(8)	2,450	2,650	1,800	2,000	652	720	220
(9)	1,000	1,240	870	1,000	200	235	
(10)	696	696	540	540	210	210	
(11)	1,806	1,336	1,386	1,102	546	434	
(12)	600	230	175	150	270	45	
(13)							
(14)	612	250	247	210	100		
(15)	10,162	8,734	11,308	10,178	2,888	2,184	355
(16)	156	200	123	150	50	60	40
(17)	300	400	180	100	70	30	
(18)	250	120	300	150	180	150	
(19)	706	720	603	400	300	240	40
(20)	10,868	9,454	11,911	10,578	3,188	2,424	395
(21)							
(22)							
(23)							
(24)	10,868	9,454	11,911	10,578	3,188	2,424	395
(25)	12,498	9,146	7,651	5,994	2,912	2,911	740
(26)	70	60	32	30	10	15	5
(27)	2,100	1,800	960	900	300	450	150
(28)	12,968	11,254	12,871	11,478	3,488	2,874	545
(29)	10,398	7,346	6,691	5,094	2,612	2,461	590
(30)	11,000	6,976	12,000	8,100	9,500	7,200	2,400
(31)	93	92	95	96	91	90	90
(32)	78	78	88	89	83	76	65
(33)	44	39	34	31	43	46	52

C-33		C-34			C-35
Rice I	Rice II	Rice I	Rice II	Citrus	Citrus
*0.28	*0.28	0.27	0.27	†0.08	0.24
2,940	2,240	2,430	1,560	830	4,780
247	310	247	310	300	280
7,261	6,944	6,002	4,836	2,490	13,384
1,932	1,754	1,836	1,432	160	3,450
200	170	65	50	30	380
640	650	525	650	330	1,780
320	300	237	300	150	1,300
113	113	218	218	35	382
		567	451	134	894
120	40	81	67	67	
100		108			
3,425	3,027	3,637	3,168	906	8,186
50	60	54	66	120	300
100		60			150
		100			400
150	60	214	66	120	850
3,575	3,087	3,851	3,234	1,026	9,036
1,358	1,540			520	
1,358	1,540			520	
4,933	4,627	3,851	3,234	1,546	9,036
2,328	2,317	2,151	1,602	944	4,348
25	21	12	16		40
750	630	360	480		1,200
5,683	5,257	4,211	3,714	1,546	10,236
1,578	1,687	1,791	1,122	944	3,148
10,500	8,000	9,000	5,778	9,640	20,000
96	98	94	98	88	91
60	58	86	85	59	80
22	24	30	23	38	24

* All is 37.5% tenanted land † Includes Privately rented-in land 0.03

RICE FARMING IN TAIWAN

Index No.	C-36		C-37		
	Rice I	Rice II	Rice I	Rice II	Citrus
(2)	1.15	1.15	0.2	0.2	1.35
(3)	12,075	8,970	1,840	1,456	25,700
(4)	247	310	247	310	270
(5)	29,825	27,807	4,544	4,513	69,390
(6)	8,700	8,100	865	804	9,200
(7)	600	500	40	50	300
(8)	3,154	2,840	550	615	14,500
(9)	1,200	1,520	240	310	11,600
(10)	945	945	160	160	2,240
(11)	2,415	1,920	420	334	5,080
(12)	455	225			
(13)	120				
(14)	300	230	150	87	
(15)	17,889	16,280	2,425	2,360	42,920
(16)	200	300	45	60	3,200
(17)	200	170	30	50	400
(18)	400	400	150	200	
(19)	800	870	225	310	3,600
(20)	18,689	17,150	2,650	2,670	46,520
(21)					
(22)					
(23)					
(24)	18,689	17,150	2,650	2,670	46,520
(25)	11,136	10,657	1,894	1,843	22,870
(26)	60	68	21	17	90
(27)	1,800	2,040	630	510	2,700
(28)	20,489	19,190	3,280	3,180	49,220
(29)	9,336	8,617	1,264	1,333	20,170
(30)	10,500	7,800	9,200	7,280	19,000
(31)	96	95	91	88	92
(32)	87	85	74	74	87
(33)	31	31	28	30	29

Note: Households C38-C40 have no farm land

Index number	S-1	
	Rice I	Rice II
(1) Crops/livestock		
(2) Area/amount	0.5	0.5
(3) Production	5,000	3,800
(4) Price received/NT100 <i>jin</i>	250	260
(5) Gross receipts	12,500	9,880
Cash costs/NT		
(6) Hired labour in NT	1,162	1,162
(7) Workers' food	200	300
(8) Fertilizers	1,240	1,128
(9) Farm chemicals	785	865
(10) Water fees	510	510
(11) Land tax	1,103	1,103
(12) Transportation		
(13) Annual interest		
(14) Other costs		
(15) Total cash costs	5,001	5,069
Non cash costs		
(16) Seeds	250	250
(17) Farmyard manure		
(18) Others		
(19) Total	250	250
(20) Total crop cost	5,251	5,319
(21) Rent of leasehold		
(22) Landlords contrib'n.		
(23) Net income to landld.		
(24) Crop cost to tenant		
(25) Net return to cultivator	7,248	4,560
Labour supplied by household		
(26) Man-days	32	32
(27) Total wage equivalent	1,350	1,350
(28) Total cost (21+28)	6,601	6,669
(29) Net return to tenant	5,898	3,210
(30) Yield per <i>chia</i> (<i>jin</i>)	10,000	7,600
(31) Cash cost/total crop cost	95	95
(32) Cash cost/total cost	76	76
(33) Rate of profit on sales (29/5)	47	32

RICE FARMING IN TAIWAN

Index No.	S-2		S-3			
	Rice I	Rice II	Rice I	Rice II	Cucum.	Dbean
(2)	0.55	0.55	0.35	0.55	0.5	0.35
(3)	5,500	4,400	3,850	3,575		
(4)	250	260	250	260		
(5)	13,750	11,440	9,675	9,295	15,000	6,100
(6)	2,135	2,135	945	1,474	3,060	3,635
(7)	300	300	150	200	0	
(8)	1,635	1,573	848	1,333	3,270	300
(9)	1,150	1,230	455	797	1,191	456
(10)	562	562	315	435	0	
(11)	1,215	1,215	525	696	0	
(12)					0	
(13)					0	
(14)					7,200	
(15)	7,047	7,015	3,238	4,941	14,621	4,391
(16)	110	110	150	286	280	600
(17)					1,500	
(18)						
(19)	110	110	150	286	1,780	600
(20)	7,157	7,125	3,387	5,227	19,888	4,911
(21)						
(22)						
(23)						
(24)						
(25)	6,593	4,315	6,286	6,427	4,888	1,189
(26)	37	37	26	39	156	92
(27)	1,560	1,560	1,337	2,540	5,420	2,970
(28)	8,717	8,685	4,725	7,767	25,308	7,881
(29)	5,033	2,755	4,948	3,887	10,308	1,781
(30)	10,000	8,000	11,000	6,500		
(31)	98	98	96	95	74	89
(32)	81	81	69	64	58	56
(33)	37	24	51	42	69	29

APPENDIX

245

S-4				S-5		
Rice I	Rice II	? bean	Tobacco	Rice I	Rice II	Tobacco
0.34	0.34	0.34	1.7	*0.3	*0.3	*1.3
3,500	2,400	1,100	5,800	3,000	1,650	?
250	250	315		250	250	
8,750	6,000	3,465	113,000	7,000	4,125	92,000
1,521	1,521	294	10,600	700	700	5,534
30	30					
1,080	951	470	14,718	588	451	9,727
720	850	76	2,200	550	640	1,600
205	205			190		
450	450					
			17,370	2,200	2,200	12,100
4,006	4,007	840	44,888	4,228	3,991	28,961
250	250	361		150	150	
			11,000			6,700
250	250	361	11,000	150	150	6,700
4,256	4,257	1,201	55,888	4,378	4,141	35,661
				2,250	2,250	
				6,628	6,391	
4,493	1,742	2,264	57,112	371	2,266	56,339
19	21	8	400	21	21	130
825	925	320	30,200	1,050	1,050	5,700
5,081	5,182	1,521	86,088	7,678	7,441	41,361
3,668	817	1,944	36,912	678	3,316	50,639
10,294	7,059	3,235	3,412	10,000	5,500	
94	94	70	80	97	96	81
79	77	55	52	55	54	70
42	14	56	32	10	80	55

* All is Privately rented-in land

RICE FARMING IN TAIWAN

Index No.	S-6			
	Rice I	Rice II	Cucum.	Dbean
(2)	*0.45	*0.45	0.1	0.2
(3)	4,950	3,300		
(4)	240	255		
(5)	11,880	8,415	2,000	2,000
(6)	1,350	1,350	90	180
(7)	50	50		
(8)	1,044	696	681	306
(9)	1,350	1,575	450	320
(10)	161	161		
(11)	474	474		
(12)	120	120		
(13)				
(14)				
(15)	4,549	4,426	1,221	806
(16)	80	80	33	300
(17)	3,200		150	
(18)				
(19)	3,280	80	183	300
(20)	7,829	4,506	1,404	1,106
(21)	655	655		
(22)				
(23)				
(24)	8,485	5,162		
(25)	3,394	3,252	596	894
(26)	16	16	60	64
(27)	915	915	2,015	1,980
(28)	8,744	5,421	3,419	3,086
(29)	3,055	2,993	— 1,419	— 1,086
(30)	11,000	7,333		
(31)	58	98	87	73
(32)	52	82	36	26
(33)	26	36	— 71	— 54

* Included 37.5% tenanted land 0.17

S-7			
Rice I	Rice II	Sbean	Dbean
1.8	1.8	1	0.25
19,200	11,000	2,200	
275	{ 242 (7,000)	320	
52,800	{ 250 (4,000)	7,040	6,211
9,952	9,952	1,270	1,395
400	400		
4,046	3,358	1,047	518
3,000	3,450	300	120
1,135	1,135		
3,078	3,078	240	
21,612	21,374	2,884	2,033
450	450	410	150
450	450	410	150
22,062	21,824	3,294	2,184
30,737	5,115	3,746	4,027
52	59	9	49
3,734	3,923	350	1,690
25,796	25,747	3,644	3,874
27,003	1,192	3,396	2,337
10,667	6,111	2,200	
98	98	87	93
84	83	79	52
51	4	48	38

RICE FARMING IN TAIWAN

Index No.	S-8				
	Rice I	Rice II	Cucum.	Dbean	Tomato
(2)	0.9	0.9	0.3	0.3	0.2
(3)	11,000	8,800			
(4)	256	252			
(5)	28,160	22,176	4,000	4,500	4,000
(6)	4,070	4,070		160	
(7)	300	300			
(8)	?	?	509	204	449
(9)	2,325	2,450	215	260	490
(10)	206	206			
(11)	1,620	1,620			
(12)					
(13)					
(14)			2,100		800
(15)	8,521	8,646	4,000	624	1,739
(16)	332	332	300	250	90
(17)			1,200		600
(18)					
(19)	332	332	1,500	250	690
(20)	8,854	8,979	4,324	874	2,429
(21)					
(22)					
(23)					
(24)					
(25)	19,305	13,196	— 324	3,626	1,570
(26)	65	67	96	125	123
(27)	2,830	2,890	3,030	3,870	3,790
(28)	11,684	11,869	7,354	4,744	6,219
(29)	16,475	10,306	— 3,354	244	2,219
(30)	12,222	9,777			
(31)	96	96	65	71	72
(32)	73	73	38	13	46
(33)	59	46	— 84	5	55

APPENDIX

249

S-9			S-10		
Rice I	Rice II	Dbean	Rice I	Rice II	Dates
0.5	0.5	0.1	0.308	0.308	0.21
4,000	3,200		2,464	1,232	1,700
250	255		245	250	100
10,000	8,360	820	6,028	3,305	1,700
2,205	2,205		930	930	1,100
200	200				
1,090	765	110	845	845	840
1,000	1,450	50	300	350	500
750	750		78	59	
2,080	2,121		491	491	
7,325	5,086	160	2,644	2,675	2,440
150	150	50	108	108	1,190
250			900		600
400	150	50	1,008	108	1,790
7,725	5,236	210	3,652	2,778	4,230
2,275	3,123	610	2,376	526	2,530
44	48	20	44	44	40
1,340	2,080	600	1,630	1,630	1,400
9,565	7,316	810	5,282	4,408	5,630
435	1,043	10	746	1,103	3,930
8,000	6,400		8,000	4,000	8,095
95	97	76	72	96	58
76	69	20	50	61	43
4	12	1	12	33	231

RICE FARMING IN TAIWAN

Index No.	S-11				
	Rice I	Rice II	Cucum.	Dbean	St. bean
(1)					
(2)	0,845	0.7	0.1	0.13	0.1
(3)	8,872	4,690	1,000		
(4)	246	256	1.6		
(5)	21,826	12,006	1,600	900	1,300
(6)	3,834	3,800	90	150	390
(7)					
(8)	1,865	1,740	760	350	300
(9)	1,265	1,330	400	120	270
(10)	684	684			
(11)	2,227	2,227			
(12)	170	170			
(13)					
(14)					
(15)	10,045	9,941	1,250	620	960
(16)	297	297	135	245	63
(17)			1,200		600
(18)					
(19)	297	297	1,335	245	663
(20)	10,343	10,249	2,585	865	1,623
(21)					
(22)					
(23)					
(24)					
(25)	11,483	1,757	— 985	35	— 323
(26)	46	45	55	20	26
(27)	2,173	2,143	2,245	690	870
(28)	12,516	12,392	4,830	1,555	2,493
(29)	9,310	— 385	— 3,230	— 655	— 1,193
(30)	10,499	6,700	10,000		
(31)	97	97	48	91	59
(32)	80	80	26	40	39
(33)	43	— 3	— 202	— 73	— 92

S-12			S-13			
Rice I	Rice II	Tobacco	Rice I	Rice II	? bean	Cucum.
1.1	1.1	1	*1.49	*1.49	0.5	0.15
11,000	6,600	2,725	14,900	10,500	1,600	
255	260		250	260	340	
28,050	17,160	43,525	37,250	27,300	5,440	3,000
4,145	4,145	2,250	4,725	4,725	800	135
600	600	200	300	300		
2,939	2,626	5,465	3,317	2,915	933	959
2,100	2,450	1,654	2,250	2,900	500	500
605	605		1,490	1,490		
1,899	1,936		2,037	2,119		
180	180					
1,899	1,589	7,010	1,000	1,000		2,250
14,367	14,131	16,568	15,119	15,449	2,233	3,844
220	220		240	240	325	
		3,000	2,100			750
220	220	3,000	2,340	240	325	750
14,587	14,531	19,568	17,460	15,239	2,558	3,594
			183	183		
			17,644	15,422		
13,462	2,808	23,957	19,605	11,877	2,882	— 594
22	22	257	118	118	28	54
1,420	1,420	6,080	5,790	5,790	1,290	1,620
16,007	15,771	25,648	23,434	21,212	3,849	5,214
12,042	1,388	17,877	13,815	6,087	1,592	— 2,214
10,000	6,000	2,725	10,000	7,047	3,200	
98	98	84	87	99	87	84
81	89	64	65	73	58	74
43	8	41	37	21	29	— 74

* Included privately rented-in land 0.35

RICE FARMING IN TAIWAN

Index No.	S-14			
	Rice I	Rice II	Cucum.	Dbean.
(1)				
(2)	0.48	0.48	0.2	
(3)	5,800	3,750		
(4)	248	250		
(5)	14,384	9,375	2,400	3,200
(6)	2,171	2,170	600	265
(7)	230	230		
(8)	1,103	993	253	294
(9)	985	1,089	300	250
(10)	295	295		
(11)	855	862		
(12)				
(13)				
(14)	500			
(15)	6,139	5,640	1,153	809
(16)	110	110	100	276
(17)			600	
(18)				
(19)	110	110	700	276
(20)	6,249	5,640	1,853	1,085
(21)				
(22)				
(23)				
(24)				
(25)	8,134	3,734	547	2,115
(26)	37	37	43	55
(27)	1,490	1,490	1,460	1,750
(28)	7,789	7,130	3,313	2,835
(29)	6,644	2,244	918	365
(30)	12,083	7,813		
(31)	98	98	62	75
(32)	79	79	35	29
(33)	46	24	79	11

S-15			
Rice I	Rice II	Sbean	Cucum.
1.6	1.6	1	0.2
18,000	11,200	2,200	6,000
250	250	320	
45,000	28,000	7,040	3,600
7,900	7,900	2,650	1,020
400	400		
3,294	3,000	2,500	500
4,000	4,270	200	300
768	672		
1,875	1,875		
800	800	40	
19,039	18,317	5,390	1,820
400	400	900	40
4,000	4,000		600
4,400	4,400		
8,800	8,800	900	640
27,837	27,717	6,290	2,460
17,163	283	750	1,140
240	240	40	30
9,600	9,600	1,600	900
37,437	37,317	7,890	3,360
7,563	— 9,317	— 850	240
11,250	7,000	2,200	30,000
68	66	86	74
51	49	68	54
17	— 33	— 12	7

RICE FARMING IN TAIWAN

Index No.	S-16			
	Rice I	Rice II	Dbean	? bean
(2)	0.7	0.7	0.2	0.5
(3)	7,000	4,900		1,650
(4)	250	250		340
(5)	15,000	12,250	3,500	5,610
(6)	6,440	6,440	1,440	400
(7)	300	300		
(8)	1,881	1,881	280	1,239
(9)	1,400	1,700	500	700
(10)	723	723		
(11)	1,023	1,023		
(12)	30	30		
(13)				
(14)				
(15)	11,799	12,099	2,220	2,339
(16)	450	450	420	320
(17)	2,450			
(18)				
(19)	2,900	450	420	320
(20)	14,698	12,548	2,640	2,659
(21)				
(22)				
(23)				
(24)				
(25)	301	298	859	2,951
(26)	26	26	50	36
(27)	1,665	1,665	1,800	1,350
(28)	16,363	14,213	4,440	4,009
(29)	1,353	1,963	940	1,601
(30)	10,000	7,000		3,300
(31)	80	96	84	88
(32)	72	85	50	58
(33)	9	16	27	29

APPENDIX

255

S-17				S-18		
Rice I	Rice II	Cucum.	Dbean	Rice I	Rice II	Tomato
0.85	0.85	0.2	0.2	0.9	0.9	0.2
9,200	4,700			11,000	7,200	
253	253			300	260	
23,276	11,891	9,500	3,000	33,000	18,720	5,000
4,209	4,209	505	250	1,575	1,575	
450	450					
2,145	2,060	4,325	630	3,480	2,300	765
2,300	2,528	1,200	200	3,000	4,000	1,000
608	608			1,621	1,621	
1,416	1,416			2,550	2,550	
230	230					
11,358	11,510	6,030	1,080	12,226	12,046	1,765
430	430	120	250	270	270	40
		900		1,000		800
				500		
430	430	1,020	250	1,570	270	840
11,788	11,931	7,050	1,330	13,796	12,316	2,605
11,487	- 40	2,450	1,670	19,204	6,404	4,160
24	24	71	52	112	112	134
1,140	1,140	2,665	1,860	7,080	7,080	4,320
12,928	13,071	9,705	3,190	20,876	19,126	6,085
10,347	- 1,180	- 215	- 190	12,124	- 404	- 1,085
10,823	5,529			12,222	8,000	
96	96	86	81	89	98	68
88	85	62	34	55	62	29
44	- 10	- 2	- 6	37	- 2	- 22

RICE FARMING IN TAIWAN

Index No.	S-19			
	Rice I	Rice II	? bean	Dates
(1)				
(2)	0.75	0.75	0.3	0.35
(3)	7,500	3,500		
(4)	250	252	310	
(5)	18,750	8,820	1,920	2,400
(6)	2,835	2,835	700	840
(7)	150	150		
(8)	2,232	1,562	499	750
(9)	1,325	1,565	130	
(10)	1,720	1,530		
(11)	990	990		
(12)	100	100		
(13)				
(14)				
(15)	9,352	8,732	1,329	1,590
(16)	200	200	186	70
(17)				
(18)				
(19)	200	200	186	70
(20)	9,552	8,932	1,515	1,660
(21)				
(22)				
(23)				
(24)				
(25)	9,198	- 112	405	740
(26)	85	88	8	22
(27)	3,330	3,510	360	990
(28)	12,082	12,442	1,689	2,650
(29)	5,868	- 3,622	45	- 250
(30)	10,000	4,667	?	
(31)	98	98	88	96
(32)	73	70	79	60
(33)	31	- 41	2	- 10

S-20				S-21	
Rice I	Rice II	Dbean	Banana	Rice I	Pepper
0.75	0.75	0.1	0.1	*0.16	0.12
6,000	4,700	287		1,800	
250	250	600			
15,000	11,750	1,725	5,000	4,500	3,000
2,990	2,990	150	500	214	540
				100	
1,740	1,700	295	1,740	261	574
1,450	1,600	120	300	600	225
978	978	50	150		
750	750			25	
				148	
7,908	8,018	615	2,690	1,348	1,339
225	225	100		125	90
			900		600
225	225	100	900	125	690
8,133	8,243	715	3,590	1,473	2,008
				500	
				1,973	
6,867	3,507	1,010	1,410	2,526	992
46	46	11	54	12	89
2,350	2,350	450	2,160	525	270
10,483	10,593	1,165	5,750	2,498	2,278
4,517	1,157	560	750	2,001	722
8,000	6,267	2,870		11,250	
97	97	86	72	92	67
75	75	53	47	54	59
30	10	32	15	44	24

* Includes 37.5% tenanted land 0.16

RICE FARMING IN TAIWAN

Index No.	S-22			
	Rice I	Rice II	White bean	Bean
(1)				
(2)	2.2	2.2	0.5	0.3
(3)	25,300	14,300	1,650	1,000
(4)	255	260	630	340
(5)	64,515	37,180	10,395	3,400
(6)	9,245	9,260		
(7)	800	800	325	195
(8)	5,665	4,455	915	512
(9)	2,000	3,100	300	300
(10)	2,827	2,827		
(11)	2,821	2,876		
(12)				
(13)				
(14)				
(15)	23,358	23,319	1,540	1,007
(16)	673	686		
(17)	3,000		560	200
(18)				
(19)	3,673	686	560	200
(20)	27,032	24,006	2,100	1,207
(21)				
(22)				
(23)				
(24)				
(25)	37,482	13,173	8,295	2,192
(26)	60	60	17	7
(27)	3,490	3,490	736	289
(28)	30,522	27,496	2,836	1,496
(29)	33,992	9,683	7,559	1,903
(30)	11,500	6,500	3,300	3,333
(31)	86	97	73	83
(32)	77	85	54	67
(33)	53	26	73	56

S-23			
Rice I	Rice II	Cucum.	St. bean
0.44	0.44	0.21	0.15
3,500	2,600		
250	250		
8,750	6,500	9,500	400
1,770	1,770	1,190	
400	400		
977	852	2,940	300
890	1,100	1,500	500
195	195		
777	777		
5,008	5,095	5,630	800
120	120		275
		1,200	
120	120	1,200	275
5,130	5,215	6,830	1,075
92	92		
3,619	1,234	2,670	— 675
11	11	95	31
665	665	3,075	935
5,795	5,880	9,905	2,010
2,954	619	— 405	— 1,610
7,955	5,909		
98	98	82	74
86	87	57	40
34	10	— 4	— 403

RICE FARMING IN TAIWAN

Index No.	S-24				S-25		
	Rice I	Rice II	? bean	Dbean	Rice I	Rice II	? bean
(2)	0.9	0.9	0.2	0.7	0.6	0.6	0.3
(3)	11,000	7,200	500		6,600	4,800	900
(4)	252	262	340		252	256	330
(5)	27,720	18,864	1,700	14,500	16,632	12,288	2,970
(6)	1,172	1,172		560	2,880	2,880	360
(7)							
(8)	2,248	2,100	241	599	1,810	1,700	540
(9)	900	930	122	400	2,400	2,500	350
(10)	586	586			665	665	
(11)	1,595	1,595			1,030	1,030	
(12)	40	40					
(13)							
(14)					151	151	
(15)	6,541	6,423	363	1,559	8,937	8,927	1,250
(16)	544	544	64	924	151	151	240
(17)							
(18)							
(19)	544	544	64	924	151	151	240
(20)	7,086	6,967	427	2,483	9,088	9,078	1,490
(21)							
(22)							
(23)							
(24)							
(25)	20,633	11,896	1,272	12,017	7,543	3,209	1,480
(26)	62	62	8	173	37	37	27
(27)	3,298	3,298	270	5,800	1,640	1,640	840
(28)	10,384	10,265	6,976	8,283	10,728	10,718	2,330
(29)	17,335	8,598	1,002	6,217	5,903	1,569	640
(30)	12,222	8,000	2,500		11,000	8,000	3,000
(31)	92	92	85	63	99	98	84
(32)	63	63	52	19	83	83	54
(33)	63	46	59	45	35	13	22

APPENDIX

261

S-26			S-27			
Rice I	Rice II	Dbean	Rice I	Rice II	Tomato	Dbean
0.24	0.24		*0.49	*0.49	0.2	0.29
2,400	1,720		5,500	3,500		
250	250		252	252		
6,000	4,300	3,360	13,860	8,820	4,500	1,800
253	253	350	1,660	1,660	220	1,650
800	800	195	1,100	950	1,105	200
600	600	480	1,300	1,500	600	700
192	192		400	350	50	30
288	283					
120	120		75	75		
			50	50		
2,248	2,248	1,025	4,585	4,585	1,955	2,580
60	60	450	176	176	?	570
		500				
60	60	950	176	176	?	570
2,308	2,308	1,975	4,761	4,761	1,955	3,150
			1,915	1,915		
			6,676	6,676		
3,691	1,991	1,385	7,183	2,143	2,545	1,350
18	18	44	42	42	92	110
1,020	1,020	1,440	2,110	2,110	3,640	3,700
3,328	3,328	3,415	6,871	6,871	5,595	6,850
2,671	2,671	55	6,989	1,949	1,095	5,050
10,000	7,167		11,224	7,143		
97	97	52	96	96	100	83
68	68	30	67	67	34	38
45	62	2	50	22	24	281

* All is 37.5% tenanted land

RICE FARMING IN TAIWAN

Index No.	S-28				S-29		
	Rice I	Rice II	Cucum.	Dbean	Rice I	Rice II	Dbean
(2)	0.3	0.3	0.15	0.15	0.18	0.18	0.14
(3)	3,000	2,100			2,100	1,240	
(4)	250	250			250	250	
(5)	7,500	5,250	4,000	3,000	5,250	3,100	2,328
(6)	1,072	1,072	360		125	125	262
(7)							
(8)	640	510	715	215	529	475	219
(9)	600	850	400	250	300	300	160
(10)	225	225			189	139	
(11)	550	550			249	249	
(12)	120	120			60	60	
(13)					400		
(14)							
(15)	3,207	3,327	1,475	465	1,652	1,548	641
(16)	90	90	120		60	60	196
(17)			1,560				400
(18)							
(19)	90	90	1,680	?	60	60	596
(20)	3,297	3,417	3,155	465	1,712	1,608	1,237
(21)							
(22)							
(23)							
(24)							
(25)	4,202	1,832	845	3,380	3,538	1,492	1,091
(26)	26	25	45	67	19	19	48
(27)	1,090	1,060	1,350	3,100	1,065	1,065	1,530
(28)	4,387	4,477	4,505	3,565	2,777	2,673	2,767
(29)	3,112	772	— 505	— 565	4,185	427	438
(30)	10,000	7,000			11,667	6,889	
(31)	97	97	47	100	96	96	52
(32)	73	74	33	13	89	58	23
(33)	42	15	— 13	— 19	80	14	19

APPENDIX

263

S-30			S-31		
Rice I	Rice II	Dbean	Rice I	Rice II	Dbean
*0.25	*0.25	*0.5	0.2	0.2	0.2
2,500	2,000		2,000	1,100	
257	255		250	250	
6,425	5,100	6,000	5,000	2,750	1,284
850	850	2,850	620	620	160
100	100		120	120	
1,179	868	908	970	970	207
740	820	1,200	200	250	300
387	387		400	400	
			130	130	
			30	30	
3,616	3,382	4,958	2,470	2,520	667
77	77	930	140	140	180
77	77	930	140	140	180
3,693	3,462	5,888	2,610	2,660	847
2,647	2,647	1,250			
6,340	6,109				
3,778	2,453	112	2,390	90	436
30	30	67	18	18	40
1,110	1,110	2,345	870	870	1,580
4,803	4,572	8,233	3,480	3,530	2,427
1,621	527	2,233	1,520	780	1,143
10,000	8,000		10,000	5,500	
98	97	84	95	95	79
75	74	60	71	71	27
0	10	37	30	28	89

* Privately rented-in land

RICE FARMING IN TAIWAN

Index No.	S-32			
	Rice I	Rice II	Cucum.	Tomato.
(1)				
(2)	*0.46	*0.46	0.1	0.1
(3)	5,060	3,772		
(4)	253	253		
(5)	12,801	9,543	3,600	2,300
(6)	1,150	1,150	150	
(7)	150	150		
(8)	1,239	1,133	450	270
(9)	1,065	1,278	292	135
(10)	283	283		
(11)				
(12)	92	92		
(13)				
(14)				
(15)	3,979	4,086	892	405
(16)	293	293	67	135
(17)			600	300
(18)				
(19)	293	293	667	435
(20)	4,272	4,379	1,559	840
(21)	1,707	1,707		
(22)				
(23)				
(24)	5,980	6,087		
(25)	6,821	3,455	2,040	1,460
(26)	38	38	42	25
(27)	2,134	2,134	1,390	878
(28)	8,114	8,222	2,949	1,718
(29)	4,687	1,321	650	582
(30)	11,000	8,200		
(31)	93	93	57	48
(32)	49	50	30	23
(33)	37	14	18	25

* All is 37.5% tenanted land

S-33				
Rice I	Rice II	Cucum.	St. bean	Tomato
0.6	0.6	0.12	0.11	0.12
6,000	4,800			
258	265			
15,480	12,720	2,000	3,000	2,702
2,135	2,135	180	1,200	75
30	30			
1,566	1,566	445	165	300
1,038	1,038	300	225	155
440	440			
1,284	1,274			
30	30			
		485		
6,525	6,515	1,410	1,590	530
154	154	45	120	200
		60		
154	154	105	120	200
6,679	6,669	1,515	1,710	730
8,800	6,050	485	1,290	1,972
47	47	43	35	22
1,855	1,855	1,440	1,125	750
8,534	8,524	2,955	2,835	1,480
6,945	4,195	955	165	1,222
10,000	8,000			
98	95	94	93	72
76	76	48	56	36
45	33	48	1	45

RICE FARMING IN TAIWAN

Index No.	S-34			S-35			
	Rice I	Rice II	Dbean	Rice I	Rice II	? bean	Guava
(1)							
(2)	0.28	0.28	0.28	0.53	0.53	0.53	0.34
(3)	3,200	2,290		5,565	4,240	2,157	
(4)	250	260		255	255	330	
(5)	8,000	5,954	3,300	12,690	10,810	7,118	2,390
(6)	1,175	1,175	270	3,876	3,876	2,073	2,465
(7)	160	160		300	300		
(8)	512	512	228	1,696	1,495	927	957
(9)	156	120	185	1,060	975	424	440
(10)	90	90		293	293	33	288
(11)	153	159		942	942		140
(12)	60	30		105	105	225	
(13)							
(14)				140	140		
(15)	2,306	2,246	683	8,413	8,127	3,682	4,290
(16)	182	189	304	140	140	370	
(17)				455			900
(18)							
(19)	182	189	304	595	140	370	900
(20)	2,489	2,436	987	9,008	8,267	4,052	5,190
(21)							
(22)							
(23)							
(24)							
(25)	5,510	3,517	2,313	3,681	2,542	3,065	2,800
(26)	16	16	16	0	0	0	0
(27)	880	880	620	0	0	0	0
(28)	3,369	3,316	1,607	9,008	8,267	4,052	5,190
(29)	4,630	2,637	1,693	3,681	2,542	3,065	2,800
(30)	11,429	8,179		10,500	8,000	4,070	
(31)	93	92	69	93	98	91	83
(32)	68	68	43	93	98	91	83
(33)	58	44	51	29	24	43	117

APPENDIX

267

S-36				
Rice I	Rice II	Dbean	Sbean	Banana
1.07	1.07	0.3	0.707	0.5
11,077	7,490		1,310	8,500
246	260		340	300
27,249	19,474	5,000	4,454	25,500
6,447	6,447	2,385	1,020	6,905
3,260	2,955	675	1,318	12,000
2,180	2,620	600	600	1,110
1,133	1,133	10	168	180
2,268	2,268			550
				1,050
				2,000
15,288	15,423	3,670	3,366	23,795
270	270	540	448	
1,500				2,160
1,770	270	540	448	2,160
17,059	15,693	4,210	3,814	31,955
10,189	3,780	790	640	6,455
61	58	22	28	46
3,115	2,995	1,120	1,320	2,720
20,174	18,688	5,330	5,134	34,675
7,047	785	330	680	9,175
10,352	7,000		1,853	
90	98	90	88	75
76	83	69	65	69
26	4	7	15	36

RICE FARMING IN TAIWAN

Index No.	S-37				S-38		
	Rice I	Rice II	? bean	Gubava	Rice I	Rice II	Dbean
(2)	0.42	0.42	0.42	0.2	0.4	0.4	0.3
(3)	4,200	2,940	1,100		3,600	2,900	
(4)	230	245	320		250	250	
(5)	9,660	7,203	3,520	5,000	9,000	7,250	3,500
(6)	1,960	1,960	450		2,150	2,190	1,220
(7)					300		
(8)	1,090	970	645		1,514	1,274	485
(9)	560	720	564	2,880	1,150	1,340	1,131
(10)	3,712	3,712			94	94	
(11)	835	889			837	837	
(12)	80	80			180	180	
(13)							
(14)							
(15)	4,896	4,990	1,659	2,880	7,225	5,915	2,836
(16)	115	115	300		125	125	560
(17)				900	600		
(18)				1,440			
(19)	115	115	300	2,340	725	125	560
(20)	5,011	5,105	1,959	5,220	7,950	6,040	3,396
(21)							
(22)							
(23)							
(24)							
(25)	4,648	2,097	1,561	220	1,049	1,209	104
(26)	16	16	16	168	12	14	79
(27)	1,025	1,025	700	6,480	400	480	2,520
(28)	6,036	6,130	2,659	8,820	8,350	6,520	5,916
(29)	3,623	1,072	861	3,320	649	729	2,416
(30)	10,000	7,000	2,619		9,000	7,250	
(31)	96	98	85	55	99	98	83
(32)	81	81	62	33	87	91	48
(33)	38	15	24	66	7	10	69

註：

1. 現住人口：指現在居住於府內之家族成員。
2. 出外人口：指那些遷出家族成員，但每逢過年過節仍常返鄉，且在該戶交繳丁口稅時，仍包括在該戶內之人口。
3. 教 育：註明不識字、識字、小學、初中、高中以及農事專業訓練班之類。
4. 語言能力：註明閩南、客家、國語、日語。
5. 職 業：主要職業如係農業，應註明自耕、半自耕、佃農，並應註明自十四歲以後該人職業變更情形。
6. 所屬社團：除社團名稱（如 4 H、農會、青果合作社、水利會、農事研究小組以及宗教社團）外，應註明該人在該社團的身份地位。
7. 村外生活：如服兵役、在外謀生、甚至較長期的旅行、應註明其目的及期間等。

二、耕作地與租出耕地

1. 自有面積_____甲
 其中放領地_____甲 非放領地_____甲
 包括_____筆
 _____等 則_____甲 估價_____元
 _____等 則_____甲 估價_____元
 _____等 則_____甲 估價_____元
 _____等 則_____甲 估價_____元
 _____等 則_____甲 估價_____元
 共水田_____甲 旱田_____甲
2. 租入面積共_____甲
 其中 三七五租地_____甲 租入日期_____
 非三七五租地_____甲 租入日期及條件_____
3. 出租面積共_____甲
 其中 三七五租地_____甲 租出日期_____
 非三七五租地_____甲 租出日期及條件_____
4. 耕作地面積共_____甲 (1+2-3)
 包括

稻 作 品 種	第一期面積	第二期面積

三、獸力與農業機械

獸 牛_____隻
 耕耘機_____臺

RICE FARMING IN TAIWAN

四、作物生產與收穫情形

	作物(一) 第一期	作物(二) 第二期	作物(三)	作物(四)	作物(五)
1 面積					
2 畝量					
3 價值					
4 毛利(2×3)					
5 現金成本					
工資					
點心費					
肥料					
農藥					
水利費(佃農負擔 $\frac{1}{2}$)					
田賦(佃農免繳)					
運費					
利息					
其他(註明)					
6 非現金成本(不包括家庭工)					
種子					
農具折舊費					
堆肥					
其他(註明)					
7 成本(5+6)					
8 租金(交給地主)					
9 地主負擔額(田賦 + $\frac{1}{2}$ 水利費)					
10 地主收益(8-9)					
11 佃農成本(包括地主收益7+10)					
12 佃農工及其資金所得淨利(4-11)					
13 家庭工					
工數					
金額					
14 總成本(包括家庭工)(11+13)					
15 佃農資金的淨利(12-13)(4-14)					
16 每公頃生產量(2+1)					
17 現金成本佔成本之百分比					
18 現金成本佔總成本百分比					
19 出售獲利比例					

五、農產物出售（包括田賦實物）與消費

	出售數目及百分比	(註1) 出售方法	家庭消費 %	留種	(註2) 其他
作物 1					
作物 2					
作物 3					
作物 4					
作物 5					

註1：出售方法應註明是否寄存農會、私人買賣（應區別商販來村內收買或農民運至市場出售）、共同運銷（如青菓）、工廠收購等。

註2：指自然災害等消耗。

六、收 入

1. 農事收入	農事總收入_____元
減去	農事購置費_____元
減去	農事工資_____元
減去	利息_____元
減去	租金_____元
	計_____元(=四之12)
2. 其他收入	工資_____元
	出外家族成員匯款_____元
	利息_____元
	其他_____元

七、支出

在過去兩年，貴戶曾買了_____甲土地，價值_____元

曾蓋了_____坪房屋，花了_____元

曾買了以下較重要的農具及傢具。

_____，_____元

_____，_____元

八、非農事收入

1. 去年一年做工天數(按個人計算)及工資

姓名_____ 姓名_____ 姓名_____

普通工_____天 _____天 _____天

_____元 _____元 _____元

特別工_____天 _____天 _____天

(註明使用工具)

2. 出租地收入_____甲_____元

3. 出租機械收入 機械種類_____，單價_____元

共計_____元

4. 其他收入 工作一_____，計_____元

工作二_____，計_____元

工作三_____，計_____元

九、請問 貴戶一年至少需要_____斤稻谷的收益才能維持生活?

十、家庭設備與農具

	購買日期(數量)		購買日期(數量)
腳踏車		電動抽水機	
縫衣機		瓦斯爐	
水泥地面		噴霧機	
收音機		耕耘機	
電扇		摩托車	
電唱機		電視機	
電鍋		電水箱	
沙發		報紙	
抽水機		雜誌	

中央研究院民族學研究所

專刊乙種第五號

臺灣稻作農村之研究

定價 平裝新台幣貳佰元

著 者 王 崧 興 艾 瑞 門
出 版 者 中 央 研 究 院 民 族 學 研 究 所
發 行 者 中 央 研 究 院 民 族 學 研 究 所
印 刷 者 精 華 印 書 館 股 份 有 限 公 司

中 華 民 國 六 十 三 年 六 月

中央研究院民族學研究所

專刊乙種第五號

臺灣稻作農村之研究

王崧興 艾瑞門

中華民國六十三年六月

臺北 南港

