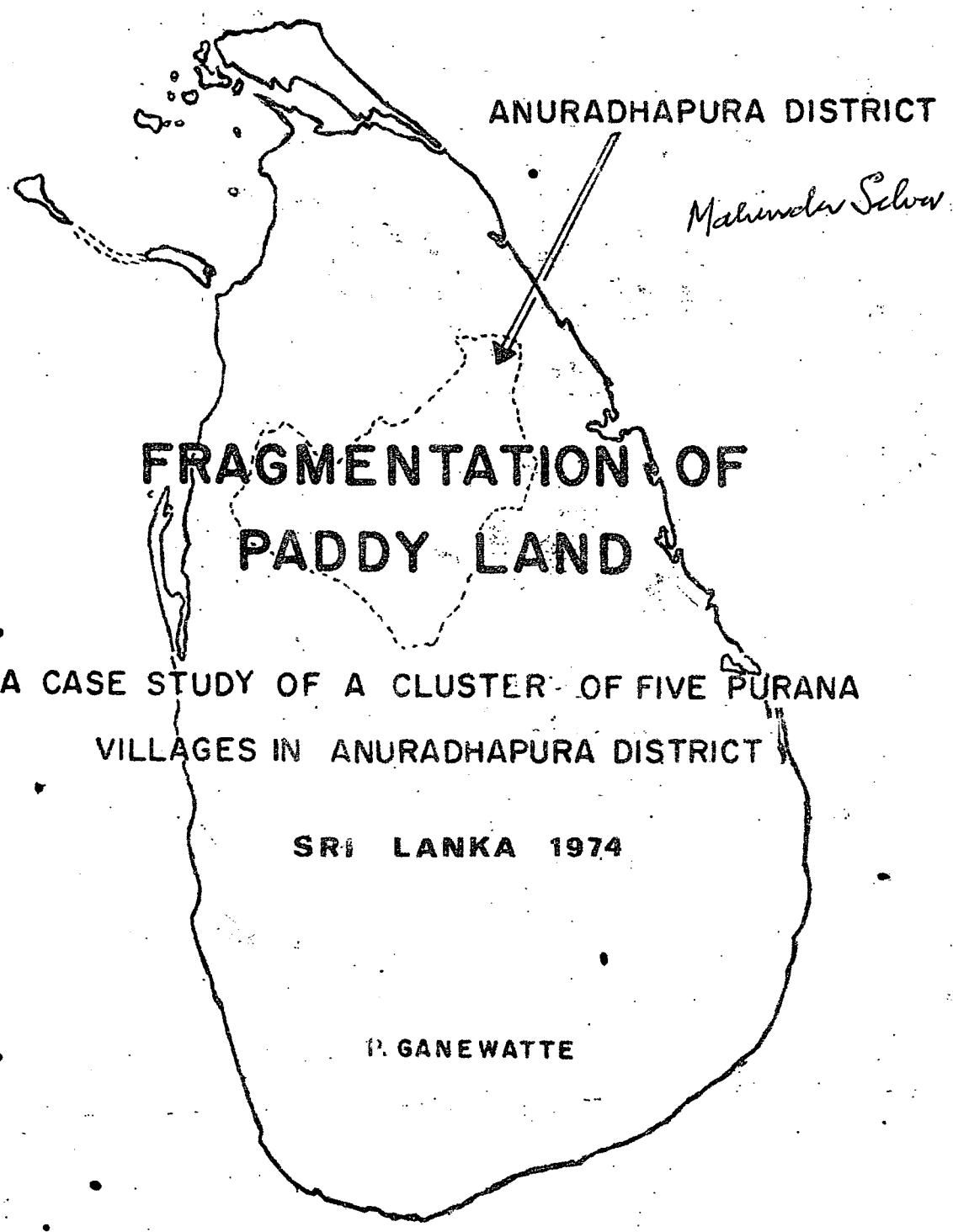


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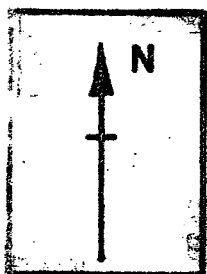
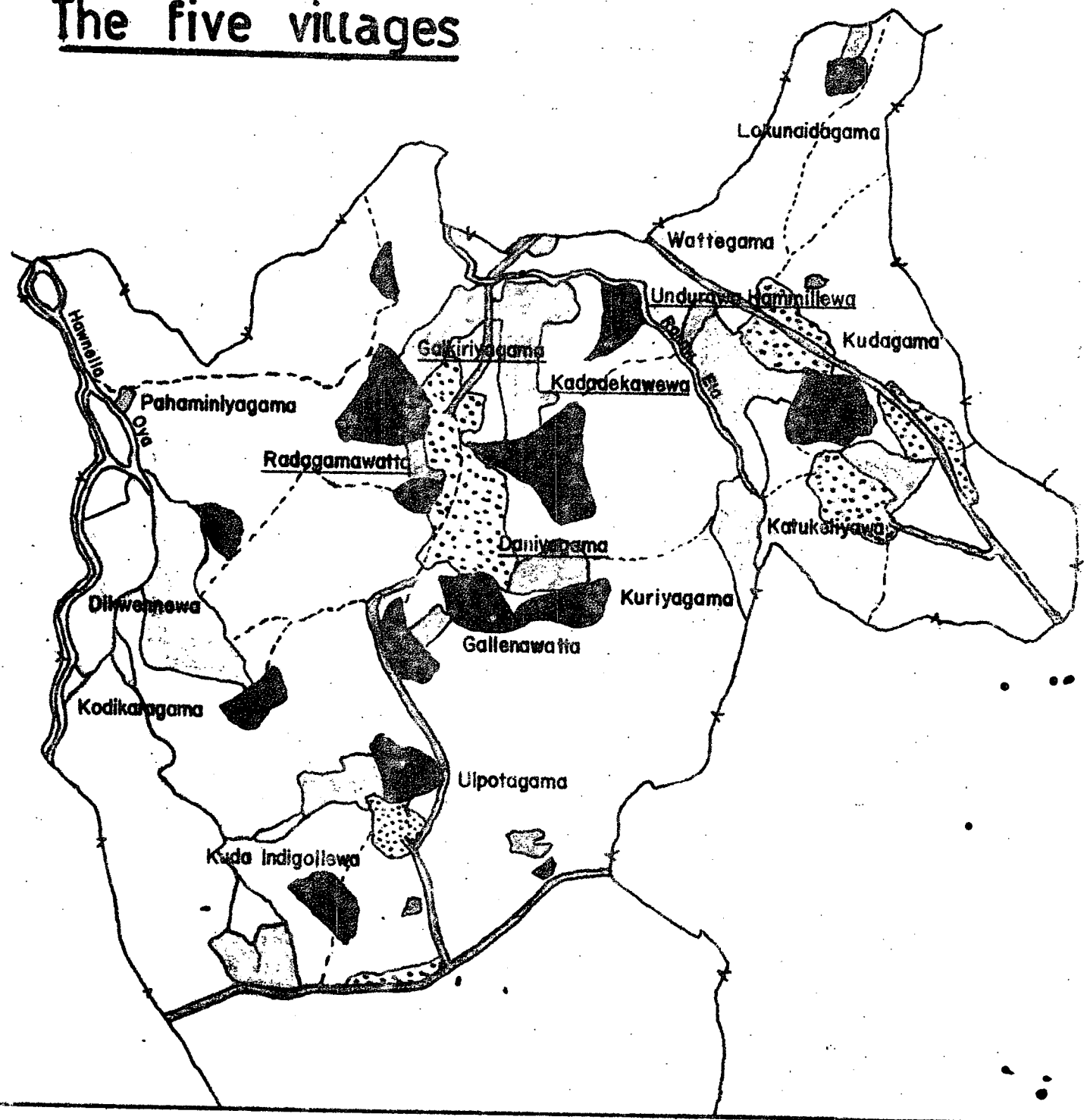
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LOCATION MAP:

The five villages



Scale — Two Inches To One Mile

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333-613 (54)

Paddy	
Village Garden	
Tank	
Channel	
Road	
Path	
Korale Boundary	

2009/06
2010/04

PREFACE

In 1973 FAO collected together a number of case studies representing various aspects of 'Contemporary Changes in the Agrarian Structure'.

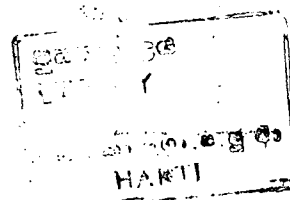
Sri Lanka presented a series of six such case studies to the Asian Experts Consultation in Agrarian Reform at Bangkok in November. Responding to the suggestion of the FAO that the case studies should be made available to wider readership, the six Sri Lanka Studies have been reproduced in the 'Occasional Publication Series' of the Agrarian Research and Training Institute.

Study No. 4, 'Fragmentation of Paddy Land in a Cluster of Five Purana Villages in Anuradhapura District, Sri Lanka', provides an interesting picture of the land holding situation in a cluster of villages which have both economic and kinship ties. The tenurial situation of paddy lands in Sri Lanka is no less complex than in many Asian countries, and more 'grassroots studies' of this type are needed to determine the practicability of featuring consolidation in any future 'land-to-the-tiller' programme for paddy lands.

The Agrarian Research and Training Institute acknowledges the kind permission of the Land Commissioner, Mr. K. N. Weerakkody and the Chairman of the Mahaweli Development Board, Mr. H. de S. Manamperi, to use data collected earlier under their auspices and recently revised in the field for the FAO Series by the author.

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FRAGMENTATION OF PADDY LAND - A CASE STUDY
OF A CLUSTER OF FIVE PURANA VILLAGES IN ANURADHAPURA
DISTRICT. SRI LANKA 1974

1. INTRODUCTION

1.1 Definition of terms

Fragmentation refers to the break-up of land into small parcels; this study specifically refers to irrigated land cultivated with paddy.

Cluster refers to a group of villages closely linked to each other physically, socially and culturally. Usually the villages in a "cluster" are connected by close kinship ties and are inter-dependent economically.

The term *Purana* means old or traditional, and is often used to distinguish old traditional villages from new villages, particularly those formed under Settlement Schemes. The main components of a "purana" village are the village tank (*Wewa*), the residential highland (*Gangodella*), the stretch of paddy fields below the village tank (*Yaya*), and the chena land (*Hena*). The *chena* refers to non-irrigable highland encroached by the villagers, usually State Forests, which are cleared by burning and cultivated with grains, pulses, tobacco or vegetables. Each *purana* village has its own *chena* territory and rights of cultivation of specified chena land are respected by other villagers.

In recent years due to the rapid increase of population in the purana villages, there has been considerable pressure on chena land. This pressure may be gauged by the distance from the village of lands cultivated and the regularity of cultivation. (With less pressure the chena would be cultivated less frequently).

1.2 The villages in the cluster

In the cluster referred to in this study there are five purana villages, viz:

- (a) Galkiriyagama
- (b) Unduruwa Halmillawewa
- (c) Kadadekawewa
- (d) Radagamawatta
- (e) Deniyagama

It should be noted that each village gets its name from the village tank. (Refer map indicating the location etc., of the five villages).

1.2.1 *Galkiriyagama* village

There are two interpretations as to how *Galkiriyagama* got its name. One interpretation is that the first settler in the village originally came from the village of *Galkiriya* (in Kurunegala District), and the settlement he built came to be named *Galkiriyagama* after him. The other interpretation is that *Galkiriyagama* means the "village of the rocky expanse" (*Galkiriya* means "large flat rock").

1.2.2 *Unduruwa Halmillawewa*

The name *Halmillawewa* is a common one for a purana village. The writer is aware of more than a score of villages by this name. *Halmilla* is a popular hardwood tree and *Halmillawewa* literally means the tank with the "Halmilla" trees. The term *Unduruwa* is used as a prefix to *Halmillawewa* and gets its name from the administrative sub-division of Korale of Unduruwa, (or Unduruwa Korale), and is used to distinguish the village from the other villages of the same name. The village of *Unduruwa Halmillawewa* is situated next to the village of *Galkiriyagama*, as seen from the map.

1.2.3 *Kadadekawewa* village

The village of *Kadadekawewa* also gets its name from *Kadadekawewa* tank; the name *Kadadeka* means the "tank of the two breaches". When the tank was constructed originally the bund of the tank got breached in two places (*Kada* means breach or crack, and *Deka* means two). This village is a satellite village of *Galkiriyagama* and is situated in the south-eastern fringe of *Galkiriyagama*.

1.2.4 *Radagamawatta* village

The village of *Radagamawatta* is a very small village adjacent to the village of *Kadadekawewa*. The name means the "village of the washermen" (or laundrymen). The washermen are considered an inferior caste and it was customary for most purana villages to have a few such families to wash clothes and to perform ceremonial functions on intimate ceremonial occasions such as, childbirth, puberty, marriage and death, during the Sinhala New Year festivities, and at religious ceremonies.

The small village tank able to irrigate only a few acres of paddy land is located in the village. Actually there are only four acres of paddy land in this village.

Several generations back, the washer caste families 'sold' locally the paddy and highland originally donated by the villagers of *Galkiriyagama* and migrated to the exclusive washer-caste village of *Meewewa*. The ceremonial obligations to the villagers of this cluster are still performed by the washermen who regularly visit the village from *Meewewa*.

1.2.5

Daniyagama village

The village of *Daniyagama* is on the southern fringe of the cluster. The village gets its name from *Danya* meaning grain. Legend has it that a granary was constructed in the village by a Minister named *Wanasinghe* of King Kirthi Sri Rajasinghe.^{1/} The Minister was entrusted by the King to construct a rock temple, close to the present village of Andiyagala. The King's Minister *Wanasinghe* built the rock temple (named *Wanasinghe Rajamaha Vihara*, after the Minister who constructed it). He set up a granary at the site of the village of *Daniyagama* to feed the host of craftsmen and labourers who were brought from Kandy for the construction.

1.2.6

The Cluster

The centre of the cluster is the village of *Galkiriyagama*; there is no doubt that the other villages in the cluster accommodated the overflow from the village of *Galkiriyagama*.

All five villages in the cluster are Sinhala Buddhists and are of the *Goigama* (cultivator) caste. There are close kinship ties between villages in the cluster and the most significant feature is that many villagers own land in several of the five villages in the cluster.

As the oldest and the central village of the cluster, the village of *Galkiriyagama* is the nucleus of social and economic life. The Senior Secondary School, the Cooperative Store, the Paddy Store, the Sub-Post Office, the Central Dispensary, the small shopping centre (two village boutiques and the barber saloon) are all in *Galkiriyagama*. Dry weather roads connect the villages of *Unduruwa*, *Halmillawewa*, *Kadadekawewa*, *Radagamawatta* and *Deniyagama* to *Galkiriyagama*.

1.3

The Land Tenure System in the "Cluster"

1.3.1

The Background of the Land Tenure System

The problem of fragmentation of land is closely linked to the traditional patterns of land tenure. According to the traditional land tenure of the *purana* villages, ancestral land is referred to as *praveni* land and ownership is governed by the traditional laws of inheritance where the land owned by both parents is passed down in equal shares or *pangus* to all children. Any child may forego his *pangu* rights by transferring of his own free will his share to another brother, sister or kinsman. Usually *praveni* land is not sold to outsiders by the *purana* villagers.

The ownership of land resulting from allocation of land by the State, by deed or grant, or by outright purchase, is referred to as *sinnakkara*. Prior to the Land Development Ordinance 1935 and subsequent amendments to the Ordinance in 1961 and 1969, allocation of land to peasants was governed by a series of "Land Orders". The Government allocated land to the *purana*

^{1/} King Kirthi Sri Rajasinghe reigned in the Kandy Kingdom from 1747 - 1782 AD.

villagers on grants under these Land Orders. Such allocation of land granted ownership rights to the allottees and was usually referred to as *sinnakkara* lands. As in the case of the *pravani* land, *sinnakkara* land could be passed down to successors.

After the Land Development Ordinance of 1935 and subsequent amendments in 1961 and 1969, State land close to the village was allocated to peasants for village expansion. These lands usually referred to as *Badu Idem* - rented land or *Anduwa Idam* - Government land bestowed on the allottees the right of occupation of the land on "the will and pleasure of the Crown". In the case of those lands, the right of succession to the land is confined to one successor to be nominated by the allottee.

The traditional pattern of land tenure under the *pravani* and *sinnakkara* systems greatly favoured fragmentation. For example, if a peasant owned five acres of paddy land and two acres of highland and had five children, the paddy land and the highland would pass down at his death in five equal *pangus* (or shares) to his five children. Each child would then be entitled to one acre of paddy land and $\frac{3}{5}$ acre of highland. There would often be no physical partitioning of each *pangu* and either the land would be unofficially divided or each manages the land in turn, and all five share the produce. At the second generation the original *pangu* would be further sub-divided. In the third generation each *pangu* would be still smaller. A person may own several tiny parcels of land scattered in different parts of the village, thus making up a fragmented holding.

There are a group of villages in the Dry Zone of the same *Warige* (linage or clan) and usually marriages are contracted only from the village of the same *Warige* (linage) the usual form of dowery for a girl is her *pangu* of paddy and highland.

Cultural traditions connected with the institution of marriage have an impact on land tenure. Such a practice is *Awessa* or cross-cousin marriage is popular in the purana villages as the gross *pangu* of the girl does not go to outsiders. It appears that cross cousin marriage has an effect in some measure of consolidation.

1.4 The System of Thattumaru and Kattimaru^{1/}

The systems of *Thattumaru* & *Kattimaru* which operate in most parts of Sri Lanka permit owners to use land together in a way that reduces some adverse effects of land. These two terms

^{1/} For detailed study of these systems in Kalutara District (Western seacoast of Sri Lanka) see I.K.Weerawardene and I. Collonnege: *Thattumaru and Kattimaru Study*, Department of Agrarian Services (Paddy Lands Branch) 1971

Thattumaru and *Kattimaru* are sometimes used interchangeably and confused by many people as one. Even in the discussion the writer had with village leaders the terms do not appear to be clearly distinguished.

According to the President of the Galkiriyagama Cultivation Committee (a statutory body of elected farmers) the term *Thattu* refers to rotation of the same plot between several owners on an annual basis. For example if two persons own a plot of paddy land one person would cultivate the entire plot during one year and the next owner the following year. However, where there are many owners it is customary for one of them to cultivate the entire plot and to share the produce with the others and here the system of *Thattumaru* does not strictly operate. It can therefore be surmised that *Thattumaru* operates when there are only a few co-owners.

In the *Kattimaru* system if several farmers jointly own several more or less equal plots each owner cultivates each plot in rotation. The President of the Cultivation Committee very succinctly summarized the two systems of land usage. According to him *Thattumaru* refers to the rotation of persons in one plot and *Kattimaru* the rotation of plots among several owners.

The concept and implementation of the *Thattumaru* and the *Kattimaru* systems differ in fact from region to region and there is much controversy on the meaning and practical application of the two systems. Whatever the terminology used, the systems appear to have succeeded in diminishing the fragmentation of paddy land and the operation of the paddy holding as an economic and viable Unit.

A few instances of the operation of the *Thattumaru* and *Kattimaru* systems were observed in the cluster and are treated in a separate study.

1.5 The System of *Ande* Cultivation

The term *Ande Cultivator* means "share cropper" or tenant farmer. In almost all the villages in the cluster, cultivation of paddy land by tenant farmers is more the rule than the exception. In many instances the owner of paddy land in the cluster are either women or old men who are unable to cultivate the land. The cultivation is then entrusted to a close relative, who functions as an *Ande* cultivator. Another reason for the popularity of the *Ande* system is that one person invariably owns small plots of paddy land in some or all of the five villages and the owner concentrates on the cultivation of the most fertile parcels of paddy land in his own village. He entrusts the cultivation of his other parcels to *Ande* cultivators - often his relatives. Obligations of the owner cultivator as laid down in the Paddy Lands Act do not operate in the cluster - the arrangement is a very informal and unofficial one between the two relatives who are owner and tenant.

In the Paddy Cultivation Register maintained by the Cultivation Committee, it is the name of the owner who is registered as the cultivator. Usually the tenant gives one half of the produce to the owner after each harvest.^{1/}

1.6 Terminology used in Land measurement

Most farmers in the cluster are not familiar with the terminology used by officials in the measurement of Paddy land such as Acres, Roods and Perches, but talk in terms of *Seruwa*, *Laha* and *Thimba*. The tables of paddy land measurements used by farmers and officials respectively, follow:

Traditional system of measurement of paddy land		Official measurement of paddy land
6 serus	= 1 laha	40 perches = 1 rood
4 lahas	= 1 thimba	4 roods = 1 acre

The farmer is more conversant in discussing his ownership in terms of *lahas*, the traditional system of paddy land measurement. The writer had the opportunity to clarify the traditional system and to equate it with the official system as follows:

1 seru	=	2.6 perches
1 laha	=	16 "
2 lahas	=	32 "
3 lahas	=	48 "
4 lahas or 1 thimba	=	64 "
2 ¹ / ₂ thimbhas or 10 lahas	=	160 " or 1 acre

In this study the writer converted the traditional paddy land measurements to the official system of perches, roods and acres.^{2/}

1.7 Cultivation Committees

The Cultivation Committee is a statutory farmers' organisation instituted after the Paddy Lands Act (1958). Each Cultivation Committee has jurisdiction over *wel yayas* (separate stretchers of paddy fields) of several villages. In this cluster there are

^{1/} This is a contravention of the Paddy Lands Act, which legislates for a maximum of one quarter share - the Act does not however provide for the many variations in contribution of landlord and tenant respectively, nor for the social consequences of changing family arrangements!

^{2/} The fact that Cultivation Committees maintain their Registers according to the official system is most helpful.

Two Cultivation Committees, viz: the Galkiriyagama Cultivation Committee (including villages of Radagamawatta and Daniyagama) and the Unduruwa Halmillawewa and Katukitiyaya Cultivation Committee (including the village of Kadadekawewa).

Each cultivation committee consists of twelve members elected by both owner-cultivators and tenant-farmers on an acre basis. Cultivators of larger extents of land tend to be more influential in the Cultivation Committee. It is customary to elect the President and Secretary from different villages. It is the responsibility of the Secretary of the Cultivation Committee to maintain the Paddy Lands Register and to collect the "acre levy" (from which he gets a commission). The acre levy is usually Rs.6.00 per acre and the calculation is made in terms of fractions of an acre, e.g. the levy is Rs.3.00 per 1/2 acre and Rs.1.50 per 1/4 acre.

The Cultivation Committee have not had any authority with regard to highland ¹/_{and} no official records of highland cultivation are available with the Committee at present.

2. OBJECTIVE OF THE STUDY

The objective of the study was to gather data on the extent and intensity of fragmentation of paddy land in a typical cluster of purana villages in the dry zone.

3. METHODOLOGY OF STUDY

The technique used in this study was the depth interview method. Depth interviews were had with the President and members of the Galkiriyagama Cultivation Committee, the Secretary and members of the Unduruwa Halmillawewa, Katukeliyawa Cultivation Committee, the former *Vel Vidanees* (Irrigation Overseers) of Galkiriyagama, the *Grama Sevaka* (village extension worker), of No.51 *Tulane* (resident of Galkiriyagama) and the several village leaders.

To supplement the data from the depth interview official records such as the Paddy Lands Register and the Thattumaru and Kattimaru Registers of the two Cultivation Committees, were intensively studied. Records available with the Grama Savaka, particularly with regard to the population and ownership of highland, were used. The Study was undertaken in July 1973.

¹/Under the new Agricultural Lands Bill to be presented in late 1973, it is expected that highlands will come together with paddy lands and that the powers of the Cultivation Committee will be increased.

4. THE SELECTION OF THE FIVE VILLAGES

Many field studies undertaken by the writer in the purana villages of the dry zone indicated that the purana village cannot be considered in isolation from other villages. Usually several purana villages are clustered together with close social, economic and kinship ties. The five villages selected for this study viz: Galkiriyagama, Unduruwa Halmillawewa, Kadadekawewa, Radagamawatta and Daniyagama form a natural cluster. In a study undertaken by the Mahaweli Development Board in 1971 two of the five villages in the cluster under study (Galkiriyagama and Kadadekawewa) were considered by the *Study Team* to be *typical purana villages*.

Of the five villages in the cluster the village of Radagamawatta is a small highland village - more a neighbourhood of Galkiriyagama than a separate village. In terms of the problem of fragmentation of paddy land the village of Radagamawatta is not typical as there are only four acres of paddy land in the village. It is included as an integral part of the "cluster", but it is not considered in the discussion of fragmentation.

5. POPULATION CHARACTERISTICS OF THE FIVE VILLAGES IN THE CLUSTER

The distribution of population of the five villages of the "cluster" is given in Table I.

Table 1. Population of the five villages of the cluster - 1972

Name of village	No. of families	Population	Average family size
(a) Galkiriyagama	54	274	5.0
(b) Unduruwa Halmillawewa	20	95	4.7
(c) Kadadekawewa	26	103	4.0
(d) Radagamawatta	33	144	4.4
(e) Daniyagama	29	137	4.7
Total	162	753	4.6

The average family size of the villages in the 'cluster' is similar to most other purana villages in this part of the country. The village of Galkiriyagama - with the largest population is the central village of the cluster.

6. HIGHLAND AND PADDY LAND IN THE CLUSTER

Table 2 indicates the extent of highland and paddy land in the village of the cluster.

Table 2. Extent of paddy land and highland in the cluster

Name of village	Paddy land (in acres)	Extent of* Highland (in acres)
Galkiriyagama ..	56	54
Unduruwa Halmillawewa ..	51	72
Kadadekawewa ..	49	23
Radagamawatta ..	4	32
Deniyagama ..	36	28
Total ..	196	209

* Includes *Badu Idam* or land allocated by the state for village expansion.

- The highland in the cluster consists of two categories of land: traditional highlands, inherited from ancestral times (usually referred to as *praveni* land) and highland allocated to peasants by the Government under the Village Expansion Scheme. These lands allocated under the Village Expansion Scheme is referred to as *Badu Idam* which literally means "rented out land". (This Study does not cover fragmentation of highland) ^{1/}

7. FRAGMENTATION OF PADDY LAND IN THE CLUSTER

7.1 Characteristics of fragmentation of Paddy Land

Out of the five villages in the cluster, fragmentation of paddy land is evident in four villages, viz: Galkiriyagama, Unduruwa Halmillawewa, Kadadekawewa and Daniyagama. (In the village of Radagamawatta there are only four acres of paddy land irrigated by a small tank, *wew kotawa*).

Table 3, indicates the extent of fragmentation of paddy land. To facilitate a clearer understanding of this problem, the writer uses intervals ranging from below 4 perches of paddy land to 32 perches thereafter larger fractions of an acre at convenient intervals. The average number of parcels per farmer and the average size of parcels are also included in this table. (In the compilation of these averages the village of Radagamawatta has not been taken into consideration)

^{1/} Refer Case Study *Small-holdings of The Coconut Triangle* (Study No.2 ARTI) for joint ownership in highland under coconut

Table 3. Fragmentation of Paddy Land in the Cluster of villages, 1973.

Serial No.	Name of village	No. of farmers in village	No. of acres of Paddy land	Less than 1/8 acre				
				below 4 perches	4 - 7 perches	8 - 11 perches	12 - 15 perches	16 - 19 perches
1.	Galkiriyagama	94	56	15	18	19	26	35
2.	Unduruwa Halmillawewa	89	51	-	-	-	-	27
3.	Kadadekawewa	38	49	-	-	4	-	14
4.	Daniyagama	59	36	1	-	-	1	8
Total		280	192	16	18	23	27	84

N.R.

The village of Radagambatta with a total of only 4 acres of paddy land owned by 5 persons has not been included in the table.

20 - 23 perches 24 - 27 perches 28 - 31 perches 32 - 35 perches 36 - 39 perches less than 1/4 acre					1/4 acre below 1/2 ac.	1/2 acre below 3/4 ac.	3/4 acre below 1 acre	1 - 2 acres	Over 2 acres	Total No. of parcels	Average No. of parcels per farmer	Size average parcels in acres
10	37	-	29	-	59	15	2	5	1	271	2.8	0.2
-	3	-	56	-	31	28	8	6	-	159	1.7	0.3
1	4	-	29	4	36	32	6	4	-	134	3.5	0.4
2	9	-	38	1	44	15	1	2	-	122	2.0	0.3
13	53	-	152	5	170	90	17	17	1	686	2.4	0.27

The interesting features that emerge from Table 3 are:

- i. 168 parcels (out of the total 686 parcels) or 24.5% in the four villages (Galkiriyagama, Unduruwa Halmillawewa, Kadadekawewa and Daniyagama) are below 1/8 acre.
- ii. 223 parcels (out of the total 686 parcels) or 32.2% are between 1/8 acre and 1/4 acre. In other words 56.7% of the parcels are below 1/4 acre in extent.
- iii. 170 parcels (out of the total 686 parcels) or 25% are 1/4 acre and below 1/2 acre. This means that 81% of parcels are below 1/2 acre
- iv. 90 parcels (out of the total 686 parcels) or 13.1% are 1/2 acre and below 3/4 acre
- v. 17 parcels (out of the total 686 parcels) or 2.5% are 3/4 acre and below one acre.

Only 18 parcels (out of the total 686 parcels) or 2.7% are one acre and above.

There is only one parcel above 2 acres, this is in the Galkiriyagama field.

- vi. Of the 168 parcels below 1/8 acre (or 19 perches) 67.2% (113 parcels) are in the Galkiriyagama field; 16.1% (27 parcels) are in the Unduruwa Halmillawewa field; 10.7% (18 parcels) are in the Kadadekawewa field; and 6.0% (10 parcels) are in the Daniyagama field.
- vii. The greatest fragmentation of paddy land is in the Galkiriyagama field. This is undoubtedly due to prestige of ownership in this ancestral field, and the owner of even the smallest parcel is reluctant to sell it.
- viii. The ownership of parcels of paddy land ranges from one parcel to ten parcels. (This is in the Galkiriyagama field).

7.2 The Pattern of Fragmentation of Four Villages of the Cluster

In Table 4, the distribution of parcels of paddy of four villages in the cluster is considered in respect of each village.

Table 4. Percentage distribution of Parcels of Paddy Land by size in the Cluster

Size of parcels	Galkiriyagama		Unduruwa Halmillawewa		Kadadeka-wewa		Deniyagama	
	No. of parcels	%	No. of parcels	%	No. of parcels	%	No. of parcels	%
Below 1/8 ac.	113	41.7	27	17.0	18	13.4	10	8.2
1/8 below 1/4	76	28.0	59	37.1	38	28.4	50	41.0
1/4 "	59	21.8	31	19.5	36	26.8	44	36.1
1/2 "	15	5.5	28	17.6	32	23.9	15	12.3
3/4 "	2	0.8	8	5.0	6	4.5	1	0.8
1 - 2 acres	5	1.8	6	3.8	4	3.0	2	1.6
Over 2 acres	1	0.4	-	-	-	-	-	-
Total	271	100.0	159	100.0	134	100.0	122	100.0

7.2.1 Galkiriyagama field

In the Galkiriyagama field 113 parcels or 41.7% are below 1/8 acres. Almost 70% of the parcels are below 1/4 acre. 91.5% of the parcels are below 1/2 acre and only 8.5% of the parcels are over 1/2 acre.

7.2.2 Unduruwa Halmillawewa field

The Unduruwa Halmillawewa field is 51 acres in extent. Twenty seven parcels or 17.0% are below 1/8 acre. The smallest parcel of paddy land is 16 perches or 1/10 of an acre. More than 54% of the parcels are below 1/4 acre. 73.6 of the parcels are below 1/2 acre. The number of parcels owned per farmer ranges from one to six parcels.

7.2.3 Kadadekawewa field

In the Kadadekawewa field 13.4% of the parcels of paddy land are below 1/8 acre, 41.8% are below 1/4 acre and 68.6% below 1/2 acre.

The smallest parcel in Kadadekawewa field is 8 perches or 1/20th of an acre. The number of parcels owned per farmer ranges from one parcel to eleven parcels.

7.2.4 Daniyagama field

The Daniyagama field is only 36 acres in extent. Ten parcels or 8.2% are below 1/8 acre. However, nearly 50% of the parcels are below 1/4 acre and 85.3% of parcels below 1/2 acre. The smallest parcel is 12 perches or 0.075 acres. The number of parcels owned per farmer ranges from one parcel to eight parcels.

The Ownership Pattern of Paddy Land in the "Cluster"

It is necessary to emphasize that ownership of paddy land is not confined to one field. Farmers in one village own parcels of paddy land in the fields of other villages in the cluster and some farmers will own paddy land even in distant villages. This pattern of paddy land ownership still further complicates the problem of fragmentation. For example let us take the case of a leading farmer of Galkiriyagama, Mr.K.B. Appuhamy. The number and extent of parcels of paddy land he owns is given in the table 5.

Table 5. Number of parcels of Paddy Land owned by
Mr.K.B. Appuhamy of Galkiriyagama of Galkiriyagama Village

Size of Parcels	Galkiriyagama	Unduruwa Halmillawewa	Kadadeka- wewa	Total
Below 4 perches				
4 - 7 "				
8 - 11 "				
12 - 15 "				
16 - 19 "				
20 - 23 "	1			1
24 - 27 "	1			1
28 - 31 "				
32 - 35 "		1	1	2
36 - 39 "				
1/4 below 1/2 ac.	1		3	4
1/2 ac." 3/4 ac.		3	3	6
3/4 ac." 1 acre.			1	1
1 - 2 acres		1		1
Over 2 "				
Total	3	5	8	16

Mr.K.B. Appuhamy of Galkiriyagama owns a total of 6 ac.1 R.28 P (1,028 perches) in 16 parcels scattered in three villages of the cluster!

The situation of many other farmers in the five villages is in varying degree similar to that of Mr.K.B. Appuhamy; he is in an advantageous position in so far as he owns fairly big sized parcels. The position would be further aggravated in the case of a farmer owning several tiny parcels scattered in three fields.

To look more closely at the case of Mr.K.B. Appuhamy, he cultivates all the parcels of paddy land in the Galkiriyagama field. In Unduruwa Halmillawewa and Kadadekawewa he is forced to give part of his paddy land to *Ande* cultivators as he does not have the money and the resources to cultivate all the parcels.

Many owners of small extents of paddy land are playing a dual role-owner cultivator in one field and *Ande* cultivator in other fields.

Thus, the institution of *Ande Cultivation* (tenant-farming) is a strong and vital component of society in the cluster of villages under study.

The fact that all farmers have close kinship ties and that most function both as owner-cultivator and ande-cultivator (tenant farmer), ensure a harmonious relationship though not always in accordance with the Paddy Lands Act.

7.4

Ownership of Paddy Land by Residents and Outsiders in the Cluster

As indicated earlier farmers of all five villages own paddy land in several fields. Farmers who own paddy land in their own village field are classified "Resident farmers" and outside farmers who own land in the same field are classified "Outside farmers".

For details of ownership of paddy land by resident farmers and outside farmers, see Table 6.

Table 6. Ownership of Paddy Land by "Resident" Farmers and "Outside" Farmers in the cluster 1973

Name of Village	No. of farmers	Paddy acreage	Resident Farmers			Outside Farmers		
			total	No. age	Acre- owned age owner-ship	No. age	owned	Acre- age owner-ship
Galkiriya-gama)	94	56	69	47	84.0	25	9	16.0
Unduruwa)								
Halmil-lawawa)	89	51	29	17	33.4	62	34	66.6
Kadadekawewa	38	49	20	24	49.0	18	25	51.0
Radagamawatta	5	4	5	4	100.0	-	-	-
Daniyagama	59	36	32	25	69.5	27	11	30.5
Total	285	196	155	117	-	132	79	-

Table 6 indicates that the majority (84.0%) of the Galkiriya-gama field is owned by residents of Galkiriya-gama. In the village of Unduruwa Halmillawewa the position is reversed with 66.6% of the field owned by outsiders. One reason that is given by the Secretary of the Cultivation Committee is that Unduruwa Halmillawewa was originally an *olagama* of Galkiriya-gama. (*Olagama* is an uninhabited village where the paddy fields are cultivated by the village that repairs the village tank); and it is evident that most of the residents of Unduruwa Halmillawewa originally came from Galkiriya-gama.

In the village of Kadadekawewa too more than 50% of the paddy land is owned by outsiders from Calkiriyagama and Daniyagama. It is significant that Kadadekawewa farmers do not own as much paddy land as Calkiriyagama and Daniyagama farmers. The Elders of Calkiriyagama and Daniyagama villages consider the people of Kadadekawewa as an inferior *Varige* (*Varige* means clan) - a lower strata of the *Goigama* (cultivator) caste. Marriage relationships^{1/} with the village of Kadadekawewa are not encouraged in Calkiriyagama and Daniyagama. The people of Kadadekawewa are comparatively poor in relation to the other four villages, and most of Kadadekawewa folk are engaged as *ande* cultivators in Daniyagama and Unduruwa Palmillawewa.

Of the five villages, Calkiriyagama and Daniyagama villages are closer together than the other three villages. As pointed out earlier the village of Radagamawatta is a highland village with only four acres of paddy land. The status of Radagamawatta as a *purana* village is lower, as the village has no paddy field. Most of the Radagamawatta villagers are the 'spill-over' from Daniyagama and Calkiriyagama. Several farmers of Radagamawatta have small parcels of paddy land in Unduruwa Palmillawewa, Daniyagama and Kadadekawewa. Those who have no paddy land are engaged in *ande* cultivation of paddy in the other villages.

8. THE LOCATION AND DISTRIBUTION OF PADDY LANDS IN FRAGMENTATION

As a prelude to the discussion on fragmentation of paddy land and its implications on productivity it is appropriate to discuss the importance of the location of parcels in the main plots of the field. Each stretch of paddy field, under a village tank is divided into plots usually referred to as *wela*, *kumbura*, *kotawa*, or *panguwa* - all these terms means, plot or paddy land in the main *Yaya* (stretch of paddy fields). Certain plots are preferred from the point of view of fertility, easy availability of water and protection from wild animals. Centre plots are much preferred to plots on the two sides of the *yaya* and those further away from the irrigation source. If a farmer has several parcels of paddy land scattered in different parts of the field, he will give priority to the cultivation of the parcels in the main fertile and easy irrigable part of the field. The cultivation of the parcels on the less fertile part of the field - usually the outskirts of the field with poor water supply, receives less attention.

^{1/} Where *caste* consciousness exists in Sri Lanka, the selection of marriage partners is one of the most reliable 'indicators' of caste or class.

With fragmentation of paddy land and the construction of 'bunds' to demarcate boundaries of each parcel the main field is criss-crossed with numerous bunds giving the appearance of a large jigsaw puzzle. This makes it difficult for tractor equipment to reach the different parts of the field and may be a constraint to the adoption of modernizing agricultural techniques,

When a farmer owns several parcels of paddy land scattered in different fields, he invariably concentrates his effort and resources in the cultivation of the most fertile parcels. Parcels of paddy land which are less fertile or with a poorer supply of irrigation water are either cultivated late in the season given to *ande* cultivators (tenant farmers) or left fallow. Fragmentation of paddy land therefore has a direct bearing on the *wapasariya* (actual extent of paddy land cultivated) ^{1/}

The writer discussed with leading farmers of Galkiriyagama village, the problem of fragmentation and the *wapasariya*. Almost all farmers interviewed indicated that several parcels of paddy land were given to (tenant farmers) or were not cultivated at all during the cultivation year 1972/73. These farmers indicated that they cultivated the most fertile parcels first, then the less fertile parcels, and last of all the least fertile.

From the point of view of the Galkiriyagama farmer the fertility of a parcel depends on the location, the availability of an abundant supply of irrigation water and threat of damage from stray cattle and birds. The central part of the field is therefore preferred and parcels owned in the 'centre' field will receive first priority in paddy cultivation. The parcels located on the fringes of the field get the lowest priority.

The sales value of a parcel of paddy land would therefore depend on the location. In all five villages studied, farmers have divided the main field into plots according to fertility and high yields. For example the Galkiriyagama field is divided into 14 plots. Each main plot is referred to by Sinhala terms such as, *vela* (field), *kotuwa* (square plot) and *panguwa* (share), and usually the name of each plot is divided from that of the owner, e.g. *Daniya panguwa* - Daniya's share, its location in the field e.g. *Maddume panguwa* - in-between-plot, by a distinguished land mark such as a tree e.g. *Dambagaha panguwa* - a plot of the Damba tree or according to the size of the plot e.g. *Maha Panguwa* - large plot. The demarcation of the plots in Galkiriyagama field is overleaf.

^{1/} *Asveddhiyized* land - paddy land which is irrigable and possible to cultivate with paddy. The extent cultivated depends on the number of parcels a farmer-owns and the distance between each parcel.

The preference of farmers in the cultivation of parcels in the 14 plots of the Galkiriyagama field is shown in Table 7.

Table 7. Galkiriyagama Field - Distribution of Plots

Name of Plot	Extent of Plot in Acres, Roods and perches	Degree of Choice	No. of parcels
(a) Welikumbura (Sandy Plot)	3. 3.26	0	15
(b) Madduwa Panguwa (In-between plot)	5. 2.29	++	34
(c) Rakwana Panguwa (Rakwana plot)	4. 2. 6	+	12
(d) Aswedduma (new plot)	0. 2. 0	0	1
(e) Daniyapanguwa (Daniya's plot)	1. 0.34	++	8
(f) Karawgahapanguwa (Plot of the Karaw tree)	2. 2.29	++	13
(g) Dambagaha Panguwa (Plot of the Damba tree)	0. 2. 4	++	4
(h) Meda Panguwa (Central plot)	1. 0.37	++	14
(i) Welkotuwa (Square plot)	1. 3.10	++	7
(j) Maha Panguwa (the large plot)	5. 1.35	++	25
(k) Pahalawela (the lower field)	13. 0.20	+	95
(l) Indiakkarawa (The acre of Indi palms)	9. 1.16	+	37
(m) Elhena (highland plot)	1. 1. 7	0	3
(n) Palugaskotuwa (the plot of the Palu tree)	4. 2.27	0	3
Total	56. 0. 0		271

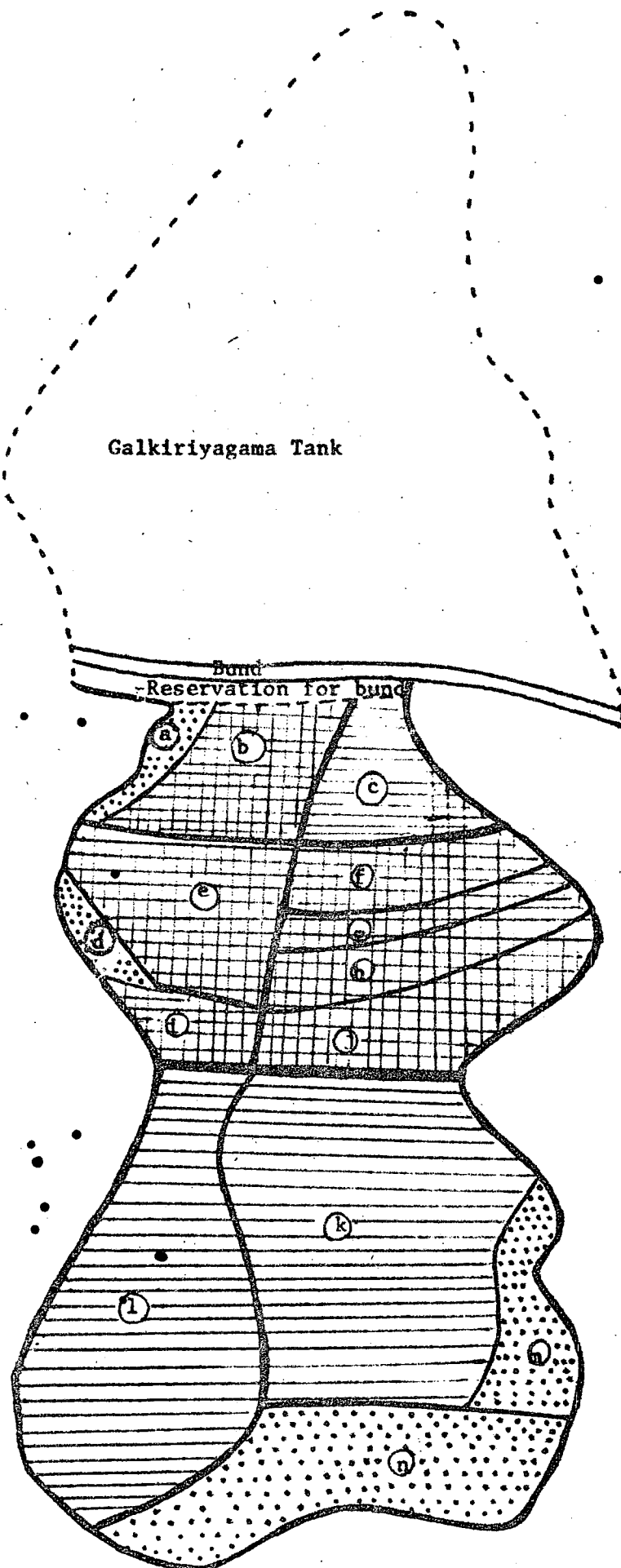
The classification of 'preference' is indicated according to the following scale:-

Strong preference = ++

Fair preference = +

Poor preference = 0

Distribution of Plots of Galkiriyagama Field
(Not to Scale)



INDEX

- (a) Welikumbura
(Sandy plot)
- (b) Madduma Panguwa
(in-between plot)
- (c) Rakwana Panguwa
(Rakwana Plot)
- (d) Aswedduma
(new plot)
- (e) Daniyapanguwa
(Daniya's plot)
- (f) Karawgaha Panguwa
(Plot of the
Karawa tree)
- (g) Dambagaha Panguwa
(Plot of the
Damba tree)
- (h) Meda Panguwa
(Central plot)
- (i) Welkotuwa
(Square plot)
- (j) Maha Panguwa
(the large plot)
- (k) Pahalawela
(the lower field)
- (l) Indiakkarawa
(the plot of the
Indi palms)
- (m) Elhena
(highland plot)
- (n) Palugaskotuwa
(the plot of the
Palu tree)

Key

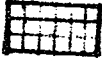
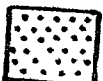
-  - strong preference
-  - fair preference
-  - poor preference

Table 7 indicates that according to the degree of choice, 105 parcels of 38.8% are given 'strong preference'; 144 parcels or 53.1% are given fair preference and 22 parcels or 8.1% are given poor preference by the Galkiriyagama farmers.

Another interesting feature that emerges from Table 7, is the acreage distribution according to preference, viz:

- (a) about 19 acres of paddy land in 105 parcels, or about 34% of the field, receives strong preference from farmers. The average number of parcels per acre is 5.5
- (b) About 27 acres of paddy land in 144 parcels or 48% of the field receives fair preference from farmers. The average number of parcels per acre is 5.3
- (c) About 10 acres of paddy land in 22 parcels or 18% of the field receives poor preference from farmers. The average number of parcels per acre is 2.2 parcels.

In the pattern of distribution of paddy land according to preference there is an indication that fragmentation of paddy land is most severe in that part of the field with strong preference from farmers. Fragmentation is least in that part of the field with poor preference.

The pattern of division of paddy land into plots according to fertility and availability of irrigation water, and priority of cultivation according to preference is a characteristic of the field in the villages of Unduruwa Halmillawewa, Kadadekawewa and Daniyagama.

9. COMMENTARY

The Limitations of the Study

The main objective of the study was to ascertain the nature of fragmentation of paddy land in the five villages of the cluster. Location of parcels as a variable was considered only in one village in the cluster. Other variables such as size of parcels and productivity, Ande cultivation, significance of Thattumaru and Kattimaru system *de facto* consolidation due to cross-cousin marriage, etc., could not be studied intensively due to limitations of time.

The Study indicates the lines for an analytical research study of other variables in fragmentation.

10, CONCLUSIONS

In spite of the limitations of the study the following conclusions can be suggested:

- (i) there is great social value placed on ownership of paddy land. Ownership of paddy land gives prestige and recognition to the owner. The location of the parcels of paddy land in the field also gives the owner prestige and recognition. It is considered more prestigious to own even a small parcel of land in the central part of the field than one on the outer fringes.
- (ii) Fragmentation of paddy land tends to foster Ande cultivation. When a farmer owns several parcels of paddy land scattered in different fields, and when his resources does not permit him to cultivate all his parcels, he concentrates his efforts in the cultivation of the more fertile parcels and entrusts the cultivation of other parcels to tenant farmers.
- (iii) The Thattumaru and Kattimaru system of rotating cultivation and land tends to reduce physical fragmentation. It should be noted that these two systems operate only with regard to paddy land and the efficient operation of the two systems in almost all purana villages is undoubtedly due to close kinship ties between the partners in the system. Incidentally the operation of the Thattumaru and Kattimaru systems also tend to foster tenant farming.

While Thattumaru and Kattimaru contribute in some measure to reduce the effects of physical fragmentation, they do not overcome certain constraints to productivity, particularly those accompanying modern farm practices. There is a natural reluctance to invest in fertilisers and other inputs which may confer longer term benefits to soil fertility and productivity than the relatively short term over which the cultivator is harvesting the produce. There is a tendency under Thattumaru and Kattimaru to achieve only the maximum benefits that can be reaped from the minimum inputs. With the use of improved seed varieties, particularly those with high response to fertiliser treatment, accompanied by the use of weedicides and pesticides, the potential productivity of many of these lands is much higher than that normally achieved.

- (iv) The location of plots is also an important factor in productivity and has implications for agricultural extension as well as consolidated programmes.

Agricultural extension needs to recognise the difference between the "less favoured" plots and the "highly favoured" plots as the requirements for effectively achieving yield improvements differ in some respects from one group to the other.

- (v) In the light of findings in this Study the institution of Ande cultivation needs to be viewed in a different perspective. Ande Cultivators in the purana villages are not landless peasants in the real sense of the term. Often the Ande Cultivator also owns paddy land in neighbouring villages which may be entrusted to other tenant farmers, i.e. a form of "consolidation of operational holdings" is practised.

- (vi) Fragmentation of paddy lands is a major problem throughout the country and particularly acute in the purana villages, where cultivation of paddy is dependent on irrigation water. Fragmentation of paddy lands undoubtedly affects productivity as it becomes difficult and expensive to use modern methods of cultivation such as the tractor.

The boundaries of each small parcel of land are demarcated by thick high bunds which aggravate the problems of both tractor and buffalo cultivators.

- (vii) The writer discussed the problem of fragmentation of paddy land with many farmers of the five villages and all farmers indicated that consolidation of their holdings in one or two parcels would result in higher productivity.

As indicated by several respondents it should be possible to effect a scheme of voluntary consolidation of paddy land in the purana villages so that each farmer would own one or two large parcels rather than many small parcels scattered in different parts of the field. This would be simplified if combined with a strategy to increase production from the currently "low preference" plots.

- (viii) This study clearly indicates the value of studying problems connected with land tenure, settlement and related land development matters in a cluster of villages rather than in single isolated villages. The villages in this cluster are linked together by close kinship, social and cultural ties, and economic interdependence, and such a situation is obviously not peculiar to this case study.

- (ix) In villages when fragmentation of paddy land is a major problem one would expect tension and conflict. The Study in the cluster of five villages did not indicate such tension and conflicts due undoubtedly to close kinship ties among the villagers and the evolution of an indigenous attempt to resolve the major problems among themselves. •
- (x) There were no big paddy land owners in the villages of the cluster: there was only one parcel of paddy land two acres in extent, and the biggest paddy land owner possessed only about five acres of paddy land distributed among several village fields.

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