UNIVERSITI PUTRA MALAYSIA

ADOPTION OF MODERN PADDY FARMING PRACTICES AMONG THE FARMERS IN A MAHAWELI SETTLEMENT SCHEME IN SRI LANKA

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By

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Dedicated to my Teacher, at University of Peradeniya,
Sociologist Mr Sunimal Fernando
and
former Supervisor, at University of Colombo,
Anthropologist the late Dr Newton Gunasinghe

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The low yield in Sri Lanka's paddy sector was assumed to be an outcome of low adoption of recommended paddy cultivation practices.

The main purpose of the study was to determine the adoption and level of adoption of modern paddy farming practices among the farmers in the Galnewa Block of System H in the Mahaweli territory of Sri Lanka. The study also attempted to estimate the relationship between adoption and yield. In addition, the study examined the relationships between adoption and ascertained factors derived from factor analysis. It further analysed the extent of adoption and non-adoption, the characteristics of adopters and non-adopters, the practices which were adopted and not adopted, and reasons for non-adoption. The study used the survey method supplemented by observations, unstructured interviews, and secondary data.

The study showed that the level of adoption was low. Practices associated with drudgery of labour, and availability of credits following a financially hard period, and complicated practices needing careful rational attention were less popular. Other practices were found to be acceptable and farmers adopted fairly well.

According to the least square estimation, the adoption of 2.5% of total practices (i.e., the adoption of one practice out of forty practices in the given model) will increase the yield by 6.9% (i.e., 47.73 kg) per acre. Among the ascertained factors derived from factor analysis, drudgery of labour demand factor seemed to be the most influential factor in terms of adoption of recommended paddy farming practices.

Reasons for non-adoption were also examined, and it was found that personal factors were prominent while economic factors were also important. Recommendations that grew out of the findings were focussed mainly on surmounting these personal and economic constraints.

Abstrak tesis yang dikemukakan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi sebahagian daripada keperluan untuk ijazah Master Sains.

PELAKSANAAN AMALAN PENANAMAN PADI SECARA MODEN DI KALANGAN PETANI-PETANI DI SKIM PENEROKA MAHAWELI SRI LANKA

Oleh
TENNE GEDARA RUPASINGHE
Januari 1992

Penyelia : Zahid Emby, Ph.D.
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Hasil yang rendah dalam sektor penanaman padi di Sri Lanka telah dianggap sebagai akibat dari tidak mengikuti amalan penanaman padi yang telah disyorkan.

Tujuan utama kajian ini adalah untuk menentukan penerimaan dan tahap penerimaan amalan penanaman padi secara moden oleh petani-petani di Blok Galnewa Sistem H di wilayah Mahaweli, Sri Lanka. Kajian ini juga cuba menganggar perkaitan antara penerimaan amalan-amalan ini dengan hasil yang diperolehi. Di samping itu kajian ini juga mengkaji perkaitan antara penerimaan amalan-amalan ini dengan beberapa faktor yang ditentukan oleh analisis faktor. Selanjutnya tesis ini menganalisis sejauh mana sesuatu amalan itu diterima atau tidak diterima, ciri-ciri mereka yang mengamal dan tidak mengamal, amalan-amalan yang diterima dan yang tidak diterima dan sebab-sebab amalan itu tidak dilaksanakan. Kajian ini menggunakan

kaedah tinjauan dan disokong oleh pemerhatian, temuramah tidak berstruktur dan data sekunder.

Kajian ini menunjukkan bahawa paras penerimaan amalan-amalan ini adalah rendah. Amalan-amalan yang dikaitkan dengan kerja yang menggunakan tenaga yang banyak dan membosankan, keupayaan memperolehi kredit selepas mengharungi masa sesak, dan amalan-amalan rumit yang memerlukan perhatian yang teliti dan rasional didapati tidak begitu popular. Amalan-amalan lain diterima oleh petani-petani dengan baik.

Mengikut anggaran kuasa dua terkecil, penerimaan 2.5% daripada keseluruhan amalan (iaitu penerimaan satu daripada empat puluh amalan yang telah diberikan dalam model) akan meningkatkan hasil sebanyak 6.9% (iaitu 47.73 kg) seekar. Di antara faktor-faktor yang dipilih melalui analisis faktor, didapati faktor kerja teruk dan yang membosankan adalah faktor paling berpengaruh dari segi penerimaan amalan-amalan penanaman padi yang disyorkan.

Sebab-sebab kenapa amalan-amalan ini tidak diterima juga dikaji, dan didapati faktor-faktor peribadi adalah yang paling utama manakala faktor-faktor ekonomi juga penting. Cadangan-cadangan yang berasaskan dapatan kajian ini menekankan kepada cara-cara mengatasi sekatan-sekatan peribadi dan ekonomi tersebut.

CHAPTER I

INTRODUCTION

Background Information

Sri Lanka is a compact island, 63,330 sq km (6,560,986 ha) in extent, lying off the southern tip of peninsular India between 5 51° N and longitudes 79 41° and 81 53° E. The island is pear-shaped and is 432 km long with a maximum width of approximately 224 km. The central part of the island is mountainous, with several isolated hills rising abruptly from the eastern plain. The rest of the island which is flat, is known as the low country coastal plain. Sri Lanka is separated from the Indian sub-continent by a strip of sea, which at its narrowest is about 40 km wide. The island is centrally located in the Indian Ocean.

Ecologically, the island is divided into two main regions, namely, the Hill Country, and the Plain. Similarly, on the basis of climate, the country is divided into two main regions, the Wet Zone, and the Dry Zone. The Wet Zone consists of the hilly country, and the western part of the south region of the country. The 187 cm annual rainfall line divides the country into the above two main zones. The main rivers originate in the hill country which is situated in the central part of the

island. The country has two rainy seasons: (i) South-West monsoon (April to August), (ii) North-East monsoon (October to March). Mahaweli, the largest and the longest river is the main river which receives water from both these monsoons.

The population of Sri Lanka is 16.8 million and is increasing at a rate of 1.5 per annum. About 66.3% of the population is in the wet zone which extends to only 1/3 of the island (Sri Lanka, Central Bank of Ceylon, 1985, p.3). About 78% of the population is in the rural sector and the rest is in the urban sector (Sri Lanka, Central Bank of Ceylon, 1984, p.2).

Paddy cultivation forms the major component of the economy since rice is the main food item in the country. About 55% of the whole population is engaged in the agricultural sector (Sri Lanka, Central Bank of Ceylon, 1985, p.7). National development policy priorities place a high premium on the need to attain self-sufficiency in rice production. Sri Lanka has adopted two strategies to achieve this goal: (i) by bringing new land under cultivation and (ii) by increasing the productivity of the land under cultivation through the use of improved farm practices.

Colonisation Schemes as the Main Strategy in Bringing New Land

When the country became a colony of Britain the traditional paddy cultivation sector was subjected to neglect and the plantation sector became the major economic component. Climatic and geographical factors favoured the Wet Zone as a suitable area for plantation crops such as coffee, tea, rubber, and spices. The Dry Zone was suitable for paddy cultivation only in areas where there were irrigation facilities. The colonial government imported rice and made every attempt to uplift the plantation economy. Thus, no development activities in the agricultural sector took place in the Dry Zone. Gradually, the population was amassed in the Wet Zone. Wet Zone villages were surrounded by the large-scale (plantation) estates. Since the colonial government employed Indian labourers in the plantation sector, the peasants fell into the stagnated Wet Zone subsistence-oriented agricultural economy. By the twentieth century, the over populated Wet Zone peasantry were confronted with socio-economic problems like landlessness, land fragmentation, unemployment, poverty etc. (Sri Lanka, Kandian Peasantry Commission, 1951, p.xviii). The establishment of Dry Zone colonisation projects appeared to be the solution for these problems.

According to Farmer, thirty four colonisation schemes were established in the Dry Zone during the period 1928-1951

(Farmer, 1957, p.549). By 1967/68, a total of 68,338 farm families were settled in ninety-eight Dry Zone colonisation schemes occupying a total land area of 127,665 ha (ibid, p.550). As these schemes were initiated for paddy cultivation, irrigation facilities were provided.

After achieving political independence in 1948, the government formulated a plan for attaining self-sufficiency in rice production as the ultimate objective of the new colonisation schemes. Until 1970 each government party had paid considerable attention to the development of colonisation schemes. Nevertheless, the Wet Zone peasantry was still over populated. The number of land-hungry people was high. The new giant Mahaweli Development Programme was expected to eradicate regional problems such as landlessness, population imbalance, poverty, unemployment as well as national problems of attaining self-sufficiency in rice production, scarcity of foreign exchange etc.

The Mahaweli Development Programme

As the study was carried out in the Mahaweli new settlements, special attention is focussed on this programme. This brief discussion will indicate the extent to which the country has relied on this programme. As was mentioned earlier, the Sri Lankan government introduced colonisation

schemes in an effort to gradually uplift the agrarian sector. At present, the government is attempting to develop the agrarian sector by using the big push technique to achieve 'economic take off' (in Rostow's terminology). The Mahaweli programme consisted of a number of projects, namely, the Kotmale Project, the Polgolla Project, the Victoria Project, the Randenigala Project, the Rantambe Project, the Ulhitiya Project, the Maduru Oya Project, and the Moragahakande Project, all of which are interrelated and linked into a single hydraulic system.

The Master plan formulated for the development of the Mahaweli and adjacent basins in 1968 recommended a 30-year phasing of the Mahaweli Development Programme. The first Mahaweli Project, "Polgolla", was launched in 1970 with financial assistance from the International Development Association, and the International Bank for Reconstruction and Development. Both these agencies provided a sum of US$29 million as loans (Sri Lanka, Ministry of Land and Mahaweli Development, 1987, p.38). This project was completed in 1976. When the present government took office in mid-1977, it decided to accelerate the Mahaweli Development Programme by completing all the projects within a period of 6 years. In order to ensure the successful implementation of the project, the government established a

separate 'Ministry of Mahaweli' and 'Mahaweli Authority'. The main objectives of the Accelerated Mahaweli Programme were to

1. solve the unemployment problem which had reached a staggering figure of 1.2 million (which was nearly 10% of the population),
2. make the country self-sufficient in its food requirement (the import bill for food was nearly 1/3 of the annual budget), and
3. provide the increasing hydro-power energy needs for industrial development and rural electrification (Sri Lanka, Ministry of Land and Mahaweli Development, 1987, p.39).

The expenditure for the whole accelerated programme increased from an estimated US$555.6 million in 1977 to US$1111.1 million in 1978. According to the 1978 estimates, the overall average capital investment on one settler given 1 ha of irrigable land was US$2777.8 (Iriyagolle, 1978, p.46). The total cost of the completed projects by 1985 was US$1265.5 million (Sri Lanka, Annual Budget Paper for the Year of 1987, p.7). According to this source, except for Rantambe, all the other projects had been completed by the end of September, 1986.

The Mahaweli scheme provides irrigation water for 360,000 ha of land. The area covered by the Mahaweli irrigation

network was undertaken by the Mahaweli Authority through a special land reform act. With an average land holding of 1 ha of irrigated land for a settler family, a total of 360,000 farm families would obtain land for paddy cultivation when the entire project is completed (Sri Lanka, Ministry of Land and Mahaweli Development, 1988, p.56). The farm families are brought into the area as soon as work on the projects is completed and other infrastructure (e.g., roads, jungle cleaning etc.) is provided. By September 1986, the government settled 47,569 new farm families in the schemes. (This figure is drastically increased every month as farm families are settled in the new schemes until the whole programme is completed). The entire Mahaweli area has been divided into many 'Systems' referred to as A, B, C, D, E, G, H, etc. Of the 47,569 new farm families brought into the area, 23,163 families were settled in the H System, 12,384 families in the C System, 9916 families in the B System, and 2106 families in the G System (Sri Lanka, Annual Budget Paper for the Year of 1987, p.7).

The total cost of the whole project was borne by foreign financial assistance. The successful completion of this programme will contribute significantly to the national economy. In order to achieve success in this programme, there is a need to attain self-sufficiency in terms of food requirements of the country as well as uplifting the level of

living of the farmer by way of modernizing the paddy sector under the scheme.

Contemporary Trends in the Economy with Special Emphasis on the Paddy Sector

After 1977, the Mahaweli Development Programme became the major strategy for agricultural development while Free Trade Zone (FTZ) or Investment Promotion Zone (IPZ) became the major industrial development strategy.

The total value of agricultural production (mainly tea, rubber, coconut, minor export crops, and paddy) in 1986 was RS 24,528.3 million (RS28.01 = US$1). This was equal to Special Drawing Rights (SDR) of 745.5 million, while the value of industrial production was RS41,453 million (Sri Lanka, Central Bank of Sri Lanka, 1987, pp.31-37) where RS32.9 = SDR1.

The value of agricultural exports for the year 1986 was RS15,764 million (SDR479 million) while it was RS15,878 million (SDR483 million) in relation to exported industrial products; the value of mineral exports (mainly gem) was RS1182 million (SDR36 million). Further, the value of unclassified exports was RS1249 million (SDR38 million). In the mean time, the total value of imported items in the same year was RS54,609 million (SDR1659.9 million). The main imported items were consumer goods (rice, flour, sugar,

and textile and clothing); investment goods (machinery and equipment, transport equipment, and building materials); intermediate goods (petroleum, fertilizer, chemicals, and wheat); and unclassified goods. The values of the above imports were respectively, RS18,609 million (SDR565.6 million), RS10,556 million (SDR320.9 million), RS22,314 million (SDR678.3 million), and RS3,130 million (SDR95.1 million).

The total value of exports in 1986 was RS34,072 million, while the value of imports was RS54,609 million resulted in a negative balance of trade of -RS20,537 million. According to fiscal estimates, in 1986 revenue was RS41,955 million while expenditure was RS67,551 million. Thus the overall budget deficit was RS25,596 million.

The per capita GNP in 1986 was RS9,918 (US$354) (Sri Lanka, Central Bank of Sri Lanka, 1987, p.1). The report also indicates that the trend of agricultural development in the country is far from satisfactory. Paddy production in 1986 declined by 2.5% from that of the previous year (ibid, p.2). Though the country had produced 34,391 mt of sugar, the cost of production was RS24.57 per kg which was higher than the open market price. Therefore, the government had to subsidize its production.

The industrial sector showed a remarkable growth (12%) in 1986 (ibid, p.7). Value of output of private sector industries

increased by 15% while that of the public sector industries rose only by 8% (Sri Lanka, Central Bank of Sri Lanka, 1987, p.7). However, the newly introduced economic component, FTZ, had been able to earn RS5,449.2 million in foreign exchange. Therefore, there was considerable progress in the urban industrial sector where private investment is dominant.

Though the government has so far spent RS38,270 million, the Accelerated Mahaweli Development Programme still does not indicate a remarkable growth. The Programme, the benefits of which would be evident in the long run, has been delayed due to political disturbances, and will only be completed in 1992 at an estimated total cost of RS50,000 million (Sri Lanka, Central Bank of Sri Lanka, 1987, p.73).

There were 736,670 paddy farm units in the country in 1982 (Sri Lanka, Central Bank of Ceylon, 1985, p.17). About 43.6% of these units were less than 0.4 ha in size and 39.3% were between 0.4 to 1.2 ha in size (ibid). About 17.1% were over 1.2 ha in size and only 0.3 % was over 8.3 ha in size (ibid.). The area of the total paddy farm units was 494,593.2 ha (ibid). In the year 1982, according to the same source, there were 1,798,970 holdings and 799,280 operators. The number of paddy farms owned by the operators was 534,130 and the number of paddy farms owned by others was 265,150 (ibid, p.18). As total