Farm Mechanization and Cost of Paddy Production

Paddy cultivation in Sri Lanka witnessed a few notable changes during the past few years. The opening up of a vast extents of new and irrigable land together with the intensified exposure of this sector to High Yielding Varieties (HYV) technology, accounted for the bulk of these changes. Consequently, both, all island paddy production and productivity levels demonstrated an almost persistant growth over the years. Although emphasis on farm mechanization may not be totally rational in the context of the present factor combinations of production available for the country, it constituted an integral component of this overall package of changes.

The growth potential witnessed in the Paddy sector, has been derived to a greater extent from those newly opened up lands in the major irrigation schemes. The family farm model adopted by these schemes, indicated the need for strong water related mangement descipline in the spheres of timing, scheduling and also performance of farm operations, in order to obtain the optimum benefits from the scarce water resources. Therefore farm operations pertaining to land preparation, cultivation, harvesting and removal of residues, have all to be performed in accordance with the time tables agreed upon by the farmers(to some extent) and the irrigation officials. The capacity of the small farmers to adhere to a busy time table, particularly during peak seasons has been constrained by the paucity of family labour and draught power. It is in this broad context, that mechanization to some degree, has become pertinent, in the new settlement schemes.

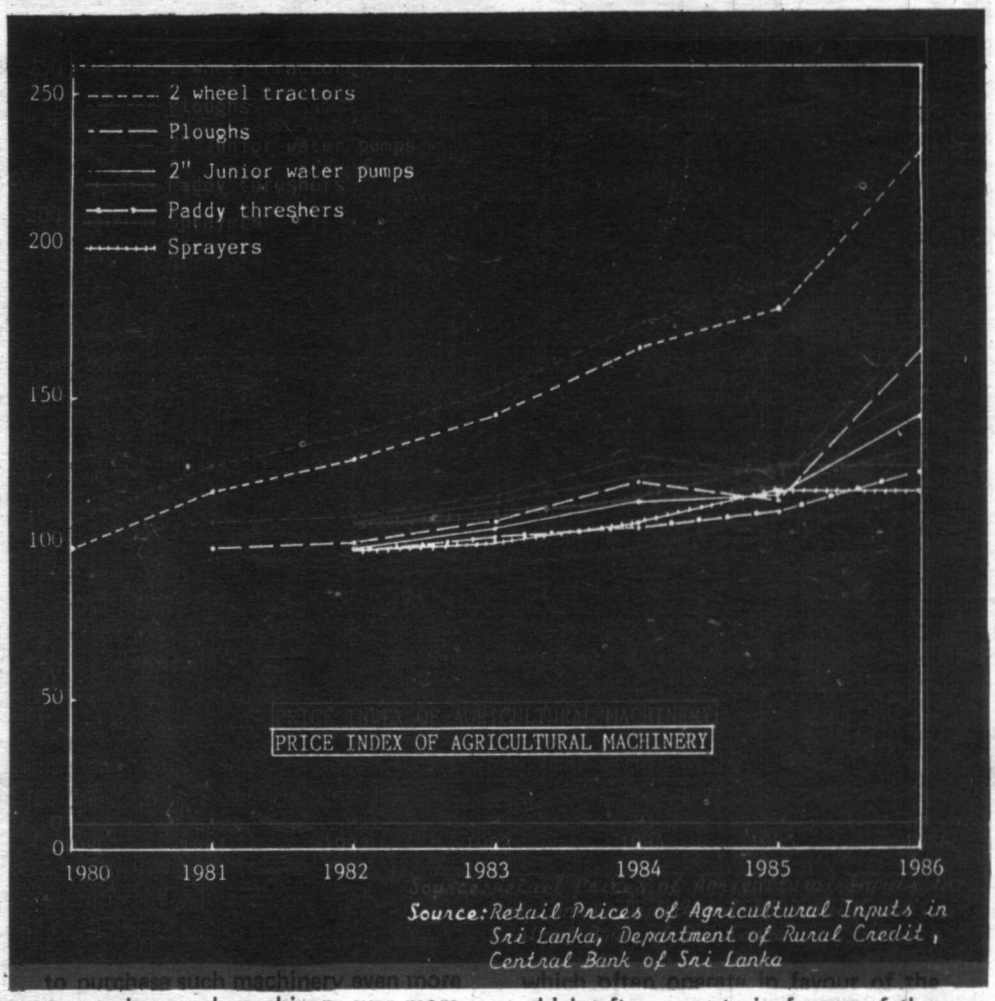
PRICE INDEX OF AGRICULTURAL MACHINERY

Year	2 Wheel Tractors	Ploughs	Water Pumps	Threshers	Sprayers
1980	100.0				
1981	119.4	100.0			100.0
1982	129.3	101.8	100.0	100.0	101.6
1983	144.1	108.0	107.2	104.2	103.2
1984	166.7	122.4	114.9	106.7	107.7
1985	179.5	115.1	117.9	11.6	118.6
1986	231.5	167.6	143.3	124.9	118.1

Based on 'Retail Prices of Agricultural Inputs in Sri Lanka, Rural Credit Dept. Central Bank'.

The types of mechanical inputs most commonly used by farmers include two wheel tractors and related implements, power driven threshers, and sprayers which have been used at various stages of farm operations. However, the two wheel tractor seems to have been the most popular machinery in use because of its capacity to perform a variety of functions at a relatively afforable price. However,

this does not mean that all paddy farmers in Sri Lanka in general or settler farmers in particular, could afford to purchase two wheel tractors and other implements. Observations in the Mahaweli area have revealed that only a handful of settlers own two wheelers, and a still more negligible number own four wheelers. The ratio between those who own factors and related implements to those who do not varies from 1 to 39 households in some of the hamlets surveyed by the People's Bank in 1983. Also, most of these tractors have been bought in the latter part of the 1970's or early part of the 1980's during which period tractor costs and prices of other implements have been relatively cheap and affordable. Above all there had been a few attractive schemes offered by the state and the commercial banks to assist settler farmers to purchase such implements. This assistance included cheap finances and heavily subsidized prices.



Source: *Retail Prices of Agricultural Inputs in Sri Lanka, Department of Rural Credit, Central Bank of Sri Lanka*

But the price levels of most of the machinery and implements used for agricultural operations have increased at an alarming rate during the last 7 year period (see figure) In the case of two wheeel tractors the composit index of 1980=100 has reached 231.5 by the end of 1986. For instance, the prices of two wheel tractors of 7 HP category which ranged, between Rs.19,750m and Rs.33,330 in March 1983, had reached Rs.87,000 by the end of 1986. Although the prices of other implements did not rise as steeply, they show a similar upward trend. The combined effect of these upward, trends in prices of this agricultural machinery and other implements has seriously restrained the affordability and accessbility of paddy producers to these inputs. On the one hand the real income levels of the paddy growers continued to remain at a low level because of the depressed price levels available for their output. On the other hand the cost of machinery has almost doubled, making their capcity to purchase such machinery even more remote than before. As a result, those who own tractors have been placed in an advantageous position, partly because they could perform farm operations of their plots relatively faster and thereby on time, and partly because they are in a positon to hire out their machinery to the majority who do not own such inputs. The cost of mechanical inputs that comes in the form of tractor, sprayer and thresher charges has shown a considerable variation both over time and place. The spatial variations of such charges depend on the degree of scarcity of inputs as well as on the mode of payment, while the variations, over time depend on the periodic fluctuations in demand as well as the price variation of the machinery itself.

Of course the spatial and periodic variations are linked with the exploitative elements and processes involved, which often operate in favour of the input suppliers vis-a-vis input users. For instance, in Maha 1985/86, tractor charges for land preparation in the Meegalewa are varied from Rs.1,750/- to Rs.1,850/- per plot per season. The corresponding rates for the cultivation season of Maha 1983/84 had been Rs 1,000/- to Rs.1,300/- per plot per season. Estimates made in 1984 showed that in the Mahaweli areas the expenditure on mechanical inputs had constituted almost 36 per cent of the total cost of production of the paddy growers. Given the present rate of increase in the costs of machinery (such as tractors, threshers, sprayers etc.), this cost ratio could show a definite shift against the other inputs, like biochemical inputs (such as fertilizer, seeds and pesticides) and labour, and eventually erode the limited producer margins enjoyed by the paddy producers.

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