FEATURES

SOME RECENT TRENDS IN THE NUTRITIONAL STATUS OF SRI LANKA PRE–SCHOOLERS – 1975/76 TO 1980/82

Dilesh Jayantha

Consumption patterns amongst Sri Lankan pre-schoolers appear to have changed since 1975/76, with a fall in calories consumed relative to proteins. One result has been a marked rise in the number of children "wasting" or having a weight for height ratio of less than 80 per cent of the nationally accepted standard Reference Medium. The rise in "wasting" has been particularly marked among infants and those in the one to two year age range, which points to a significant deterioration in the nutritional status of these age groups, maintains Dilesh Jayantha, an economics graduate and Ph.D. student of St. John's College, Cambridge. On a recent visit to Sri Lanka Jayantha carried out this study of nutritional trends, using the latest available government survey data.

Sri Lanka has had a long history of state commitment to social welfare. As much as 40% of government current expenditure went into such welfare programmes in the post-war era. (1) Notable amongst these were a food and transport subsidy, and the provision of free medical and educational facilities. Thus, by the seventies, Sri Lanka enjoyed a better record in terms of mortality, life expectancy, literacy and income distribution, than other countries in her per capita income bracket.

However, the heavy emphasis placed on consumption and welfare in the allocation of resources, arrested the rate of saving and capital formation. This coupled with the long term decline in her terms of trade, constrained Sri Lanka's growth rate. Thus a dilemma emerged. With the rapid growth in population, unmatched by a corresponding growth in investment and income, it became increasingly difficult to maintain real per capita income levels. But the maintenance of such levels was essential, if the social welfare programmes initiated were to be retained.

The government which entered office in 1977 recognized that there was no industrial structure to provide the income and employment necessary to maintain prevailing welfare payments. It therefore decided on a major public investment programme, to be financed largely through foreign loans. This entailed IMF balance of payments support and approval. A key condition of such support and approval was that the expensive food subsidy scheme of the past be phased out.

In 1978 the free food ration was limited to families whose annual income fell below Rs.3,600. This reduced the number of beneficiaries from 13,144,357 (or 93% of the population), to 7,716,228 (or 54%) 2 In 1979, the food subsidy was abolished and a food stamp scheme which still prevails, introduced.

Food stamps are issued to selected beneficiaries to enable them to purchase one or more items from a basket of commodites, comprising rice, paddy, flour, bread, sugar, pulses, dried fish and milk foods. Eligible households also receive kerosene stamps which can be used to purchase food items. However, food stamps cannot be used to purchase kerosene.

Eligibility for the receipt of stamps is based on household income and size. Households of five or less receiving an annual income of Rs.3,600 or less, are deemed eligible. For each additional member, the income cut-off point is raised by Rs.720 per annum. Thus a household of six with an annual income of Rs.4,319 would be eligible to receive stamps, but not one with an income of Rs.4,321 per annum.

It is estimated that the food stamp scheme benefits about half, (or 49%), of the total population. (3) However, as the value of the stamps is fixed in nominal terms, the real benefits derived seem to have been eroded with inflation. The seventeen months following the introduction of the stamps (in September 1979), saw the price of local par-boiled rice rise by 58%, and that of the imported variety by 53% (4) – both major constituents in the national diet. This means that by February 1981, a given number of food stamps would have purchased less than half the quantum of rice they did in September 1979.

In this context it is worth assessing what changes in nutritional status are likely to have occurred in the recent past. Two national surveys, both focusing on pre-schoolers, can be studied in this exercise. The first survey conducted between September 1975 and March 1976 by the Ministry of Health with the assistance of CARE, the Centre for Disease Control (CDC), and USAID, covered children aged between six months and six years in the village and estate sectors of Sri Lanka. (5) The second survey was conducted by the Food and Nutrition Policy Planning Division (FNPPD) of the Ministry of Plan Implementation, between September 1979 and January 1982. It covered children aged between six months and five years in the village estate and urban sectors of Sri Lanka. (6)

A number of factors make a direct comparison of the information in the two Survey Reports difficult. The sample sizes were different. The geographical unit of the survey was changed from the SHS area to the district, The FNPPD survey included an urban sector in addition to the village and estate sectors. Most significantly the survey universe was changed and limited to those aged between six months and five years, whereas the Ministry of Health/CARE/CDC survey had covered those aged between six months and six years. Thus the FNPPD survey failed to cover those of between five and six years of age. In this context any valid comparison of the two Reports has to be made at a disaggregated evel.

(1) *General Treasury and Central Bank of Ceylon.*

(2) *Food Commissioner's Department and Department of Census and Statistics.*

(3) *Food Commissioner's Department.*

(4) *Ibid.*

(5) *Ministry of Health/CARE/CDC : "Sri Lanka Nutrition Status Survey, 1975–1976."*

(6) *FNPPD: "Nutritional Status, its Determinants and Intervention Programmes," (Final Report), Colombo, Sri Lanka, January 1983. The CDC/CARE definition of the "village sector", corresponds to the FNPPD definition of the "rural sector", and our comparison has been made accordingly. However, the CDC/CARE survey of estates was confined largely to the tea plantation areas, whereas the FNPPD survey of estates covered all land units of over fifty acres with a resident labour force of eight or more, thus embracing the rubber growing regions of the low country too. We have therefore compared the CDC/CARE estate sector, with the FNPPD estate sector in the tea growing districts of Nuwara-Eliya, Moneragala, Ratnapura, Kegalle, Kandy and Badulla only.*

Two forms of undernutrition can be distinguished. First, acute undernutrition which reflects current or recent deficiency in food intake, results in wasting, or a low weight for height ratio. (7) Second, chronic undernutrition, which reflects past and long term nutritional inadequacies, results in stunting, or a low height for age ratio. (8)

It has been suggested that wasting and stunting have different dietary backgrounds. (9) This will be examined more closely, later.

In Table 1 we compare the prevalence of wasting and stunting in the village and estate sectors combined, amongst those aged six months to five years in the two survey periods. (10) Provision has been made to exclude those between five and six years of age from the 1975/76 data, so as to allow for comparability. The table shows that wasting has increased, and stunting decreased.

Table 1 : A Comparison of Wasting and Stunting in the Village and Estate Sectors (1975/76 – 1980/82)

– Per cent of children aged 6 to 59 months inclusive, wasting (i.e. with a weight for height less than 80% of the NAS Reference Median), and stunting (i.e. with height for age less than 90% of the NAS Reference Median)

		Wasting	Stunting	Sample Size
Survey Periods	1975/76	6.7	32.5	11,267
	1980/82	10.6	24.4	24,684

Source: Figures for 1975/76 have been derived from the Ministry of Health, Sri Lanka: Nutrition Status Survey, 1975–1976, Tables 1,3 and 5. Figures for 1980–1982 are derived from the FNPPD/MRI Nutritional Status Survey data, 1980–1982.

In Table 2 we compare the incidence of wasting in the village sector over the two survey periods, by age group, and in Table 3, we do the same for the estate sector. Wasting has increased in the village sector in every age group, the most marked rise being amongst infants (138%). (11) In the estate sector too there has been a marked rise amongst infants (64%), and a smaller rise amongst those aged between one and two years (25%). Amongst those aged two to four years inclusive there has been a fall in wasting.

Traditionally wasting has tended to be most marked during the weaning period of one to two years. Prolonged breast-feeding, and the failure to introduce semi-solids until well past the first birthday are attributed as reasons for this.

Table 2: Wasting in the Village Sector 1975/76 – 1980/2
(Percent of Children Weight-for-Height less than 80% of the NAS Reference Median by age groups)

		Age (months) 6–11	12–23	24–35	36–47	48–59
Survey Periods	1975/76	4.8	10.5	6.6	4.2	4.6
	1980/82	11.4	17.1	9.5	6.6	8.6
	Change in Wasting 1975/76 1980/82	+138%	+63%	+44%	+57%	+87%

Source: Ministry of Health/CARE/CDC: "Sri Lanka Nutrition Status Survey, 1975–1976, Table 15", and FNPPD/MRI Nutrition Status Survey data, 1980–1982

Table 3: Wasting in the Estate Sector 1975/6 – 1980/2
(Per cent of Children Weight-for-Height less than 80% of the NAS Reference Median by Age Group)

		Age (months) 6–11	12–23	24–35	36–37	48–59
Survey Periods	1975/76	6.7	13.5	9.2	9.1	7.1
	1980/82	11.0	16.9	7.3	3.5	5.3
	Change in Wasting 1975/76– 1980/82	+64%	+25%	–21%	–62%	–25%

Source: Ministry of Health/CARE/CDC: "Sri Lanka Nutrition Status Survey,1975–1976, Table 15," and *FNPPD/MRI Nutritional Status Survey data, 1980–1982*

The increase in wasting amongst those aged under two and especially infants, may be linked to a worsening of weaning practices. Several informal studies suggest that with the liberalization of the economy in 1977, families devoted more resources to the purchase of consumer durables and other forms of conspicuous consumption, at the expense of food. (12) In particular, infant and weaning, foods have been neglected.(13)

(7) In what follows we define a child as wasted if he has a weight for height loss less than 80% of the NAS Reference Median. This is a measure of total wasting.

(8) In what follows we define a child as stunted, if he has a height for age ratio less than 90% of the NAS Reference Median. This is a measure of total stunting.

(9) Rutishauser, I.H.E., Whitehead, R.G., Br. J. Butr. 1969, 23, 1 quoted in Waterlow, J.C., "Note on the Assessment and Classification of Protein-Energy Malnutrition in Children," Lancet, 1, 87.

(10) In this table, as in those that follow, all percentages are based on weighted data, unless stated to the contrary, FNPPD/MRI figures cover all districts except Matara, Hambantota and Jaffna, for which comprehensive data is not available.

(11) Our measure of significance, the proportionate increase in wasting, (and stunting), does not take into account the distribution about the means (by age groups) of the two survey periods. A t–test of significance, which could take this into account, cannot however be calculated, as we do not have the incidence of wasting (and stunting) for each age group by SHS area, for 1975–1976.

A recent Report noted that although the food stamp scheme made available higher value stamps to poor households with children, in an attempt to promote greater milk consumption, this objective was not realized in practice. (14) Indeed milk foods accounted for a mere 4% of total food stamp expenditure. (15) It seems that rice consumption, and the needs of the older (and adult) members of the family received precedence over the needs of the infant and young child being weaned. Indeed the Report noted that "due to the convertibility of stamps, there may have been a tendency by the adults to sell the stamps and/or commodities purchased with the stamps, to buy superfluous items like tobacco or alchol, at the expense of milk foods . . . ." (16) In such a situation infants and young children being weaned can be expected to be the most deprived.

Those in the two to five year age range in the estate sector seem to have recorded an improvement in their weight for height (Table 3), whereas those in the same age range in the village sector have not (Table 2). This may be due to the institution of the Thriposha programme in 1974, and its better implementation in the estate sector than in the village. From 1977 an intensive feeding programme was launched through a number of maternity clinics on the estates. This buttressed through the extended programme of immunization (launched in 1977), and the provision of better water, sanitational and creche facilities. Minimum wage rates on estates also rose relative to those in other sectors, in the post nationalization era 17 But most important in the estates unlike in the villages, the Thriposha administered to those aged two to four years inclusive, was administered on site, daily 18. In the villages on the other hand, Thriposha packets were given monthly, to be taken home and given to the needy child by the mother. Such Thriposha was, (and is), generally shared amongst the family, so that the needy preschooler is likely to have felt the full impact of the cutback in nutrient consumption since 1977, in a way his estate counterpart is not likely to have.

However, the incidence of stunting has declined in both the village and estate sectors, amongst every age group. In Table 4 we compare the incidence of stunting in the village sector over the two survey periods by age group, and in Table 5 we do the same for the estate sector.

Two points are immediately apparent. First, the decline in stunting in the village sector is not as great proportionately, as the increase in wasting. The mean unweighted increase in wasting in the village sector amongst those aged between six months and five years, is 78%, but the decline in stunting is only 23%. Second however, the decline in stunting is more widespread and even than the increase in wasting. It has occurred in both village and estate sectors, and amongst all age groups in these sectors. Moreover, the decline is relatively uniform across all age groups.

As at first sight, a decrease in stunting with a rise in wasting appeared paradoxical it was decided to assess the significance of this change. Fortunately, the distribution of height for age in the period 1980–82 was available, but only at a highly aggregated level; that is for the total survey population, with no breakdown by sector. As the 1975/76 survey covered only the village and estate sectors, and as the 1980/82 survey included the urban sector which has a significantly lower rate of stunting (see Table 6), some provision had to be made

Table 4: Stunting in the Village Sector 1975/76 – 1980/82

(Percent of Children Height for Age less than 90% 5 of the NAS Reference Medium, by age groups).

		Age (months)				
		6–11	12–23	24–35	36–47	43–59
Survey Periods	1975/76	9.3	21.5	29.4	36.5	37.4
	1980/82	5.7	16.0	27.9	29.9	26.8
	Change in Stunting 1975/76 – 1980/82	–39%	–26%	–5%	–18%	–28%

Source: Ministry of Health/CARE/CDC: "Sri Lanka Nutrition Status Survey 1975–1976, Table 17", and FNPPD/MRI Nutritional Status Survey data, 1980–1982

Table 5: Stunting in the Estate Sector 1975/76 – 1980/82

(Percent of Children Height for Age less than 90% of the NAS Reference Median, by age Group)

		Age (months)				
		6–11	12–23	24–35	36–47	48–59
Survey Periods	1975/76	27.4	47.2	62.6	71.5	73.1
	1980/82	21.4	38.3	55.2	52.4	50.3
	Change in Stunting 1975/76 – 1980/82	–22 %	–19%	–12%	–27%	–31%

Source: Ministry of Health/CARE/CDC "Sri Lanka Nutrition Status Survey, 1975–1976, Table 17," and FNPPD/MRI Nutritional Status Survey data, 1980–1982

(12) Personal communication from Mrs. Nimali Kannangara of the U,S. Save the Children Fund, based on her observations.

(13) Personal communication from Dr. (Mrs.) B. V. de Mel of CARE, based on her personal observations.

(14) FNPPD: "Survey Report of the Food Stamp Scheme," Colombo, Sri Lanka, 1981, p. 50.

(15) Ibid, p.32, Table 14.

(16) Ibid, p.39.

(17) Central Bank of Ceylon "Annual Report, 1982."

(18) Personal communication from Dr. (Mrs.) B.V. de Mel of CARE.

to correct this bias so as to allow for comparability. It was, therefore, decided to exclude those districts where the urban sector accounted for more than 20% of the total sample in 1980–1982. Although six districts (namely, Amparai, Gampaha, Batticaloa, Trincomalee, Colombo and Jaffna) had to be excluded, the remaining sample of 19,299 was sufficiently large to provide a picture of the situation.

In Table 7 we compare the height for age distribution of the survey population of 1975–1976, with a comparable (largely village and estate) section of the survey population of 1980–1982, by age groups. This reveals that the decline in stunting is not marginal. Not merely is a greater proportion over 90% of the NAS reference median, but a greater proportion is also over 95% of the NAS reference median, than previously. This is so for every age group. Moreover, there is also a smaller proportion below 85% of the NAS reference median, in every age group, save that of the infant. Only in the six to eleven month age group has the proportion below 85% of the NAS reference median increased.

Thus there has been an increase in wasting, and a lesser, but nevertheless significant, decrease in stunting. One hypothesis to explain this seeming paradox is that in the period 1977–79, with the liberalization of the economy, more food and nutrition was available laying the basis for long-term height gain and a decline in stunting; that with the food price inflation after 1979 less was consumed with the immediate effect of weight loss, and an increase in wasting; that the FNPPD/MRI survey being conducted over the period. 1980–82, was able to catch this (short term) rise in wasting, but no rise in stunting (as the impact of the post–1979 deterioration in nutritional intake had not yet been felt on height).

Table 6: A Comparison of Stunting in the Village and Estate Sector with that in the Urban Sector, 1980–1982

(Percent of Children Height for Age less than 90% of the NAS Reference Median, by age groups)

		Age (months)					
		6–11	12–23	24–35	36–47	48–59	06–59
Sector	Village and Estate	7.1	17.7	30.5	31.7	28.7	24.4
	Urban	4.9	14.8	26.3	25.6	21.2	19.8

Source: FNPPD/MRI Nutritional Status Survey data, 1980–1982

Table 7: Height for Age: Percentage distribution of Survey Population 1975/76–1980/82

Age Groups (months)	Per Cent of NAS Reference Median				Sample Size
	85	85.0 – 89.9	90.0–94.9	95 +	
6–11	1.9 (2.4)	9.9 (6.8)	36.6 (26.3)	51.7 (64.5)	2,230 (2,464)
12–23	6.3 (3.9)	18.4 (14.8)	44.8 (42.4)	30.5 (38.8)	2,598 (4,570)
24–35	7.5 (6.0)	25.6 (22.1)	45.6 (45.7)	21.4 (26.2)	2,425 (4,503)
36–47	10.1 (7.3)	30.7 (25.4)	39.4 (43.5)	19.8 (23.8)	2,511 (4,172)
48–59	11.8 (7.3)	30.1 (28.0)	41.0 (43.5)	17.1 (21.2)	2,503 (3,605)
6–59	8.1 (5.6)	24.4 (20.2)	42.0 (41.6)	25.5 (32.6)	11,270 (19,299)

Source: Brink, E. W.; Perera, W.D.A.; Broske, S.P.; Huff, N. R., Stachling, N.W.; Lane, J.M.; and Nichaman, M.Z. "Sri Lanka Nutrition Status Survey, 1975" International Journal of Epidemiology, 1978, Vol. 7, No.1, Table 4, and FNPPD/MRI Nutrition Status Survey data, 1980–1982.

a. Districts with an urban sector accounting for over 20% of the sample population, have been excluded from the 1980 to 1982 data to make for greater comparability with the 1975/76 figures. 1975/76 figures are stated in the top row of each box, and 1980/82 figures in the bottom row in parenthesis.

Unfortunately there is no data on the consumption of pre-schoolers in particular, for successive years. However, data on food supply is available. Graph 1 plots the per capita calorie and protein supply as a percentage of the daily per capita requirement from 1972 to 1981. This reveals that the years 1977 to 1979 inclusive, did indeed see a rise in the per capita calorie and protein supply, and that these were the only three years when the per capita supply exceeded the per capita requirement. However, supply is no indication of actual nutritional intake, especially in a situation of great income differentials.

Moreover, if the hypothesis postulated were valid, then the incidence of stunting in the districts surveyed in June 1980 should be significantly less than that in those districts surveyed in January 1982, the impact of the post – 1979 food shortfall being felt by the latter period. Table 8 shows that this is not the case. Indeed in four of the five age groups stunting was markedly higher in June 1980, than in January 1982. This is partially due to the six districts surveyed in June 1980 traditionally having higher rates of stunting than those surveyed in January 1982, but a simple test using CDC/CARE data suggested that this traditional difference was not significant. (20) In the event the hypothesis postulated, cannot be accepted as it stands.

(19) Ibid.

(20) The mean incidence of stunting in the six SHS areas corresponding to the six districts surveyed in June 1980 was compared with the mean incidence of stunting in January 1982, using DCD/CARE data. (Ministry of Health/CDC/CARE "Sri Lanka Nutrition Status Survey, 1975–1976," Table 4). The difference was not significant on a 20% two tailed test, which is a liberal measure.

Another possible explanation of this would be in terms of a changed protein: calorie mix intake by pre-schoolers. A study currently being conducted by Dr. (Mrs.) B.V. de Mel, reveals that in the lower income groups, the fall in calorie intake has been greater than the fall in the protein intake in the last six years, and that this is especially so amongst pre-schoolers. (21) It has been shown that growth can take place with a sufficient protein intake, even if the calorie intake falls. (22) In such a context the greater fall in calorie intake, than in proteins observed by Dr. (Mrs.) B. V. de Mel, can be expected to translate into a rise in wasting, but a fall in stunting.

This is especially so in the context of the Thriposha Programme, the main nutritional intervention directed at pre-schoolers. The current rations of Thriposha provide one third of the pre-schoolers protein requirement, but only one-sixth of his calorie requirement. (23) In the event of his calorie requirements not being adequately supplemented at home, the pre-schooler can be expected to experience a greater shortfall in his calorie requirement, than in his proteins. Such a scenario could well explain the rise in wasting, coupled with the fall in stunting. It would also explain the fairly even decline in stunting across age groups, as depicted in Tables 4 and 5.

The increase in diarrhoea and other related diseases particularly affecting pre-schoolers since 1977, is also likely to have compounded the problem. (24) Such diseases result in weight loss (within a few weeks of their onset), with no corresponding impact on height.

Overall, the increase in wasting is perhaps more significant than the decrease in stunting.

Table 8: Stunting in the Village Sector; a Comparison of Stunting by Age Group in June 1980, with that in January 1982

	Age (months)					
	6–11	12–23	24–35	36–47	48–59	6–59
Six districts surveyed (June 1980)	7.4	17.2	22.6	25.8	28.3	21.0
Three districts surveyed (January 1982)	1.8	11.7	23.8	23.1	18.5	17.1

Source: FNPPD/MRI Nutritional Status Survey data, 1980–1982

This is because the 1975/76 survey was conducted about eighteen months after the severe food crisis of 1973/74. As a result of this crisis all those above two years of age in 1975/76, would have exhibited abnormally severe stunting, reflecting the food shortage eighteen months previously. The 1975/76 survey figures would therefore portray an abnormally high incidence of stunting, any marginal improvement upon which may merely reflect a return to more normal patterns of growth.

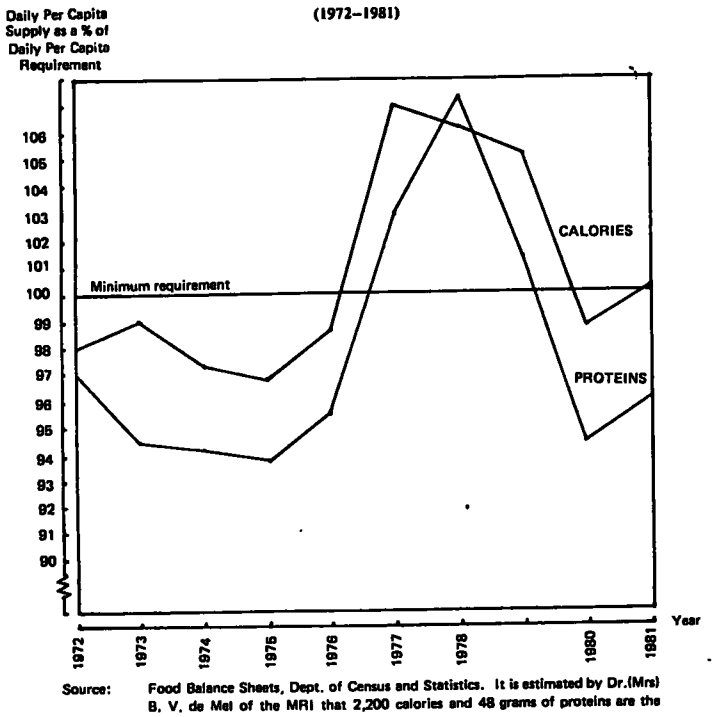
In assessing the nutritional status of those below three years of age, the Gomez classification of weight for age is generally regarded as the most accurate index. However, an analysis by age group and sector using this classification has not been possible, as the data is not available. Thus we have not been able to carry out as rigorous an analysis of the situation as would have desired. Nevertheless, on the evidence we have, there seems to have been a worsening of the nutritional status of village pre-schoolers since 1975/76, this being particularly marked in the infant.

The worsening of nutritional standards may be attributed partially to the switch from a food subsidy to a food stamp scheme. In the pre–1978 era, a ration of polished and lightly milled rice was made freely available to all consumers. At the same time certain other basic commodities were also made available at subsidized prices. The free rice and commodities were collected by the mother, and thereby prepared for the entire household including the young children. The food stamp scheme means that this food is no longer available in kind. Food stamps may be used for the purchase of food, but they may just as well be resold on the black-market, and the proceeds used to purchase alcohol, tobacco or whatever. As the father collects the food stamps this is what generally happens. The needy family therefore does not get the same sort of nutritional quota it received in the food subsidy era. This has been further excerbated by the rapid price inflation since 1979.

It seems that in the poorer urban areas there has been a switch from the more expensive lightly milled rices to the cheaper imported white polished rice. (25) The protein, vitamin and niacin contents of the latter variety are significantly less than those of the former. (Table 9). This is believed to be a key factor in impairing work potential.

Graph 1

Per Capita Calorie and Protein Supply as a % of the daily per capita requirement (1972–1981)



Source: Food Balance Sheets, Dept. of Census and Statistics. It is estimated by Dr.(Mrs) B. V. de Mel of the MRI that 2,200 calories and 48 grams of proteins are the minimum per capita daily requirements.

(21) Personal communication from Dr. (Mrs.) B. V. de Mel of CARE.

(22) Richard Jansen, Colorado State University – Personal communication from Dr. (Mrs.) B. V. de Mel.

(23) Personal communication from Dr. (Mrs.) B. V. de Mel of CARE.

(24) Ibid.

(25) Ibid.

Table 9 : Nutritional Value of a 100 grms of Edible Portions of some Bacic Staples

Name of foodstuff	Protein	Iron	Calcium	Vitamin B1	Vitamin B2	Niacin
Unit	g.	mg.	mg.	Neg.	Meg.	mg.
White Polished Rice	6.8	3.1	10.0	60	60	1.9
Red Lightly Milled Rice	7.5	3.2	10.0	210	160	3.9
Par-boiled Lightly Milled Rice	8.5	2.8	10.0	270	120	4.0
Wheat-flour 70% Extraction	11.0	2.5	23.0	120	70	2.4
Wheat-flour 95% Extraction	12.1	11.5	48.0	490	290	4.3

Source: Dr. (Mrs.) B. V. de Mel.

The introduction of Prima Wheat into this country is unlikely to alleviate the problem. The flour has a 70% extraction rate. (26) Like all wheat flours its protein content is greater than that of rice, but its Vitamin B and niacin content is significantly less than that of lightly milled rice, (Table 9). From 1983, all domestic wheat flour requirements will be met by the Prima mill. (27) In this context the basic staples made available to the Sri Lanka consumer are likely to be very poor in terms of nutritional value.

Conclusion

To sum up there seems to have been a marked rise in wasting since 1975/76 with a significant but lesser fall in stunting. It is suggested that this has been due to changed consumption patterns amongst pre-schoolers, and in particular a fall in calories consumed relative to proteins. It is also noted that the rise in wasting has been particularly marked amongst infants and those in the one to two year age range, and that this is so in both the estate and village sectors. This points to a significant deterioration in the nutritional status of these age groups. A verification of this using the Gomez classification would have been most useful. However, this cannot be done with the data currently available. Nevertheless, on the evidence we have, it would seem that these youngest age groups should receive special attention; that cheap and wholesome weaning foods should be popularized, and perhaps the milk food subsidy reintroduced.

Thriposha when properly administered has been found to be important in reducing malnutrition amongst pre-schoolers. (28) It is suggested that the better administration of Thriposha to those in the two to four year age range inclusive on the estates, than to those in the villages, explains the better record of the former sector, as compared to the latter. This implies that improved administration of the Thriposha Programme, complemented by better health and infrastructural facilities could help ameliorate the current nutritional inadequacies of Sri Lanka pre-schoolers. In order that such benefits be disseminated amongst the populace at large, such a strategy would have to be underpinned by a new food distribution scheme; a scheme where nutritious food in kind is given to the mother, rather than the present stamps which can be exchanged for other commodities. Such a scheme may involve a higher budgetary burden than the present food stamps. However, if it is aimed at the most needy groups it need not be as expensive as the food subsidies of old It is particularly necessary, given the poor nutritional quality of the staples being introduced into Sri Lanka today.

(26) *Ibid.*

(27) *Food Commissioner's Department.*

(28) *Community Systems Foundation in co-ordination with USAID : "Nutrition Programs in Sri Lanka using US Food Aid (An Evaluation of P.L. 480 Title 11 Programs)," October, 1982.*

BUREAUCRACY AND POWER – GROUPS IN A SETTLEMENT VILLAGE – A SYMBIOTIC RELATIONSHIP

S. L. Tilakasiri

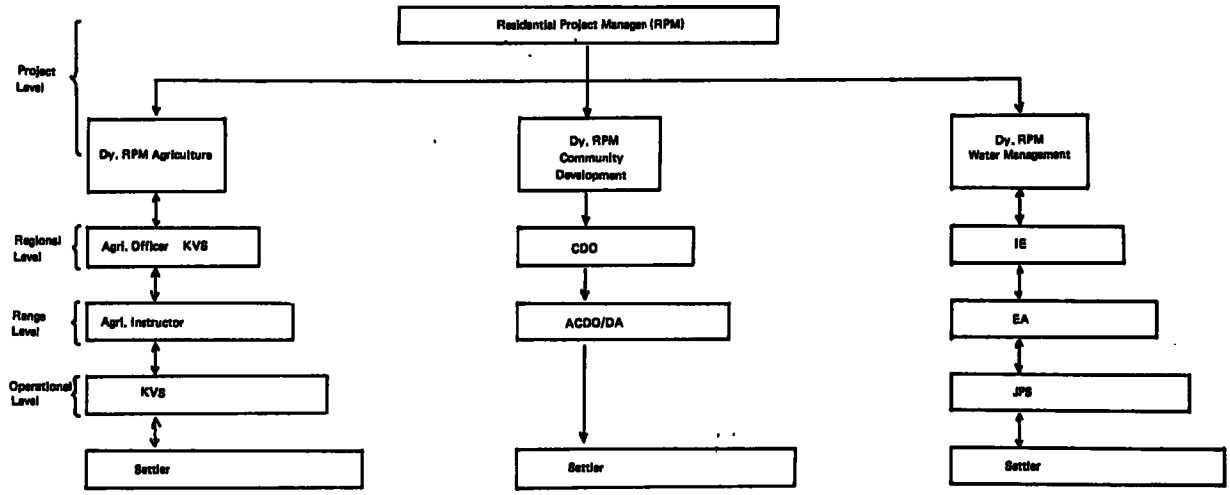
The relationship between the bureaucracy and power groups, observed in some settlement villages of the Mahaweli project forms the basis of this paper by S. L. Tilakasiri of the Research Department of the People's Bank. This paper which was presented for the Seminar on "Village and National Development, Sri Lanka Foundation Institute" is based on a combination of results of several macro and micro studies dating from 1976 completed on the political economy of Mahaweli 'H' area. Questionnaire and participant observation methods have been used in appropriate circumstances. In villages selected for in-depth study, monitoring has been done from the latter half of 1978 for the procurement of data.

The planning of Mahaweli settlements has been based on the results of different field studies and experiences gathered over a long period of time in colonisation schemes. The size of the allotments has been reduced to a level at which the economic productivity of the land could be maintained by the participation of family members. All families are entitled to private ownership of land with the allocation of 2.5 acres of lowland, provided with irrigation facilities. (In addition each family is allocated a residential allotment of 0.5 acre of highland). Accordingly every settler enjoys an equal opportunity regarding two main resources (land and water) essential for agricultural activity.

Besides the provision of adequate irrigation facilities for Yala (dry) and Maha (wet) cultivation seasons, several institutional facilities also have been provided. They include agricultural credit, fertiliser, agro-chemicals, agricultural extension and marketing facilities provided by several government departments and institutions. Further, institutions of different levels such as, schools, post offices, dispensaries, hospitals and police stations have also been made use of as agencies to provide the necessary facilities.

The system of private land ownership and private consumption of water have in most instances led to an individualised system. While it is anticipated to provide

DIAGRAM 1 – Organizational Chart (Previous)



Kvs– Krushikarma Vyapti Seveka

CDO – Community Development Officer
ACDO – Assistant CDO
DA – Development Assistant

IE – Irrigation Engineer
EA – Engineering Assistant
JPS – Jala Palaka Seveka

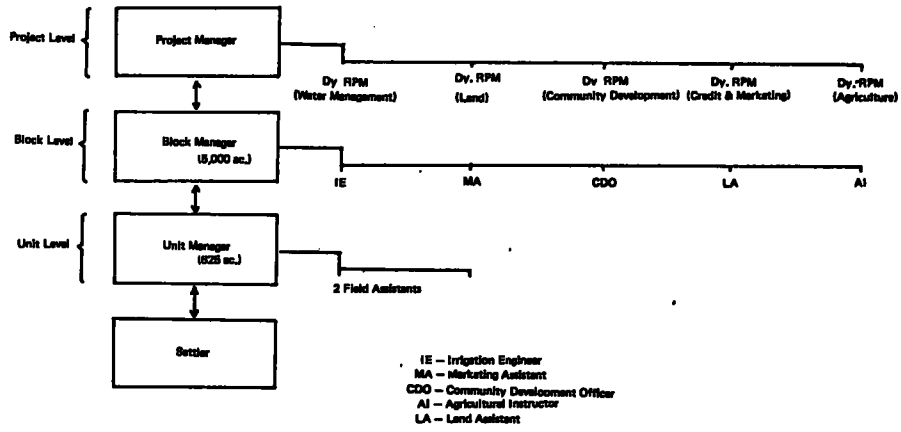
equal facilities, and equal opportunities to all farmer-families, the intensive development effort makes necessary a vast bureaucracy of officials.

Structure of Bureaucracy

In a settlement region planned to function differently from a traditional village, the functions referred to above bring together teams of officials of different levels. In most instances a centralised administrative system is in evidence. They are vested with the responsibility of implementing, communicating and administering decisions which have been taken outside the village. These officials who are in receipt of monthly salaries from government departments or other institutions do not carry any responsibilities towards the settlers. Therefore they utilise their time and energy to satisfy and meet the needs of their superior officers rathr than attend to the specific needs of the farmers. Accordingly, a large number of officials operate regional, block and hamlet (1) levels.

The officials dealing with agricultural extension services are the Agricultural Extension Officer (AI) and the "Krushi Vyapthi Sevaka" (KVS). The Engineering Assistant (EA) and 'Jala Palana Seveka" (JPS) deal with water management and maintenance activities. The Assistant Community Development Officer (ACDO) and Development Assistant (DA) attend to community development and land work. There are many other minor categories as well. (See Diagram 1). In addition, bank officials, school teachers, postal employees, police constables, Co-operative employees and a number of similar government officials could also be identified as engaging in agricultural extension work.

DIAGRAM 11 – Organizational Chart (Present)



IE – Irrigation Engineer
MA – Marketing Assistant
CDO – Community Development Officer
AI – Agricultural Instructor
LA – Land Assistant

They could be considered as the village-level officers or as the bottom layer of government officials. The aim of government is to provide, through those officials, maximum services in the respective areas of activity. This system of management continues under the Mahaweli Authority. There is now a Unit Manager for a cluseter of Villages (consisting of about 250 farm families) responsible to the Block Manager. (See Diagram 11). It is proposed to supply through the Unit Manager, all the services which were made available earlier. He is assisted by two other officials and three labourers.

Who are the power groups?

Settler families differing widely from each other in background and economic conditions have been settled in Kala Oya basin where settlement activities are nearing completion. They could be broadly classified into four different categories as follows:

(a) Land-owning and landless groups who lived in Purana villages within the command-area of the Mahaweli project.

(b) Peasant farmers displaced by the reservoirs/irrigational constructions of this project.

(c) Some of the second generation overflow groups from early colonization schemes like Minipe and Padaviya who have entered the project area.

(1) 'Hamlet' is the smallest unit in Mahaweli settlements. It consists of approximately 100 families.

(d) Groups selected for Mahaweli allotments on various objective criteria, from the Wet zone and other regions.

Nearly 73 per cent of families settled under System 'H' (H 1, H 2, H 4, H 7 and H 9) fall into the first two categories referred to above. In most instances they have been allocated their own house and the highland without any change. Some have been able to receive under the new settlement system, extents of land almost equal to what they owned in the purana villages. (This includes the allotments given to all family members, sometimes in contagious blocks. The agricultural activities of such blocks however are collectively done by the family and the income goes to the family pool. Their socio-economic strength enables them to develop close contact with officials who were engaged in the different activities. (Tilakasiri 1981)

(2) This background has enabled those who owned boutiques, buffaloes/tractors in the original villages to further develop their social and economic power.

The opening of small temporary boutiques by them at the commencement of settlement operations enabled them to develop contact with the new villages with comparative ease. These boutiques became important as centres for distribution of consumer goods and as purchasing points for certain products. At the same time these became important as centres for supplying basic needs to officials of different levels who came into the village at the very commencement of settlement activities. This provided a medium for developing close contact with officials.

The two points across the river where the dam will come up.

Such groups hailed from different socio-economic backgrounds. Those with more socio-economic power were able to obtain more favourable allotments (with fertile soil and water supply) (3) This is particularly so in category H 1 where the allotments were in the purana villages itself or in close proximity to it. These groups being possessed of a certain degree of economic power were able to secure minor contracts for constructional work, through village-level officials. They have sometimes undertaken them jointly with some officials. These mutual activities not only enabled them to develop closer contact with officials but consolidate their economic power as well.

Use of recommended quantities of fertiliser, agro-chemicals, seed and adoption of cultivation practices meant high production costs. Settlers who possessed better economic power were able to afford this and were also able to hire labour when necessary. They were able to reap successful harvests by the adoption of new agricultural practices supplemented by the availability of the recommended quantities of water. They were able to harvest about 100 bushels per acre while the other farmers realised about 40 bushels. High incomes which led to savings enabled them to increase their extent of land-ownership (by obtaining the allotments of other farmers on ande or badu) basis. Thus they became marked out as "successful farmers" or "progressive farmers". Some of them are often singled out as illustrious examples of the success of the Scheme, particularly to impress foreign experts. Their ability to function as successful farmers has been achieved more by greater access to institutions and officials than through individual farming abilities.

Such categorisation resulted in officials performing various services focussing more attention on them. Other farmers became further isolated and as the governmental institutions by-passed them, they began to depend also on farmers who were better-off. These successful farmers could be identified by using material criteria such as ownership of houses, boutiques/businesses (such as rice mills) undertaking of contracts, life styles and scale of agricultural activities.

At the sametime in most instances they began to hold office in voluntary institutions set up in these villages, such as, committees of co-operative societies, "Sasanarakshaka Samities" (religious organisations), parent -teacher associations, death donation societies, community development societies, youth and women's organizations, and politicalparty organizations. It was the same group of persons who continued to hold office in all these different organizations. Further, these 'successful farmers' appeared to be taking the initiative in the voluntary programmes relating to health and community development work started in Mahaweli settlements. Thus it becomes evident that a limited number of persons have consolidated their economic and social power in this environment through settlement activities which were begun with equal opportunities for all.

In mid–1979 farmers were grouped on the basis of turnout physical areas, for organisation of water-management and other activities. It was also anticipated that this would lead to the development of collective forms of action. Although arrangements had been made for the farmers themselves to select two farmer-leaders, evaluation reports of these organisations reveal that a majority had been selected on their being named by the officials. Empirical evidence clearly indicates that many 'successful farmers' who maintained contact with officials had been selected for these posts. In one village 60 per cent of this leadership was held by them. Although these activities appear to have failed as they have not been a popularly selected leadership, they have got an opportunity to function as a privileged group and as an extension of another layer of the bureaucracy. (4)

Institutional credit and the strength of power-groups

Financial facilities play a valuable role in supplying cultivation requirements in colonisation schemes which use modern technology. The People's Bank has opened bank branches in the new settlement areas in a scheme drawing in the Rural Banks as well. The Bank of Ceylon and Hatton National Bank too have followed with branches. The People's Bank has operated a special credit scheme in the settlement areas using a team of specially trained

(2) The Mahaweli Settlement Scheme – Displaced peasants and their problems. Paper presented at the Annual Sessions SLAAS, Colombo Dec. 1981.

(3) This has been a common feature in colonisation schemes in Sri Lanka. Please see "Politics and Land Settlement Schemes in Sri Lanka" by David Dunham in "Development and Change" Vol. 13 No.1 January 1983.

(4) Tilakasiri, S. L. "A critical look at farmer's organisations in the Mahaweli area".

The Mahaweli settlers look on in hope

development officers. This facility, provided all allottees equal opportunities for credit facilities and thereby cultivation ability even at the very commencement of settlement activities. However, inability to pay cultivation loans becomes a problem in seeking fresh loans.

A majority of settlers have evaded settlement of agricultural loans. A review of this situation reveals that two important factors were responsible:

(a) crop failure in subsidiary crops in Maha 1976/77.

(b) poor yield mainly due to inadequate water supply.

Thus the difficulties in loan re-payments commenced from the very first cultivation season. Some have been disqualified on account of non-repayment and even subsequent loans (1977/78).

Findings from two samples in Galnewa block of Mahaweli H area indicate that the number of borrowers have been decreasing with every new season due to the progressive increase in the number of defaulters. During the 1976/77 Maha season the number of persons who obtained loans from the People's Bank and Rural Banks was 120. By 1979/80 Maha, the number had decreased to a mere 08 which is a drop to as much as 97 per cent of the other groups who could not obtain institutional credit facilitiees.

This situation leads to a closer relationship between bank officials and "good creditors" or "progressive farmers". They not only become eligible for loans other than agricultural loans but receive the ready assistance of Bank officials as well.

Those who could obtain credit from institutional sources did so not only for cultivation purposes but for purchase of tractors and other capital assets. Thus the credit system as it operates within the context of land utilization, access to water etc. (to be discussed later) gradually made the poor farmers ineligible, while the more successful farmers made greater use of credit facilities. This situation contributed to further widen existing disparities. (5) These successful families also have begun to cultivate land on badu or on a system of tractor hire (i.e. a part of the land owners land is cultivated by the tractor owner for ploughing the land for the peasant). All this leads to the "successful farmer" increasing their income.

Required quantity of water for whom ?

Water is a very important input in irrigated areas. A specific quantity of water is required at the proper time for a successful crop. Irrigation facilities as well as other serivce facilities and administrative measures are subjected to a centralised system of control, while administrative responsibility upto field-channel level of the farmers' paddy lots rests with the administrative officers, the responsibility for the balance lay with the farmers of those turnout areas.

Turn out areas (see diagram 111) which are determined according to irrigation plans consist of about 15 allotments. The quantity of water necessary for such an area is supplied according to the cultivation cycle. All settlers in these areas are entitled to equal water rights; physical lay-out of the channels and field lots have been so designed to provide this facility.

The degree and methods of water-use differ according to the agricultural practices the settlers have been used to in their purana villages. Generally, a majority of them attempt to use excessive water. However, such opportunities are limited in the Mahaweli scheme due to the nature of the water supply to Turn Out areas. Yet some farmers desire and use the quantities of water they had been accustomed to. Farmers owning lots in the upper regions of the channel are keen on using extra water. Sometimes, farmers owning lots in the lower regions too obtain extra quantities of water by reducing the supply to others by obstructing the channel flow. This becomes more acute in times of rotational irrigation. Even those appointed as farmer-leaders, instead of ensuring an equal supply to all make use of their position to secure extra water to the allotments they own and those cultivated by them on lease It is rarely that officials take effective steps even if complaints are made to them. This matter has been analysed by the writer in a monograph on "Water rights and Irrigation Practices" – a People's Bank publication.

On the other hand even if the paddy lots in a Turn-Out area are able to receive the required quantieies of water, a problem arises if the actual cultivated area is more than the area planned for. Cultivation of encroachments is one such factor. Such cultivations are done by groups who have been identified as "successful farmers" or power groups or their relations/friends. Farmers are reluctant to complain against this group which has increased their socio-economic strength, and even if they do so, in most instances no action is taken by the officials. This then is another instance where the close relationship existing between village level bureaucracy and the power group buttresses and functions to the benefit of the 'successful farmers'.

Although according to the Mahaweli settlement olans specific cropping patterns have to be followed (they vary according to the physical qualities of red soils and black soils, and according to cultivation seasons) farmers who could exercise power do not abide by these conditions in most instances. Therefore, they use extra quantities of water in times of rotational irrigation as well as at other times. Sometimes they even use water which they are legitimately not entitled to. Duration of water supply damaging the water way or obstruction of others' waterways etc. depend on the power occupied by the respective persons. In the context of emerging economic power relationships and the resultant type of tenant farming, when the tenant cultivator (who has obviously some social and economic power) resorts to these practices, the other farmers face difficulties in their cultivation activities in view of the influential position of the wrong-doer.

Water occupies a position of social and political power, which is much more than the importance it is normally assigned to the major determinant of production in most instances. Therefore allottees have been to resort to different practices. Instead of abandoning cultivation they have begun to lease their allotment/portion of thier allotment to farmers (successful farmers or sometimes government officials) who could obtain water. In view of this practice of giving out on "ande" or badu which is resorted to, for this reason as well as others, it was revealed that in one of the villages studies, the number of families of actual allottees has declined

(5) The writer has discussed similar issues in a paper entitled "An emerging income gap – a study of a household in the Mahaweli area" – presented to SLAAS Annual Sessions December, 1980.

(6) Barbara Marshal and Thomas Karrimel – "Class formation in Peasant Colonization in Sri Lanka. in Social Science Review.

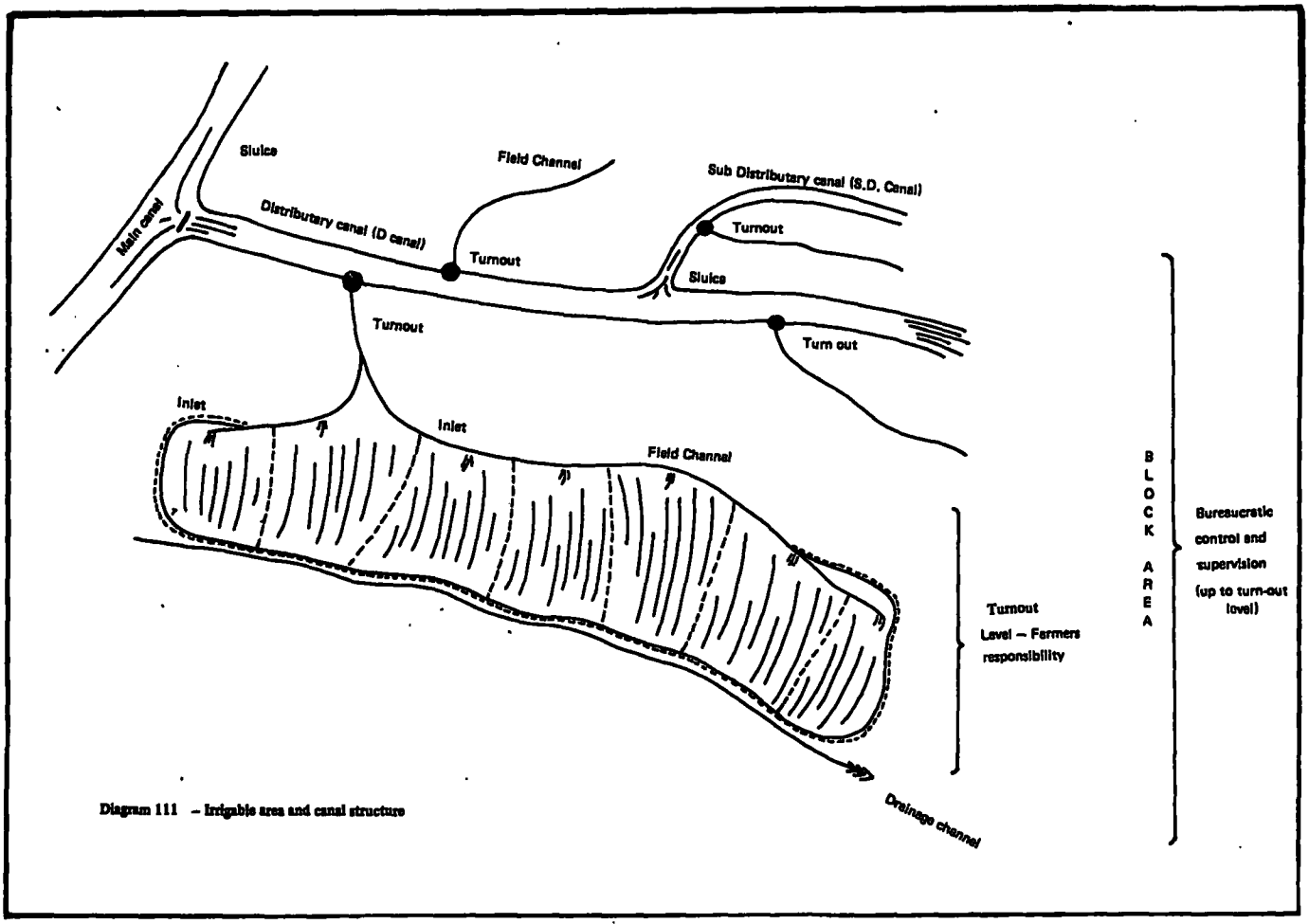


Diagram 111 – Irrigable area and canal structure

from 76 per cent in Maha 1978/79 to 42 per cent in Yala 1980. Along with this, the actual extent of land-use has changed from ½ acre – about 6 acres.

Power groups which have emerged due to socio-economic strength gathered from the availability of greater opportunities for water-use, credit facilities, other agro-inputs and advice could be accordingly identified in settlement areas. Assistance received from officials as well as the provision of meeting the needs of officials have enabled these power groups to strengthen their position.

Meeting the needs of officials sometimes begins with provision of rent free accommodation, meals, acceptance in the village in number of instances leads to the official begining to take up to agricultural activity on badu basis. In obtaining suitable cultivable land on badu for different officials (irrigation officials, police officers, co-operative employees, teachers etc.) – an arrangement which is relatively easy under this operational set-up, 'successful' farmers are key persons. They assist such cultivation by giving their tractors on easy hire terms or jointly investing in cultivation, etc. This symbiotic relationship is advantageous also to the rich farmers who cultivate lands on ande or badu. This is because they could get the support of officials for securing water and other needs. In these villages studied we came across several co-operative managers, school teachers, water management officers, community development officers and police officers among those cultivating allotments.

On the other hand, some farmers have come forward to undertake construction contract work in the area. This, though formally it appears to be done by them, in actual fact the execution of these is by the officials and benefits accrue to the officials. This not only enables the officials to consolidate their economic hold but also helps to strengthen the position of power-groups. Such village level officers who combine different cultivation activities with contractual work do not have time to perform the services expected of them.These officials are better able to obtain tractor services and requirements such as fertiliser, agro-chemicals and services from co-operative societies. Although the farmers are generally aware of these developments, they are helpless in the face of this operational pattern.

The relationships which have arisen as a result among certain farmers and officials and their operation are based on the power structure in their village. These features appear to determine operations, much more than the individual abilities of the farmers.

CONCLUSION

This paper has attempted to analyse how only certain settlers are able to take maximum use of service facilities provided by various institutions and to what extent the village bureaucracy aids this process. It was also observed how certain benefits accrue to the village level bureaucracy in the operation of these processes. There is thus a symbiotic relationship between the bureaucracy and the power-group at the village level. What is of significance is that in this whole process the original goals of equitable access to resources, equitable development and growth of income of the settler families tend to be displaced. And in this village level bureaucracy, the very delivery mechanism that was to ensure equitable distribution etc. is counter productive.