

HISTORY OF DIRECT NUTRITION SCHEMES IN TAMIL NADU

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I. The Concept of Nutritional Status and its Relationship to Health

Adequate health and nutrition status of individuals is, both, an end in itself and a means to promote the productive potential of the population in the interest of economic development. The objective of this chapter is to present a picture of the nutrition situation prevailing in TN.

The concept of nutritional status has undergone considerable change over the years – it is no longer understood simply as the outcome of deficiencies or excesses of one or more essential nutrients. It is well recognized today that nutritional status cannot be viewed independently of health status as there are complex biomedical relationships between an individual's food intake, nutrient absorption and utilization by the body, individual activity levels and the incidence of disease.

In many LDCs, including India, nutrient absorption and utilization by the body are less efficiently carried out because of the presence of frequent infectious episodes like diarrhea, upper and lower respiratory infections. Malabsorption can also result from intestinal parasites. Infection causes nutrition status to deteriorate; at the same time undernutrition decreases resistance to infection – a synergistic relationship. Thus, the term *nutritional status* is used, at the very least, to describe an outcome of several biomedical processes interacting over time.

II. Socioeconomic Factors And Anthropometric Outcomes

“A child's growth rate reflects, better than any other single index, his state of health and nutrition, and often indeed his psychological situation also. Similarly, the average value of children's heights and weights reflect accurately the state of a nation's public health and average nutritional status of its citizens, when appropriate allowance is made for differences, if any, in genetic potential. This is especially true in developing and disintegrating countries.” *Eveleth, P.G. and J.M. Tanner, 1976. Worldwide Variations in Human Growth. Cambridge University Press.*

Systematic variations in anthropometric outcomes, like weights and heights, among populations have been largely attributed to the social, economic and environmental conditions in which people live. A combination of poverty, ill-health and deprivation can result in lower growth, weights and heights. This is a phenomenon observed internationally. Of course, heredity also plays a crucial role. Anthropometric measurements are always an outcome of, both, heredity and the environment in which children grow. However, repeatedly, international data have demonstrated that variations in growth within very broad racial groupings can primarily be attributed to the effects of the conditions in which populations live¹.

It is well accepted among nutritionists that, at least in the 20th century, *differences between socioeconomic classes cause greater differences between growth of children than differences due to ethnic factors across countries*. Thus, the more deprived the population (in terms of access to nutrients, infection loads, hygiene, and even care and attention) the lower are weight and height outcomes likely to be. This is particularly true of developing countries, demonstrating significant correlations between socioeconomic status, living standards and human physical states.

Consequences of inadequate health and nutrition are poor physical and mental growth, illness and death in terms of concerns regarding human development. In terms of economic development consequences like inadequately skilled labour, absenteeism, avoidable expenditures on curative services and low productivity lead to high costs for any economy. In recognition of this the Government of Tamil Nadu have put in place a network of services and infrastructure for health and direct nutrition interventions. TN has also benefited from its relatively developed position as compared with other States in India because of which there is a general upward trend in the overall health and nutritional status of the population.

III. Outcome Indicators

Heights and weights provide information on different aspects of nutrition status. In Tamil Nadu weight-for-age is used as an indicator to assess short term, current nutritional status. This takes into account the body mass. The

¹ Thoday, 1965; Fischbein, 1977; Bergman and Goracy, 1984; Eveleth and Tanner, 1976; Martorell and Habicht, 1988.

extent of weight deficiency for particular ages as compared with pre-determined reference weights represents current malnutrition among children. (Similarly, height-for-age deficits as compared with reference heights capture past malnutrition, not used in mass direct nutrition schemes in the State).

In TN around 45% of children below 5 years are underweight². The percentages are higher in rural areas (52%) as compared with urban (37%). While this is better than the all India situation, of 53% overall, states like Kerala, Haryana and even Rajasthan seem to be doing better than TN.

While levels of undernutrition may be high, the trend shows an improvement in the nutrition status of the preschool children in TN over the last two decades. This is in keeping with the all-India trend observed from the mid 1970s.

These improvements can be attributed to all three factors:

- (a) the overall improvement in the incomes of households resulting in more resources available for food within households,
- (b) the increase in education levels among the population contributing to 'health seeking behaviour',
- (c) the consistent public policy of state provisioning of health and nutrition services.

IV. State Provisioning of Direct Nutrition Services

Even under the most optimistic scenario, improvements in health and nutrition take over a generation. Better nutrition has generally followed economic growth, not preceded it. But among the low income countries like India the route of waiting for growth to address the problem of malnutrition has been found to be unacceptably long. The consequences of such delays are costly in terms not only of productivity, but also in terms of direct well being of the population, which is ultimately the objective of all development effort. Direct interventions could shorten the time taken for improved nutritional status.

² Weight-for-age below 2SD of median.

Further, even in households with adequate resources and satisfactory calorie and even protein-calorie availability, there are regularities in nutritional deprivations faced by certain members – most notable children under two who cannot fend for themselves, female children, pregnant and lactating women. This is another justification for programs that look within the household, identify its most vulnerable members and take corrective action as is done under the General ICDS and TINP converted WB-ICDS III.

V. History of Direct Nutrition Interventions in TN

Providing **food** for children **outside** the home is not a new idea in TN. In some form or another this has been in operation from way back in 1956.

School Mid-day Meals. In 1956 a school mid-day meals scheme was in operation in what was then the Madras State. It functioned in 8000 elementary schools covering 2 lakhs children. Initially it was started with purely voluntary contributions from the local people, but within a year the government stepped in, contributing a grant of 6 paise per child for schools with the scheme, while local contributions were 4 paise per child, adding up to 10 paise per child per day. A rice meal was provided. In 1961 CARE offered food commodity assistance (Bulgar wheat) which was readily accepted and the scheme's implementation was extended to cover 16 lakhs children in 30,000 schools. As headmasters were made responsible for school feeding and children were used for cooking the food, there was a serious problem of loss of teaching hours. There were also losses of food commodities due to inadequate storage facilities.

Central Kitchens. In 1967 the system was radically modified to operate through Central Kitchens. Headmasters, teachers and children were relieved of cooking. Food was cooked and packed in polythene packets in Centrally Kitchens specially established with storage and cooking facilities. It was then delivered to schools through vehicles. In a year 200 days were prescribed feeding days, of which 100 were supposed to be rice days and 100 CARE food days.

An evaluation of the Central Kitchens scheme (CARE, 1974) shows that the scheme was indeed popular. But the number of actual feeding days were well under 200 because of vehicle breakdowns, bad roads and geographic

inaccessibility. Under the earlier school based cooking system, if the school functioned on a particular day, the children were fed, resulting in a larger number of feeding days. Cost per meal was higher, at a little over 18 paise as against the 10 paise fixed earlier. There were larger number of CARE food days than rice days because of cash flow problems. But the advantages were higher levels of hygiene and standardisation, less teaching interruptions, lower thefts and damage of ingredients because of better storage.

NMP. Starting on July 1st 1982, TN saw one of the largest expansions of mid-day feeding through the Noon Meals Program (NMP) of the former Chief Minister, MGR, who felt that no child should go hungry. This time it was the pre-schoolers who were first covered. It was sheer personal commitment and political will which saw the program through its teething and bureaucratic doubts about funding and logistics. Successive governments have continued to commit very significant portions of the state's budget to it. This has resulted in one of the most expensive network of centres was established and staffed and noon meal feeding started. It has also caught the imagination of the Government of India, which is now starting to support similar efforts in all states.

Hunger to Nutrition. While initially feeding programs may have been started to combat hunger in a visible, center based fashion, over the years the government in TN have made serious attempts to combine provision of food under the Noon Meal Program (NMP) with other services like health care, immunization, growth monitoring, pre and post natal care for women, communication and nutrition education. This has been done through two main nutrition and child development programs: the Integrated Child Development Services Scheme (ICDS) which started as a small pilot in 1976 and the TN Integrated Nutrition Project (TINP), which started in its phase I in 1980. As both these nutrition schemes expanded, they were integrated with the Noon Meal Program infrastructure for preschoolers.

The State's direct nutrition effort does continue to have a strong 'food bias'. Resource constraints have not reduced the coverage or calorific content over the decades.

Government of TN has been spending significantly on the NMP and complementary feeding through nutrition supplements for preschoolers, pregnant and nursing women, and has brought about an integration of all

major health and nutrition interventions for children. Recently, in 1994, a State Policy on Nutrition has been explicitly drafted with technical support from the UNICEF. TN is probably the first state to have such a policy, following the National Nutrition Policy, 1993. However, this has not been officially adopted through a Government order.

In the State Policy for the first time there is an explicit recognition that food alone cannot eradicate malnutrition. Unlike the NMP under which feeding starts after 2 years of age, ICDS and TINP have been well aware of the limitations of feeding per se, especially after the age of 2 years by which time considerable damage could already have taken place, much of it irreversible, and the synergistic relationship between health and nutrition. This is explicitly recognized. The policy document, in fact, goes a step further by stating, “Feeding programs which seek to improve the nutritional status among the already malnourished children are less likely to be effective, and are expensive and therefore non-sustainable.”

VI. Phased Expansion of the NMP

Starting on July 1st 1982, TN saw the beginning of one of the largest phased expansions of mid-day feeding through the Noon Meals Program. This is the major hunger program. For the first time the State focused on the difficult to reach preschool age group, 2+ to 5 years, who cannot be covered in centers unless physically brought there by an adult.

Nothing of the present size of operations as observed under the state’s noon meal program, integrated with the health and nutrition schemes for preschool children, pregnant and lactating women, the TINP and ICDS schemes, has been attempted before. The noon meal feeds a population of over 7.7 millions nearly every day, not through dry rations or precooked items like biscuits, but serving a hot rice meals cooked on the spot for all. The sheer logistics by themselves can be mind boggling. Yet, these schemes have grown and stabilized over the last 20 years. Debate and discussion on such massive direct action by the State can benefit the programs and shape future policy.

VII. Who are Covered?

The 1982 NMP started by covering until then considered hard to reach – those below 5 years. Operationally, this is the hardest age group to cover, though in terms of nutritional efficiency, perhaps the better age group than older children to tackle before irreversible damage has set in. Through a network of NMP centres at first rural children in the age group 2+ to 4+ were covered. During the same year itself the program was expanded in stages to cover first urban pre-schoolers, then rural and urban primary school children, older school children in rural areas up to 15 years of age (i.e., class X). In 1983 old age pensioners were made eligible under this program. In 1984 the program was again expanded to cover older urban school children as well, up to 15 years of age. In the mid nineties, as the program operations became streamlined and it was understood that the scheme was there to stay, there was a recognition that pregnant women could also benefit – and that the marginal cost of adding them to the already large list of eligible persons would be within acceptable limits. So from December 1995 women also enjoy a noon meal for a 4 months period during pregnancy. Thus starting from preschoolers and school children certain adult categories of pregnant women and pensioners are also covered. The scheme is now a combination of a hunger-health-nutrition effort with social security for the old, destitute and widows.

School children eat their noon meal at school. The other categories i.e. pre-schoolers, pensioners and pregnant and lactating women eat at the pre-school centres. Data on numbers of NMP centres and individuals covered vary at different counts as they are based on attendance figures recorded in the numerous centres and the administration has been trying to streamline program operations. Data available as on 2001-2002 provides the coverage figures at last count as captured in table below. Taking all pre-school as well as school centres together, in all there are nearly 71,721 noon meal program centres feeding over 77.25 lakhs children and 5.23 lakhs adults.

Table 1

Pre School NMP Centres, 2001-2002

S.No	Scheme	No.of Centres	No.of beneficiaries			
			Children	P/N Pensioners	Women &	Total
1	ICDS	10446	293686		127568	421254

2	WB ICDS-III	19500	547353	57846	605199
3	NMP urban	718	29457	4144	33601
4	Total NMP CWCs	30664	870496	1047496	1060054

It may be seen from table 1 that the pre-school NMP centres have now been merged with those of two other child development programs – the Tamilnadu Integrated Nutrition Project (TINP) and the Integrated Child Development Services Scheme (ICDS), a merger that is discussed in the following section. Virtually any child between the ages of 2 and 15 years is eligible for a noon meal at the cost of the state. Though there was an income criteria, in practice any willing child in the eligible age group is permitted to participate. In actual fact it is the relatively poorer sections of the population who participate. One estimate indicates that at present around 33% of the preschool age group actually avails of the benefits under the program. It appears that over the years the percentage of participating pre-schoolers may have come down due to the mushrooming of nursery schools in urban and rural areas and rationalising attendance figures at the centres. The percentage is likely to be significantly higher for the school age population. Around 30% is a high percentage if it is recognised those in poverty situations are more likely to avail of the noon meal (the percentage population below the poverty line ranging around 30-40, depending on which figures are accepted).

VIII. Integration of NMP With Child Development Schemes: ICDS & TINP

The centrally sponsored ICDS was introduced in TN in 1976, starting small with just three projects: 2 rural and 1 urban. At present there are 113 General ICDS projects (69 rural, 44 in urban slums). An integrated package of health, supplementary nutrition, together with cognitive and psycho-social services was contemplated for children under 6. Their services are provided through a network of Anganwadis – one for around 1500 population. The norm is for a higher population in urban areas. Pregnant and lactating women are also covered. Specifically, 6 services are available: health check-ups, immunization, referral, education on health and nutrition, and

supplementary nutrition. This last service is actually the noon meal under the NMP. While the cost of nutrition supplements alone is borne by the State Government while the Central Government bears all other costs, actually more than half the costs are on account of the food component alone. In 4 districts the Swedish International Development Agency (SIDA) provided additional resources for a limited period.

In 1980 the pilot TN Integrated Nutrition Project (TINP) was introduced with funding from the World Bank. This was far more focused, with the under 36 months old being targeted with a smaller 'food bias'. TINP focused on educating the women and others in the household (e.g., mothers-in-law) regarding breast feeding, weaning, immunization, growth monitoring, and so on. Growth monitoring was an innovative feature, which attempted to make invisible malnutrition visible through plotting each child's weights against its age every month on chart which compared the actual growth to a norm. Mothers were taught how to interpret the chart which was suitably designed. Very selective supplementation, that too for a fixed period based on recorded growth was undertaken. This helped control food costs.

But not long after TINP's introduction, in 1982, the State also announced the massive NMP, which did not have such targeting with the intention of economising on food costs. The NMP had multiple objectives. This led to a problem of policy clarity.

By 1989 TINP-I operated in 173 rural blocks. Its successor, TINP-II expanded coverage to 316 blocks, eventually with 18,352 centres. This time round decision making had to take into account the reality of the massive NMP which had come to stay and which covered children up to 5+ years among pre-schoolers. So TINP-II took up non-ICDS areas, and put in place its integrated package of services, adding to it pre-school education for children over 3 years. As it began operations through the already established network of NMPcentres it was possible to operationalise TINP-II in a very short period. From 1998 the TINP was renamed as the WB-ICDS-III in keeping with the standard nomenclature for the country for child development services, while retaining its distinct identity, indicating that it is supported under World Bank funding.

Thus, for the below six years old, between the General ICDS and WB-ICDS III (which is the renamed TINP), all rural blocks in the state have in place

integrated services for child development and most urban areas are also covered under ICDS. In all this accounted for 30,445 preschool noon meal centres, 13,98,064 children and 5,35,502 adults. The 'pure' NMP centres (non TINP, non-ICDS) operate in a few urban pockets (718 centres with around 29,3457 children). Thus the NMP for the under six is integrated with either ICDS or TINP, providing the supplementary nutrition component. The noon meal is perhaps better described as a *substitute* rather than a supplementary nutrition input, as it is in lieu of a home meal, rather than in addition. There are also the 41,057 school NMP centres in rural and urban areas covering around 64,60,223 school children (Table 2).

Table 2

School NMP Centres, 2001-02

Sl. no	Scheme	No.of Centres	Children beneficiaries
1	NMP (Rural)	38970	5983813
2	NMP (Urban)	2087	476410
	Total NMP School Centres	41057	6460223

For the pre-school population, while the process of integration has contributed to policy and implementation streamlining as well as clarity in expectations among the population, it has led to considerable variation in staffing at the centre level. While the need for rationalisation of staffing based on work load is well understood, it has been difficult to take up the sensitive issues of relocation and retrenchment. Moreover, the numbers are large – the over 30,000 centres have a staff of nearly one lakh women, who themselves are now an effective pressure group, for long perceived as overworked and underpaid³.

³ From January 1996 the Worker category has been brought under time scale of pay from the original consolidated wages paid as part timers. The scale is Rs.200-5-250-10-400 per month. They are also eligible for DA. Thus she gets to take home around Rs.450 or more. The Helper and Cooks categories continue to be on consolidated pay, taking home Rs.175 and Rs.225 per month.

Integration was not an issue for the school centres and the 714 urban pre-school centres outside ICDS and TINP. Here there is a separate Noon Meal Organiser, a cook and a Helper in each Centre, taking the staff strength to nearly 1,80,000.

As part of the integration, NMP centres became available for TINP and ICDS, and vice versa. It was not always easy to find suitable buildings for children to assemble, store food commodities and records, cook and have adequate water supply facilities. Most centres are in panchayat union buildings other public buildings, specially constructed Government centres, or rent free private buildings. In case where no such building is available, a small rent of Rs. 50 per month is provided. School centres are run in the school buildings.

While full integration has taken place at the village level, with no overlap or wastage, this had not taken place at the district and state level. A district can have both ICDS and TINP offices and staff, which function independently. At the state headquarters there are two independent program heads. This leads to different guidelines, variations in service delivery based not on variations in local needs, but due to the different programs, each similar needs of similar population groups. If these projects can be administered by one single set of functionaries, enough manpower can be saved for innovations in community capacity building and training. At the state level, merger of these two projects can solve several issues in worker management, policy and implementation consistency, as well as problems of trained staff moving in and out of two companion projects.

IX. The Food Composition and Program Costs

Under the program a hot lunch of rice cooked with dhal, soyabean flour, vegetables, oil and condiments is provided to the children below six. Initially only dhal was used as a protein source, but from August 1992, dhal and defatted soya flour was used in equal quantities, given the nutritive value and lower cost of the flour. For school children the ingredients are the same, but the scale of provisions larger. Adults also are eligible to a larger scale. On week ends corn *rava upama* with vegetables and condiments was served. Once a fortnight a boiled egg was provided. Children who do not eat eggs got a portion of sathu food instead, available for the below three as

supplementation. On special occasions like the birthdays of local leaders sweet pongal is provided.

The composition, cost and scale of ingredients under the NMP and corresponding nutritive value are given in Table 3, while the composition of the 'sathu maavu', the complementary nutrition supplement provided to children in the 6 months to 36 months age group as well as to pregnant and nursing women is given in table 4.

Table 3

Scale of ingredients and their cost

Sl. No	Name of Food Commodity	2+ to 4+ in Grams	5+ to 9+ in Grams	10+ to 12+ in Grams	13+ to 15 in Grams	Pensioners in Grams
Scale of Food						
	Rice	80	100	100	120	200
2	Dhal	10	15	15	15	15
3	Oil	2	1	1	1	1
4	Veg, condiments	50	50	50	50	50
	Cost	1.07	1.29	1.29	1.44	2.03
Nutrient Values						
1	Calories (Kcal)	358.2	435.3	435.3	504.3	780.3
2	Protein (gms)	8.62	11.15	11.15	12.43	12.55

Table 4

Composition of Complementary Nutrition Supplement For Children From 6 Months to 2+ Years and P-L Women (Temporary, from 23.6.2001)

Composition	Percentage
Wheat flour	42%
Maize flour	10%

Malted Ragi flour	5%
Bengal gramflour	12%
Jaggery	30%
Vitamin Premix	1%
Total	100
Protein	9 to 10%
Calorie	360 k

Cost per Kg. : Rs.15.10

Transport Charges Rs.1.00 per kg.

The overall financial implications under the TINP and WB-ICDS schemes from 1980 to 2004 may be seen in table 5.

Table 5

***Cumulative Expenditure Funding Under World Bank Assistance
(Reimbursible)***

Project office	Period	Coverage	Total Allotment	Total Expenditure
TINP I	1980-81 to 1988-89	16 districts 173 blocks	US \$ 32 million	Rs.111.97 crores
TINP II	1989-90 to 1997	19 districts 318 blocks	Rs.451.75 crores	Rs.433.69 crores
WB ICDS III Project	1998 to 2003-04	24 districts 318 blocks	Rs.86.95 crores	Rs.18.85 crores till 2001-02

Table 6 contains for the period 1992-93 to 2001-02 total expenditures on revenue account under the nutrition head incurred by the state, nutrition expenditures relative to expenditures on social services⁴ (of which nutrition

⁴ The 'Social Services' head is one of two categories under 'Development Expenditure', the other being 'Economic Service'. In turn, 'Social Services' contains heads for the education, medical & public health, family welfare, water

forms a part), and relative to total expenditure on revenue account in the State budget.

Table 6

***Budgetary Revenue Expenditures on Nutrition, Social Services and
Total, 1992-93 to 2000-01***

Year	Total Revenue Exp. on Nutrition (Rs.Lakhs)	Total Exp.on Social Services (Rs.Lakhs)	Total Revenue Exp. (Rs.Lakhs)	% Nutrition Exp.to Social Service Exp. (2)/(3)	% Nutrition Exp.to Total Revenue Exp (2)/(4)
(1)	(2)	(3)	(4)	(5)	(6)
1992-93	27,231	3,16,095	8,54,253	8.61	3.18
1993-94	28,251	3,58,607	8,75,801	7.88	3.23
1994-95	36,518	3,84,762	9,63,465	9.49	3.79
1995-96	35,656	4,33,290	10,91,057	8.23	3.27
1996-97	37,719	5,12,134	13,06,488	7.37	2.89
1997-98	40,576	5,61,256	14,95,085	7.23	2.71
1998-99	48,677	7,10,134	17,69,740	6.85	2.75
1999-00	52,389	7,68,115	20,70,280	6.82	2.53
2000-01 (BE – to be updated)	58,118	8,16,042	21,56,487	7.12	2.70
2001-02	Awaited	Awaited	Awaited	Awaited	Awaited
2002-03	Awaited	Awaited	Awaited	Awaited	Awaited

Sources: (1) Statistical Handbooks of Tamilnadu, 1994, 1995, 1996, 1997

supply and sanitation, housing, urban development, labour & employment, social security & welfare, welfare of SC, ST & OBC, relief for natural calamities, **Nutrition**, and other. Under Social Services, by and large, Nutrition ranks third, the first being Education, followed by Medical & Public Health.

(2) Finance Department, Government of Tamil Nadu

It can be seen that over the past 9 years the state's budgetary commitment to nutrition has increased significantly in absolute terms. From Rs. 27,231 lakhs in 1992-93, it has increased to as much as Rs. xxxx lakhs in 2002-03. Relative to all social service expenditure it has ranged between 6.5% and 7.8%, though a percentage decline is seen over the last three years due to a higher growth in total social services expenditure. Relative to all revenue expenditures the percentage on nutrition has been clearly above 3% up to 1995-96, with a decline in the last three years. Expenditure on the 'Nutrition' head of account ranks number three, after education, followed by medical & public health (except for the year 1993-94 when water supply & sanitation overtook nutrition). Water supply & sanitation has been a close fourth.

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