



NUTRITION FOUNDATION OF INDIA

**EVALUATION OF MID DAY MEAL PROGRAMME
IN MCD SCHOOLS**

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Preface

Primary school children (6-14 years) form about 20 per cent of the total population. Free and compulsory education up to the age of 14 years is the constitutional commitment. However, even now school enrolment is not universal and about 40 per cent of the children drop out of primary school. Poor enrolment and high school dropout rate are attributed to poor socio-economic conditions, child labour, lack of motivation and poor nutrition status of the children.

Nutrition Support to Primary Education popularly referred to as Mid-day meal programme (MDM) is considered as a means of promoting improved enrolment, school attendance and retention. Simultaneously, it may improve the nutritional status of primary school children. With children from all castes and communities eating together, it is also a means of bringing about better social integration.

Municipal Corporation of Delhi (MCD) was initially supplying ready to eat food under MDM; from June 2003 MCD implemented Supreme Court's directive that all children should be served a hot cooked meal. MCD requested Nutrition Foundation of India (NFI) to undertake a concurrent third party evaluation of the MDM Programme (MDMP) in schools run/aided by MCD so that problems in implementation of the MDMP can be identified and rectified.

NFI had

- ▶ Helped MCD in standardisation of food items to be given to the children in MDMP.
- ▶ Assessed the infrastructural facilities available at the food suppliers hygiene in food preparation, transport and distribution,
- ▶ Evaluated the system for receiving and distribution of the meals at the schools and overall quality of the food served.

MCD utilised the findings from the evaluation to improve the quality of MDM in MCD schools. The number of food suppliers had been reduced; food is now being prepared in semi-automated kitchens by food suppliers who have received orientation training in ensuring hygiene and quality in cooking at Lady Irwin College. MCD has put in place a system for monitoring quality of meals served in MDMP.

NFI has also emphasised that highest priority should be accorded to orienting and training head masters/teachers so that they

- ▶ Understand the importance of MDM and do not regard supervision of MDM distribution to the children as additional work load
- ▶ Teach the students and inform the parents that the midday meal is additional to the home meal and not a substitute for it.

- ▶ Understand that the MDM provides an opportunity to impart health and nutrition education and give practical lessons on personal and environmental hygiene to children in primary school.
- ▶ Utilise the Parent Teacher Association and other mechanisms of involvement of civil society in improving the monitoring of MDM and ensuring that the problems are detected early and speedily rectified.

Multiple micronutrient deficiencies due to low dietary intake of vegetables have always been a major problem in children. In 2006 Department of Primary Education has revised the MDM guidelines so that 20 grams of pulses and about 50 grams of vegetables are included in MDM. Efforts should be made now to ensure that these guidelines are implemented.

NFI hopes to undertake orientation training of teachers in primary schools on

- ▶ How to use MDM as a focal point to emphasise the need for vegetables in balanced meals.
- ▶ How to teach the children and through them their parents the importance of pulses and vegetables in balanced diet and
- ▶ How they can be included in their home diet without over-stretching their means.

If this were done MDM may become a major tool for embarking on a programme using schools system to bring about improvement in quality of diets in poor households in India.

New Delhi

Prema Ramachandran

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This evaluation and training programme to improve the quality of the mid day meals in the Municipal Corporation of Delhi (MCD) schools was undertaken at the behest of Mr. Rakesh Mehta former Commissioner of MCD. The Nutrition Foundation of India gratefully acknowledges his unstinted support during the initial difficult phase of the evaluation and for acceding to our request that training of Food Service Providers (FSPs) should be undertaken for the improvement of the quality of the meals.

We also acknowledge the constant support of the Mr. Ashok Nigam, present MCD Commissioner, Mrs. Indira Yadav, Director Primary Education, Mrs. P Kataria, Additional Director PE, Mr. B.C. Narula DEO, the zonal DEOs, AEOs, SIs, school Head Masters (HMs), teachers, MDMs-in-charge, PTA members and the Food Service Providers. The foundation deeply appreciates the cooperation extended by Dr. Anupa Siddhu Director, Lady Irwin College (LIC), in conducting the training Programme under the auspices of the Foundation at the LIC.

Chapter I

Mid Day Meal Programme - A Historical Perspective

Mid day meal programme is the popular name for the school meal programme in India. It involves provision of lunch/snacks/meal free of cost to school children on school working days.

The key objectives of the programme are:

- ▶ protecting children from classroom hunger,
- ▶ increasing school enrolment and attendance,
- ▶ improving socialisation among children belonging to all castes,
- ▶ addressing the issue of malnutrition among children and
- ▶ social empowerment of women by creating employment.

Mid day meals, as a public welfare concept in India, dates back to 1925 when such a project was launched for the underprivileged children in the then Madras Corporation area. One of the pioneers, Madras Corporation started providing cooked meals to children in Corporation schools in the Madras city; the programme was later introduced on a larger scale in 1960s. Tamil Nadu's mid-day meal programme is among the best known in the country. The programme was introduced at a national level by the government of India in the late 50s and early 60s and later in the 80s as a centrally sponsored programme.

Besides Madras, several other states/cities of India too have had the mid-day meal programme prior to the Government of India's initiative. In 1928, Keshav Academy of Calcutta introduced compulsory Mid-Day Tiffin for school boys on payment basis at the rate of four *annas* per child per month. A school lunch programme was started in parts of Kerala in 1941; followed by Bombay implementing a free mid-day meal scheme in 1942, who with UNICEF assistance distributed skimmed milk powder to children aged between 6-13 years. Another project was launched in Bangalore city in 1946 where the scheme provided cooked rice with curds to the children. In 1953, Uttar Pradesh Government introduced a scheme, on voluntary basis, to provide meals consisting of boiled or roasted or sprouted grams, ground-nut, puffed rice, boiled potatoes or seasonal fruits. Several states introduced such schemes during 1950s, with the aid of international agencies like the UNICEF, FAO and WHO. An Expanded Nutrition Programme was launched jointly by the Government of India and the FAO, WHO, UNICEF during 1958-59, which subsequently developed, into the Applied Nutrition Programme (ANP). Under this, demonstration feeding programmes for the school children wherein nutritious food was cooked by the women groups and fed to the children under the nutrition education component¹.

Other international voluntary / charity organization like Catholic Relief Services (CRS), Church World Services (CWS), Co-operative of American Relief Every where (CARE), USA's Meals for Million also assisted this programme by providing nutritious foods and other assistance such as

- ▶ Co-operative of American Relief Everywhere (CARE) provided Corn Soya Meal (CSM) Balahar, bulgar wheat and vegetable oils.
- ▶ United Nation's Children's Fund (UNICEF) joined hands for the supplementary feeding programme in India to combat malnutrition and provided milk powder/ peanut flour (protein rich foods) as well as imparting nutrition education.
- ▶ Church World Services (CWS) assisted in providing milk powder to Delhi and Madras Municipal Corporation.
- ▶ Meals for Million (USA) aimed at combating the menace of malnutrition globally. It supplied Multipurpose Food (MPF) and developed the Indian Version of MPF at Central Food Technological Research Institute (CFTRI), Mysore. MPF is a versatile food that can be easily incorporated into snacks and biscuits (Nutro Biscuits), which are nutrient dense, particularly in terms of proteins and vitamins.

The idea of a National Mid-Day Meal Programme had been considered again and again for over a decade. In 1982, the idea of 'Food for Learning' with FAO commodity assistance was mooted. Scheduled Caste (SC) and Scheduled Tribe (ST) girls were to be covered under this programme. An overview of the MDM programme in India is given in Annexure I².

In 1983, the Department of Education of the Central Government after inter-ministerial consultations, prepared a scheme as per the guidelines of the World Food Programme (WFP). According to this scheme 13.6 million SC children and 10.09 million ST girls in classes I-V were to be covered in 15 states and 3 Union Territories, where the enrolment of SC /ST girls was less than 79 percent. The proposal was circulated among states and Union Territories (UTs). While many states expressed their willingness to implement the programme, others reported that there were some practical difficulties in implementing a mid day meal programme meant exclusively for SC and ST children particularly continuing when WFP assistance was withdrawn.

A programme with Central Government assistance for mid day meal for the benefit of children enrolled in primary schools throughout the country was considered during 1984-85, the rationale for the programme were:

- ▶ The Mid Day Meal Programme for primary schools could form the basis of an anti-poverty educational programme.
- ▶ Implementation of this programme for the children aged between 6-11 years may maximize enrolment and reduce school dropout rates, which were important from the viewpoint of universalisation of elementary education as well as achievement of higher literacy rates in the country.

This programme would also help in providing nutrition to the under-fed and under nourished children in rural areas.

The broad features of the programme were

- ▶ Supplying of food items providing 300 calories per day and 12-15 g protein per child with coverage of primary school children in a phased manner.

- ▶ Expenditure per child per day including expenses on administration to be 60paise.
- ▶ No elaborate administrative infrastructure to be built up.
- ▶ Funds required for the programme to come from provisions marked for poverty alleviation scheme.
- ▶ States should evolve suitable logistics and make arrangements for cooks, helpers, administration, supervision and monitoring.

It was recognized that the scheme had some inherent problems such as possibilities of leakage, inadequacy of buildings, non-attendance of teachers, and participation by non school-going children and misuse by those in charge of the programme. It was hoped that these problems would get addressed with time. However the programme was not approved as part of the subsequent annual plans, apparently due to resource constraints.

In December 1988, the Department of Education formulated a proposal for covering 994 ICDS blocks with concentration of SC/ST children @ Rs.1/- per child per day. The important element of this scheme was:

- ▶ The scheme should cover all children in primary classes in government and local body schools
- ▶ Mid day meals should be provided on all working days.
- ▶ CARE assistance, if any, should be excluded.
- ▶ Cereals and to the extent possible pulses, edible oils and condiments should be supplied to the schools through authorized state agencies.

In 1990-91, seventeen State governments were implementing the programme for primary school children between the age group of 6-11 years with varying degrees of coverage. Twelve states namely Goa, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Mizoram, Nagaland, Sikkim, Tamil Nadu, Tripura, and Uttar Pradesh were implementing Mid Day Meal Programme from their own resources. In three states namely Karnataka, Orissa and West Bengal, the programme was implemented partially with assistance from CARE. As reported by Ministry of Human Resource and Development, thirteen States and five Union Territories were administering mid day meal programme as of December 1994.

The Present

MDMP - 'Nutrition Support to primary education' is considered as a means of providing free and compulsory universal primary education of satisfactory quality to all children below the age of 14 years.

A National Programme of Nutritional Support to Primary Education commonly known as MID DAY MEAL PROGRAMME (MDMP) was re-launched by the then Prime Minister of India on 15th August 1995. It was aimed at improving enrolment, attendance and retention, while simultaneously improving the nutritional status of students in primary classes. Universalisation of primary

education being our national goal, MDMP was launched with the following objectives:

- ▶ Increase enrolment, improve school attendance as well as retention,
- ▶ Promote social integration,
- ▶ Improve nutritional status of the primary school children and
- ▶ Inculcate good food habits in children.

The programme envisaged the provision of cooked meals/ processed food of calorific value equivalent to 100g of wheat /rice for children studying in classes I- V in all Government, local body and Government aided primary schools free of cost. This recommendation was based on a study done by NNMB (1990-92) on dietary consumption patterns of rural children using a one-day 24-hour recall method. It was observed that the children had a deficit of the magnitude of 628 kcal and 6-7g protein in the daily diets. From the nutritional angle, the endeavor should be to bridge the average nutritional gap of 600 kcal through a balanced diet of cereals, pulses, fats and vegetables; the cereal component could be to the order of 60-90 percent of the calorie deficit or roughly 100g of food grains / child / day¹.

The programme which started in August 1995 has seen all India coverage in 1997-98 and the coverage of children under the programme has increased from 3.4 crores in 1995-96 to 10.5 crores in 2003-04 in about the same number of schools. However there were a lot of variations over the years with regard to implementation.

The coverage of more than 12 crore children in rural and urban areas under the scheme makes the mid day meal programme one of the largest nutrition support schemes in the world³.

Initially, it was perceived that the mode of delivery of nutritional support could be in the form of hot cooked meal, precooked food or food grains. Only four states viz. Gujarat, Kerala, Orissa and Tamil Nadu and the Union Territory of Pondicherry were providing cooked meals. All other states were providing dry rations supplied by Food Corporation of India (FCI) distributed under Public Distribution System (PDS) @ 3 kg of food grain per child to a family for ten months which would be equivalent to set norms for 100g /day / child for 200 school days (subject to a minimum attendance of 80 percent). Some states like Haryana and Jammu and Kashmir reported that they could not implement the programme due to resource constraints. Chandigarh and Delhi due to logistic problems continued to serve processed foods like fruit bread, biscuits and fruits. Lakshwadeep administration, which has been implementing its own MDMP, has since been exempted from participating in the national programme from 1997-98 as special case.

The MDMP is being implemented remarkably well in some states. The Pondicherry government has employed the state of art technology and has opened a centralized kitchen with latest food production gadgets and

sophisticated cooking techniques to ensure that food is cooked and delivered to the children in a safe and hygienic manner. Each central kitchen was catering to about 8,000-10,000 children. Similarly, the Tamil Nadu Government has initiated a locally structured institutional machinery to ensure that meals are delivered to the beneficiaries. Gujarat has an exclusive department overseeing the implementation of the scheme and has also been a pioneer in supplying fortified food to children. In Kerala, some teachers willingly contributed a portion of their salaries to ensure that conversion costs of raw to cooked food are met and the food is served to children regularly.

In April 2001, People's Union for Civil Liberties (Rajasthan) initiated the right to food litigation. This public interest litigation has covered a large range of issues relating to right to food, but the best known intervention by the court is on mid-day meals. On November 28, 2001 the Supreme Court of India gave directive making it mandatory for the state governments to provide cooked meals instead of 'dry rations'. In one of its many directions in the litigation the Supreme Court directed the government to fully implement its scheme of providing cooked meals to all children in primary schools. This landmark direction converted the mid-day meal scheme into a legal entitlement, the violation of which can be taken up in the court of law. The direction and further follow-up by the Supreme Court has been a major instrument in universalising the scheme. Excerpts from that Order are:

It is the case of the Union of India that there has been full compliance with regard to the Mid Day Meal Scheme (MDMS). However, if any of the State gives a specific instance of non-compliance, the Union of India will do the needful within the framework of the Scheme⁴.

- ▶ We direct the State Governments/ Union Territories to implement the Mid-Day Meal Scheme by providing every child in every Government and Government assisted Primary Schools with a prepared mid day meal with a minimum content of 300 calories and 8-12g of protein each day of school for a minimum of 200 days. Those Governments providing dry rations instead of cooked meals must within three months (February 28, 2002) start providing cooked meals in all Governments and Government aided Primary Schools in all half the Districts of the State (in order of poverty) and must within a further period of three months (May 28, 2002) extend the provision of cooked meals to the remaining parts of the State
- ▶ We direct the Union of India and the FCI to ensure provision of fair average quality grain for the Scheme on time. The States/ Union Territories and the Food Corporation of India (FCI) are directed to do joint inspection of food grains. If the food grain is found, on joint inspection, not to be of fair average quality, it will be replaced by the FCI prior to lifting.

The direction was to be implemented from June 2002, but was violated by most States. But with sustained pressure from the court, media and in particular, from the Right to Food Campaign more and more states started providing cooked meals.

In May 2004 a new coalition government was formed at the centre, which promised universal provision of cooked meals fully funded by the centre. This 'promise' made in the Common Minimum Programme was followed by enhanced financial support to the states for cooking and building sufficient infrastructure. Given this additional support the scheme has expanded its reach to cover most children in primary schools in India.

The Tenth Plan⁵ made certain modifications in the MDMP in order to achieve the goals set in the *Sarva Shiksha Abhiyan* programme; the modifications would be made in the scheme in the light of feedback received from evaluation studies, the experience gained from the working of the scheme, and the opinions of experts. The modifications would include the following:

- ▶ Expanding the programme to cover the children of the Education Guarantee Scheme (EGS) and Alternative Innovative Education (AIE).
- ▶ Ending the present practice of distributing food grains and providing hot cooked meals or ready-to-eat food based on sound nutritional principles.
- ▶ Allowing adequate flexibility in the management of the programme by the local bodies/community through VECs, School Management Committees (SMCs),
- ▶ Fostering stronger community participation through Parent Teacher Association (PTA), and such other units of the school system in the implementation of the programme. Encouraging the participation of credible NGOs, wherever possible.
- ▶ Decentralizing the management of the programme to enable reduction in leakages and mismanagement.
- ▶ Providing funds in advance to the implementing agencies through the state nodal officer for the transportation of food grains.
- ▶ Limiting teachers' involvement in the programme to supervision activities.
- ▶ Extensive use of the computerized MIS (CMIS) net for monitoring purposes. External agencies are to be involved in monitoring and supervision to ensure greater accountability. Elected representatives will also be involved in supervision.
- ▶ Linkage with poverty alleviation programmes in rural and urban areas, adequate support of the Union Ministry of Health and the state Health Departments for the school health programme and support from the Department of Women and Child Development for nutrition education.
- ▶ A memorandum of understanding be entered into with the key stakeholders (state governments, local bodies, etc.) on the key parameters.

Item	Central Assistance in Rupees (Rs.)
Average cost of food grains	1.11
Average transport subsidy	0.08
Assistance for cooking cost	1.00
Assistance for management, monitoring and evaluation	0.02
Total	2.21

The central government has made the following fund allocations for providing mid day meal to primary school children (Table 1.1). The implementation of the SC decision is wrought with trials and tribulations; cash-

strapped governments unable to meet the demands of allocating Rs. 2.50-Rs 2.75 per child per meal, inadequate infrastructure for building service units so that the cooked hot meal can be prepared and distributed under hygienic conditions and the lack of trained professionals to man these service units.

Mid Day Meal Scheme implementation across India

The implementation levels across India are shown in Figure 1.1⁷ as of 2003. Details of the implementation levels in different states as of September 2005 as stated by the official website are given in the Annexure II⁸. The figures indicate that the total number of students enrolled along with number of students availing of the meals, the Table also specifies the kind of implementation level i.e. whether full or partial as mentioned by the state to the *Sarva Siksha Abhiyaan*, Govt. of India and the nature of the meal i.e. cooked or otherwise.

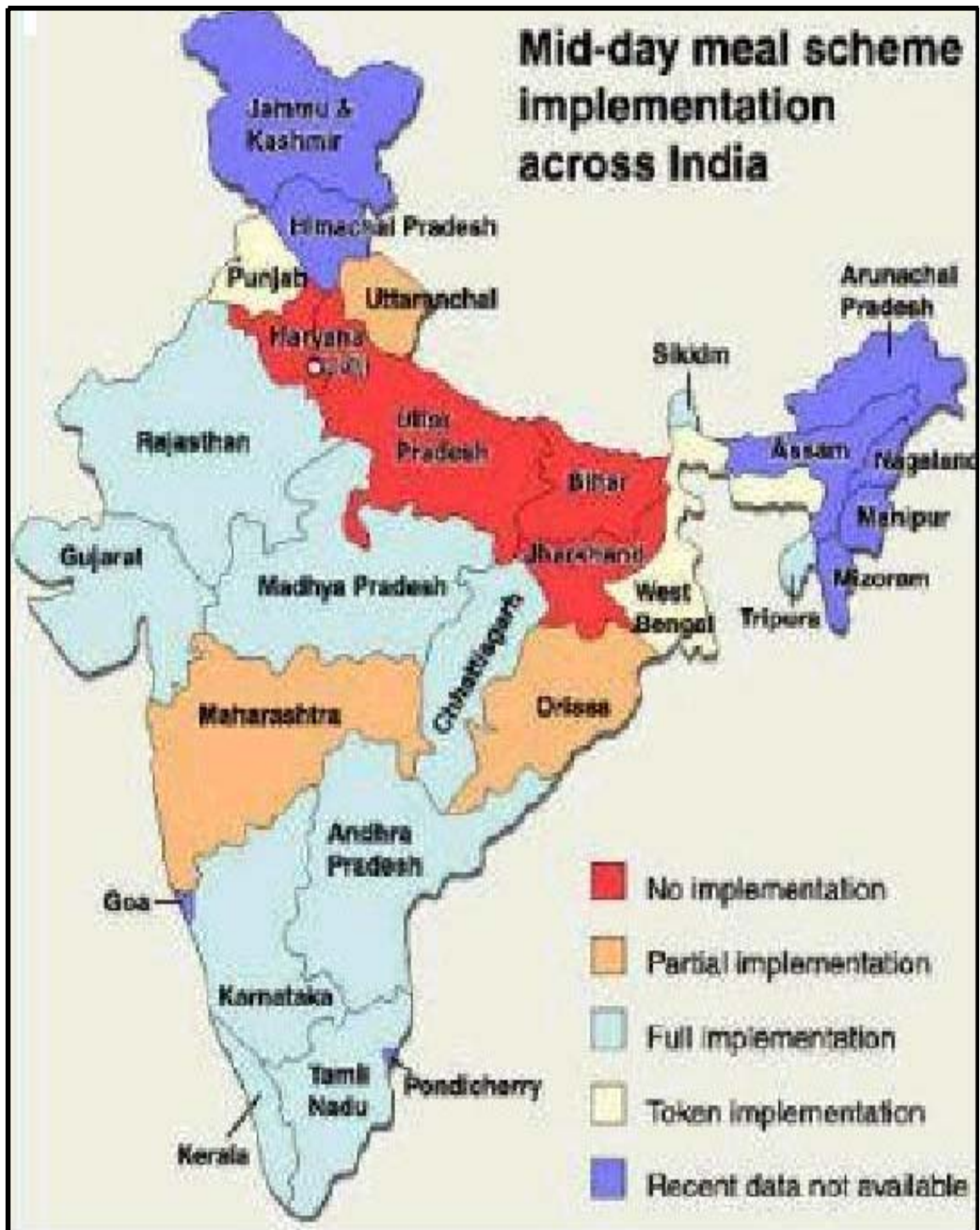
A wide variety of meals are being served by various states Annexure III⁹. The total coverage of the MDM as of 2004 has been presented in Annexure IV⁸. There are some states where "Ready to Eat" or RTEs that include Biscuits, fruits, Roasted *Channa*, etc. are served to the children.

In response to the difficulties of 'on-site feeding' a new focus on delivering an appropriately-timed (with regard to effecting improvements in learning capacity) and high quality, consistent ration; the government is developing programme models that include less costly commodities and more efficient systems for the delivery of meals to school children.

Drawing on the private sector and NGOs for the school feeding programme overcomes many of the difficulties of on-site preparation of meals, and may be one of the many inexpensive ways to feed children in schools. The private sector in this case could be a local canteen or caterers (in cities) or an NGO.

An example of NGO and Government of India partnership is ISKCON supplying MDMs in Bangalore and Delhi. After this experience, the education Department issued guidelines to facilitate participation by NGOs. Under these guidelines, State Governments can select NGOs for the programme; and the food grains and transportation cost are made available to these NGOs who in turn take on the responsibility of converting the grains into a cooked meal.

Figure 1.1: Mid-day meal scheme implementation across India⁷



In Karnataka, nine NGOs are implementing cooked meal programme covering 57,608 children studying in 357 schools, under the overall supervision of the State Government¹⁰. In addition, ISKCON also was covering over 20,000 children studying in upper primary and secondary classes in the Bangalore rural district.

A model for public-private partnership also evolved in Hyderabad where Naandi Foundation manages a central kitchen to provide cooked meals to about 2 lakh children in Hyderabad.

Bangalore	1,20,000
Hubli/Dharwad	82,045
Jaipur	60,000
Vrindavan	37,000
Baran	9,300
Mangalore	5,550
Mysore	3,100
Hassan	2,144

The Akshaya Patra Foundation (ISKCON) has been providing free meals everyday to children studying in government schools in and around Bangalore city, Hubli, Mysore, Hassan and Mangalore in southern India. The Akshaya Patra Mid-day Meal Programme began serving 1500 children in July 2000 and was scaled up to 12,500 children by April 2001, over 23,000 children by April 2002, over 50,000 children in 2003, 90,000 children in March 2005. As of August 2005, 1,19,000 meals are served everyday in Bangalore. The programme has now been extended to Jaipur and Baran in Rajasthan (Table 1.2).. As of March 2006, 3,20,139 children are fed everyday¹¹. Their projected figures are to feed 10,00,000 underprivileged children by 2010.

Though even these programmes incur costs in monitoring and supervision, and the initial costs for developing school meal alternatives and making arrangements with vendors can be substantial. Programmes that utilize school canteens or caterers for school feeding programmes may offer the most economical approach to school feeding. However, the technical and logistical implications, and hence costs in training and supplies to improve the provision of food through these sources are not substantial.

In Andhra Pradesh, the MDMP being implemented in 5,82,388 schools covering 74.6 lac school children during the year 2002-03⁹. With the Centre providing rice free of cost and the programme is being implemented by organizations like DW CRA, DWCUA, Naandi and ISKCON.

For the twin cities of Hyderabad and Secunderbad, following their success with the pilot project the government chose Naandi and delegated them, the responsibility of preparing and distributing the mid-day meal. The midday meal scheme is also underway in Vishakapatnam benefiting 42,000 children and will soon commence in Bhopal, Jabalpur, Indore, Udaipur and Bhilwara serving a total of 2,68,000 children¹².

A Memorandum of Understanding (MoU) with the State Government, Naandi created the biggest central kitchen in Uppal (spread over 2 acres with built up

area of 14,000 sq ft), from where the midday meals are being supplied to 880 schools in the twin cities, benefiting 1.98 lakh children on all the school days.

Government-run MDMP successes: Gujarat has had an extremely effective Mid-Day-Meal Programme (MDMP). The Commissionerate with the Chief Minister as its Chairperson administers the MDMP. In this state, the Mid Day Meal (MDM) programme covering the age group 6-11 years in 53 *talukas* was introduced in the sixties as a Government sponsored programme.

About 5083 schools in 68 *talukas* were covered under this programme till October 1984. The Government of Gujarat extended the programme in the entire state to cover all the students in the age group of 6-11 years from 19th November 1984, for “mitigating malnutrition among the vulnerable groups.” The state Government felt that the provision of nutritious meals to primary school children could play a very crucial role in increasing the literacy rate.

In addition to the cooked food, Government of Gujarat also provides from their budgetary sources, a package of micro-nutrient supplements and medicines, like Vitamin A for the control of night blindness, tablet Albendazole for de-worming, and tablet Ferrous Sulphate as a control for iron deficiency, to all the primary school children to sustain the health standard along with the nutritional standard. This scheme is operative since 1993.

This ‘package’ of MDM along with de-worming and Iron tablets to combat anaemia as a ‘built-in’ component has been widely acclaimed by the Government of India, UNICEF, World Health Organization and other leading organizations.

The cooked MDM scheme was discontinued briefly in Gujarat from August ‘90 till October ‘91 and a new scheme “Food for Education” was introduced in its place wherein primary school children having 70% attendance were provided 10 kgs. of food grains free of cost per month. The MDM scheme however, was reintroduced from 15th January 1992. On an average 35.00 lakh children are provided Mid-Day Meal during 2003-04 (July-2003 to March-2004) per day¹³.

It would be wrong not to mention Tamil Nadu - the pioneer state of the MDMP, by far the greatest success story of all. In 2003, Tamil Nadu catered to approximately a total of 10 million children in the primary and middle schools and over 9 lac under-5 through the child welfare centers⁸.

One of the reasons for the success of this programme in this state can be attributed to the fact that the empowerment of women issue was also integrated into this scheme by providing greater opportunities for both women in rural and urban areas, preference being given to widows and destitute women.

As of 2003, 39,036 centres were functioning under the Rural Development Department and the total number of beneficiaries was 60,29,035. In addition 2082 centres functioning under the Commissioner of Municipal Administration

had a total number of 4,57,607 beneficiaries. A total of Rs. 403,02 crore provision for the MDMP was made for the year 2003-04⁸.

It can be said that in the long run that only those programmes that make good use of the educational infrastructure for delivery and logistics will be most efficient. The very fact that School Feeding Programmes (SFPs) do not require, for the most part, additional infrastructure means that they can be less expensive than other types of feeding programmes that distribute benefits to groups that are not in one location. With successes of the state-run MDMP like Gujarat, which run effectively through the school system itself it becomes evident that it is not necessary to have additional infrastructure that will only add to the cost of the meals.

It is evident that different models have evolved from different states to implement this programme efficiently

- ▶ The schools, which have become strong partners with the government to run the MDMP (e.g. Gujarat)
- ▶ The NGOs like Naandi and ISKCON. These institutions however, bank on funding to provide the meals
- ▶ The government private sector partnership, e.g. TATAs and Wipros
- ▶ Women empowerment model e.g Tamil Nadu

It is up to each government to work out their logistics and choose the model / models most suited for their State.

Chapter II

Delhi MDMP- A Case Study

Under the Mid Day Meal Programme in Delhi, as per Annual Plan of Government of Delhi 1998-99 a nutritious meal is provided to the children of primary schools and nursery schools with the following objectives in view:

- ▶ To meet the nutritional deficiency of the children.
- ▶ To prevent the children from purchasing unhygienic foods from the hawker during recess time.
- ▶ To provide incentive to children to come to the schools under the universalization of elementary education.
- ▶ To ensure reduction in the number of absentees in the class.
- ▶ To minimize the drop out and increase regular attendance.

In Delhi the MDMP is run by three agencies namely Municipal Corporation of Delhi (MCD), New Delhi Municipal Corporation (NDMC) and Delhi Government. The coverage of children under the programme (2004-05) is ~10.88 Lacs. According to the ninth plan, MCD catering to primary education has a wide network of schools. It has more than 1800 schools where around 9 lac students are enrolled. The MDM Programme is under the department of the Primary Education and is presently run in all the schools spread over 12 zones. The MCD has been providing MDM since the 1997-98. The items served were fruity bread, biscuits, roasted *bengal* gram, cake, fresh seasonal fruits. The provision of MDM was generally irregular and served for approximately 50 days of the year as against the 200 days.

In compliance with the Supreme Court Order, the Government of Delhi initiated the programme in about 400 MCD schools for serving hot cooked meals covering 2.25 lac children in 2003. Owing to the substantial number of beneficiaries in the MDM Programme the MCD passed on the baton of supplying hot cooked meals to 35 initially and later extended to 72 food service providers making the programme a decentralized one. The programme has now been extended to all the 1800 odd MCD schools covering a total of about nine lac school going children as of 2004-05. The MCD provides MDM to children both in the morning and afternoon shift schools.

In 2003 NFI was requested by MCD to evaluate the revised MDMP to:

- ▶ Undertake surprise checks and inspection of the cooking area of the NGOs/RWAs/Caterers providing MDM to the children of MCD Schools.
- ▶ In addition, to make necessary observations at the food FSPs, school and the class level with major focus on hygiene/sanitation, nutritional quality and acceptability of the food served under the scheme.

A team of trained field investigators carried out the evaluation and consolidated reports were forwarded to MCD from time to time for their necessary action.

Out line of NFI's Protocol

The study was carried out from August '03 to December '04 in two rounds:

- ▶ **Round I** comprising 410 schools and 72 FSPs as per the list provided by the MCD and were evaluated during **August 2003 – June 2004**.
- ▶ **Round II** comprising of randomly selected schools from the list of 1800 schools provided by the MCD (250 schools) and 51 FSPs as per the list provided by the MCD were evaluated during the year **July 2004 - December 2004**.

Text Box 2.1 Objectives of the study

The objectives of the evaluation were to assess/compare

- ▶ The infrastructural facilities available at the food supplier level and the hygienic aspects of the food prepared by them.
- ▶ The food receiving, storage and distribution system for the meals at the schools.
- ▶ Overall quality (with special emphasis on nutritional quality) of the food served.
- ▶ Modifications, if any, in the food service units of the food FSPs visited in both the Rounds.
- ▶ The MDMP functioning at the schools in Round I with schools in Round II
- ▶ Functioning of MDMP at schools in Round II

Plan of action

Periodic observations were made at Food FSPs and school level on the following assessment parameters:

Assessment Parameters at FSP Level

- ▶ Infrastructural facilities.
- ▶ Organizational chart.
- ▶ Procurement and storage of raw material.
- ▶ Pre-preparation and preparation activities.
- ▶ Personal hygiene of the food handlers.
- ▶ Sanitary conditions of the cooking area.
- ▶ Kitchen waste disposal.
- ▶ Post-preparation handling and transportation of the cooked food .
- ▶ Management of the leftover food.

Assessment Parameters at School Level

- ▶ Organizational setup.
- ▶ Receiving & distribution area.
- ▶ Personal hygiene of food handlers.
- ▶ Cleanliness of utensils.
- ▶ Evaluation of food quality.
- ▶ Drinking water facility.

Class Level

- ▶ Quantity of food served per child.
- ▶ Children's response/ consumption pattern.
- ▶ Focus group discussion with children and teachers.

Focus Group Discussion

- ▶ Children: These discussions were carried out to obtain a feedback on likes and dislikes of the children and the reasons for not consuming MDM, if any.
- ▶ Teachers: These discussions were carried out to obtain a feedback about the MDMP relating to the improvement of attention span, enrolment and attendance of the children at the schools.

Tools and Techniques

Based on the plan of action, set of tools were formulated and the field investigators were oriented to the collection of data. These included:

- ▶ FSP level Checklist (Annexure V a)
- ▶ School Level Checklist (Annexure V b)
- ▶ Class Level Checklist (Annexure V c)
- ▶ Format for the focus group discussion (FGD) with teachers (Annexure V d).
- ▶ Format for the focus group discussion (FGD) with students / children (Annexure V d).

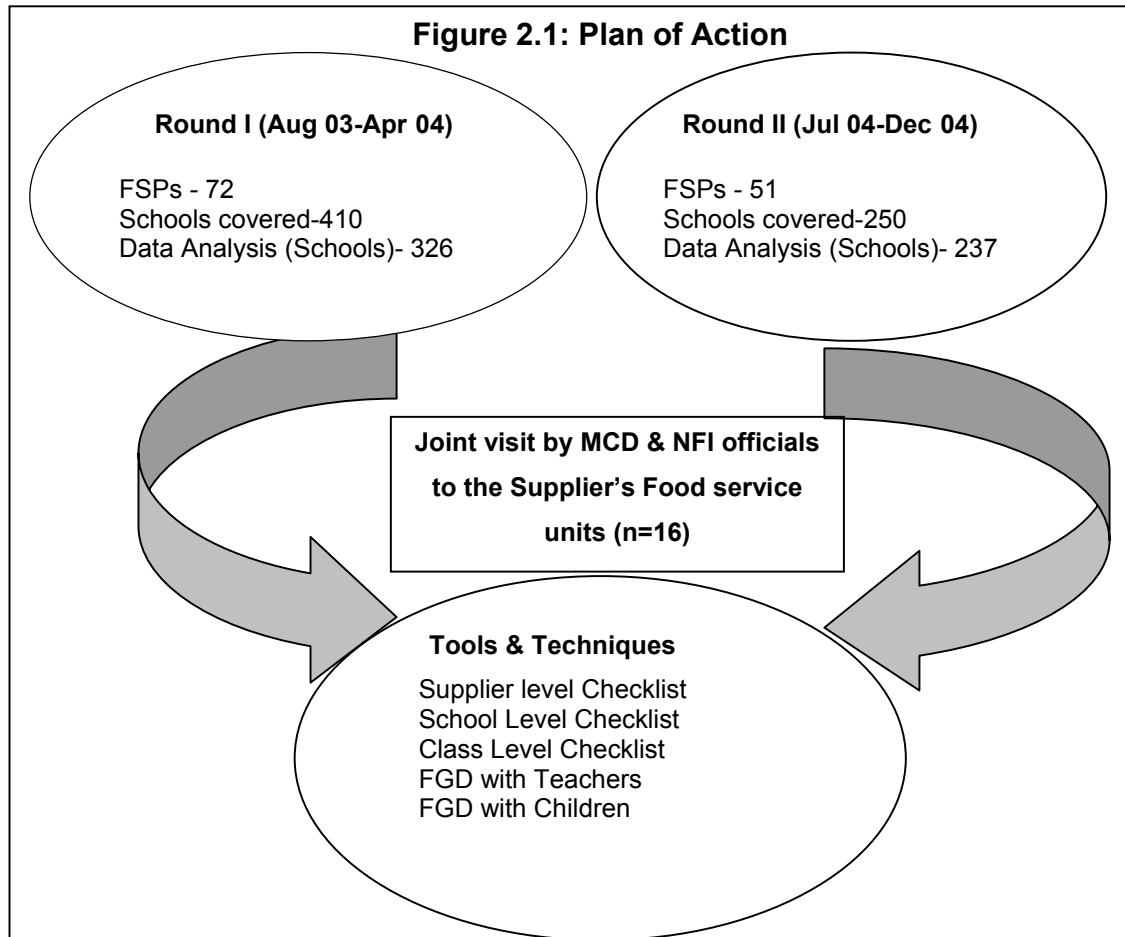
This was the basic premise for the protocol, however, since the evaluations were primarily qualitative in nature, the tools were modified as per the need, based on the observations of the investigators so as to make the evaluation more specific and accurate. Evaluations of the service units by the NFI has been based on the "**Code for Hygienic Conditions for Establishment and Maintenance of the Mid Day School Meal Programmes**" laid by the Indian Standards Institution, 1972 (Annexure VI).

Round I: In this round of evaluations the Director of Education Department (PE) provided the list of schools spread over 12 zones where the revised MDMP/ cooked meal was to be implemented and a list of the FSPs along with their addresses were also provided.

Round II: In this round of evaluations for the purpose of making comparison, 205 schools were randomly selected from the 410 schools evaluated in Round I. Another 200 schools were randomly selected from the list of 1354 new schools under MDMP, using random number tables. Care was taken to have adequate sampling from all the 12 zones of the MCD.

The criteria used for evaluation of the service units were based on the guidelines laid by the ISI (1972). The receiving, storage pre-preparation, cooking, assembly and washing areas of the service units supplying the meals were graded as

good, fair or poor based on the adequacy of space, cleanliness, lighting and ventilation.



Storage area was assessed for pest control measures and washing area for the availability / use of hot water and soap. Six areas i.e. the receiving, assembly, pre-preparation, cooking, storage, and washing area were graded based on qualitative assessment. Three other parameters included in the assessment were condition of the equipment used, personal hygiene of the cooks and management of kitchen waste and its disposal. The overall grading of the unit was carried out on the basis of the aforesaid criteria.

The schools were graded on the basis of their infrastructural facilities, availability of drinking water, toilets facilities, furniture and staff. The other key factors that were given emphasis were the cleanliness of the area where the meals were received and distributed as well as overall cleanliness of the schools. The personal hygiene of the students was also looked into. Involvement of the teachers and their sensitivity to the programme was also noted.

The whole process of the preparation of the mid day meal at the service units to the distribution at the school level was evaluated. Other aspects of what was

done with meals that had not been consumed or meals leftover by the students were also accounted for, to give the MCD a bird's eye view of the scenario of the Programme.

Though the evaluations were 'one-time' in nature, as and when the need arose a second round of evaluation during the same academic year were also made. There was a continuous feed back mechanism to the MCD Officials through constant reporting and meetings. This made the whole process of evaluation an ongoing one and helped in the mid course corrections in the programme that would improve the programme and enhance the working of both the stake holders-the government, the Food Service Providers (FSPs) and the beneficiaries.

Major findings of the evaluation:
Evaluation of the food service units.

Table 2.1: Number of service units visited	
Period	Number of Food service units/Visits
(Aug-Oct 2003)	24
(December 2003)	16
(March-Apr 2004)	39
June-December 2004	51

Altogether NFI teams visited 72 service units in the first round and 51 in the second round of evaluations. The number of visits undertaken at the different time points is given in the Table 2.1.

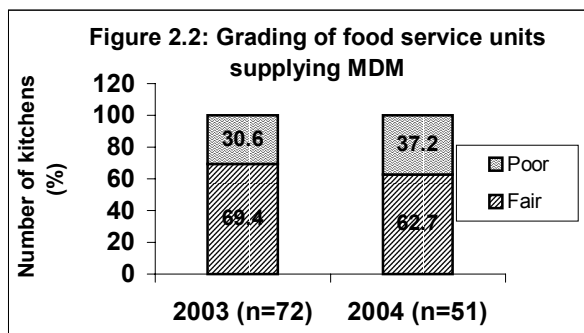
The service units spread over 12 zones of Delhi, were mostly located in interior areas and were not easily accessible. Some of the FSPs had the units in highly unhygienic environments, with open drains in front of the service units or the garbage dumps in close proximity. The choice of the unit site seems to have been made on the basis of space availability without giving due consideration to hygiene and sanitation of the location.

Most of the service units had the receiving and the assembly areas in one room; some of the service units had a big multipurpose room where all the activities were carried out. Only a few service units had well demarcated areas for different activities. There were wide variations in the infra structural facilities. A storage area was there in most of the service units but there were no shelves or platforms and cleanliness of the area was far from satisfactory. The dry ingredients (rice, *dal* etc.) were stored in gunny bags and were mostly kept on the floor. Although there were no special pest control measures, the risk of ingredients getting stale or damaged by the pests was low because the rations were stored for a very short period.

In most cases, the cooking area was partially covered and had natural light / ventilation. In case of the service units operating in courtyards, there were greater chances of the food getting exposed to dust and insects, especially considering the fact that cooking for the morning shift started before the daybreak, artificial lighting was inadequate. All of the service units visited used LPG gas as the cooking fuel; big burners were used to cook food in large vessels. Keeping two gas cylinders in close proximity to each other / hot oven

could be risky. Water supply was mainly from the Delhi Jal Board. Continuous water supply through out the day was not available in most areas; therefore, water was collected mostly once during the day and stored in covered containers.

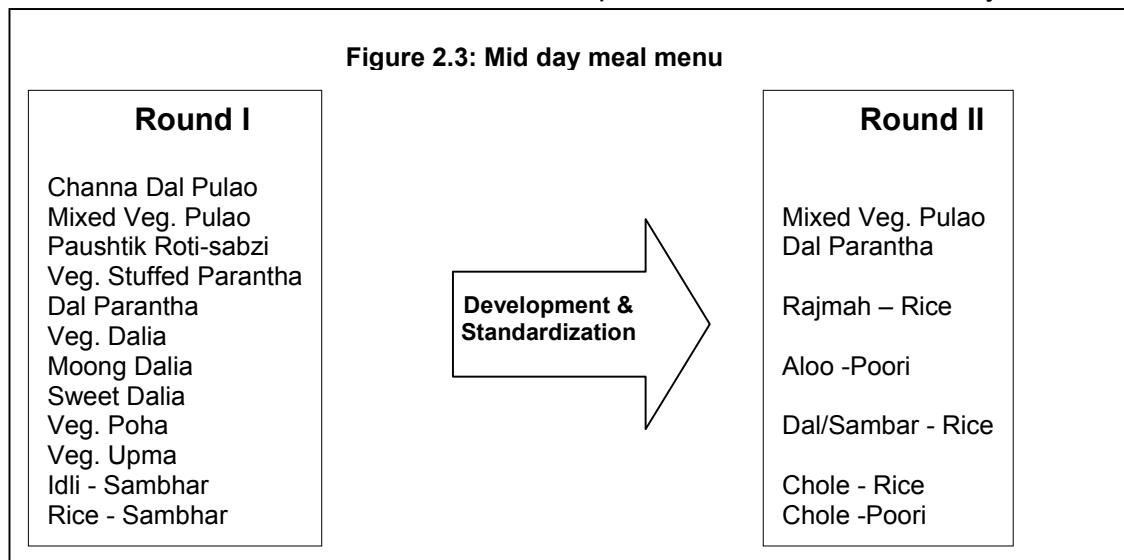
Personal hygiene of the cooks / food handlers was not up to the mark. In the service units visited in the initial rounds, food handlers did not wear aprons / headgears or cooking gloves. However, due to repeated instructions in the service units visited later on, most of the food handlers did wear aprons, headgears and in some cases even gloves. Though the FSPs followed the approved menu, they did not follow any standard recipe. Waste disposal in most service units was not well organized and the garbage was not cleared frequently; in some cases not even once in the day.



On the whole, most of the unit areas were graded as 'fair'. Overall grading of the service units in rounds 1& 2 is shown in Figure 2.2. None of the service units was graded 'good', majority were graded as 'fair'. About a third were graded as 'poor'. The lack of awareness among the FSPs about the need to prepare meals in hygienic

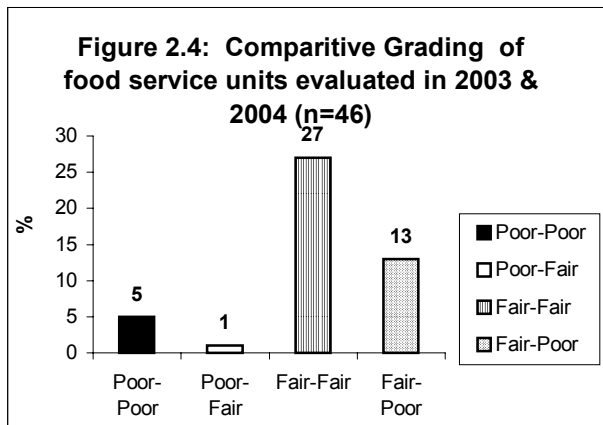
environments, taking basic precautions during mass scale preparations precipitated the need to streamline the number of food service providers.

Towards the end of the academic session out of the 18 menus initially planned by the MCD, only 8 were finalized for use in the MDMP on the basis of preferences of children and keeping quality of food in order to minimize the chances of contamination. Standardization process of the menus was carried out with the help of NFI by the MCD. Figure 2.3 depicts the Midday Meal Menu in Round I and Round II. Most food service providers followed a fixed cycle menu



for a particular school.

Comparison of the food service units visited in Round I and Round II



A total of 72 service units in Round I and 51 service units in Round II were visited and evaluated. It was observed that there was not much change in the two rounds of evaluation (Figure 2.4). More than 30% of service units were graded as poor in both the Rounds. 46 service units visited in both the rounds were assessed for changes, if any. It was observed that in 70% cases there was no change in overall grading of service units

(Figure 2.4), 59% maintained their grading as 'fair' and 11% as poor. However in 28% cases there was deterioration (from fair to poor) while only 2% service units had registered improvement. The reported obstacles in timely supply of the meals to schools as reported by the FSPs were:

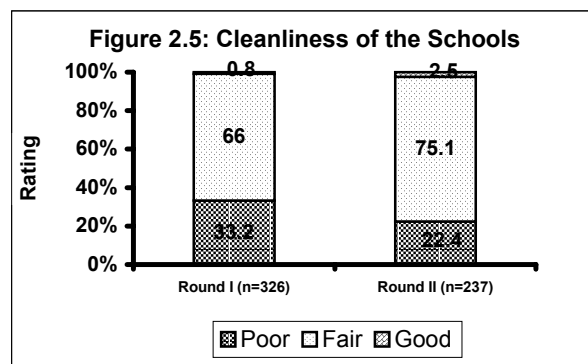
- ▶ Bad weather,
- ▶ Traffic jams,
- ▶ Logistics,
- ▶ Financial problems,
- ▶ Poor health of the cooks and
- ▶ Other eventualities.

In view of these observations all the stake holders concluded that there was a need for training the contracted FSPs to enable them not only to scale up their operations to semi-automated service units but also to improve the meals both hygienically and nutritionally.

Visit to the Schools

The total number of schools visited during the first round of evaluations was 410 however data were analyzed for 326 schools. 250 schools were evaluated in the second round and the data were analyzed of 237 schools. 80-85% schools visited in the first and second round were of the morning shift.

Those schools that were graded as poor were functioning without proper buildings, had inadequate drinking water, toilet facilities and furniture. It was observed that even teaching



staff was not adequate in some cases however majority of schools were 'fairly' clean (Figure 2.5).

As compared to the afternoon shift schools, morning shift schools were cleaner. The toilet facilities provided were generally 'poor'. Drinking water had to be stored, in most schools. Some of the children brought their own water bottles.

Personal hygiene of the children was graded on the basis of cleanliness of their nails, hair, uniform and general appearance. Based on personal hygiene and cleanliness, more than 75% of the children were rated as 'fair' in both the rounds of evaluation (Figure 2.6).

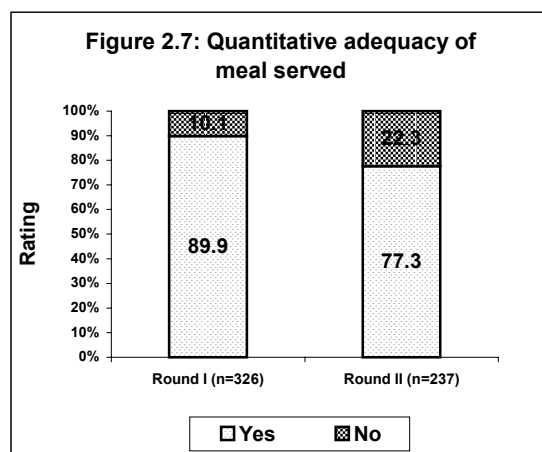
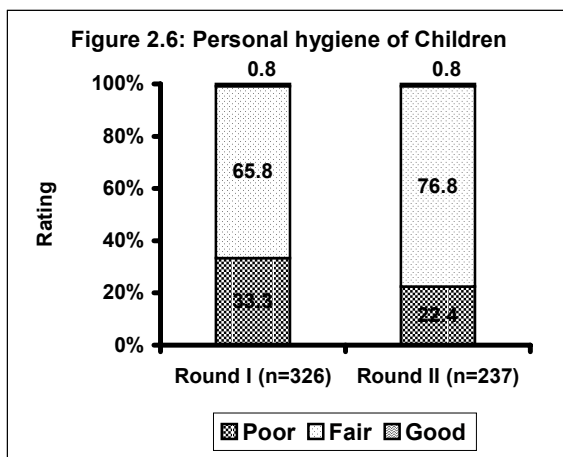
For receiving the MDM most of the children brought their own tiffin boxes /steel plates (and sometimes spoons). Majority of the children took their utensils home for washing, however, in a few cases where washing facility was available at the school, children did wash their utensils.

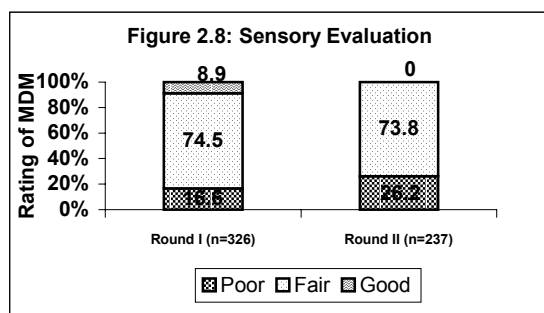
Over 80-85% of the children did not wash their hands before eating their meals, even though they were eating with their hands during the first year of evaluation but during the second year it was observed that only 35% of the children did not wash their hands before eating MDM, even though they used their hands to eat.

Quantity of meal served per child per day was found to be mostly between 150-200g, by and large being the same (Figure 2.7). Nutritional assessment of the MDM served suggests that quantity of cereal in the meal was as per recommendations i.e 300 kcals but the protein content was about 6-8g, which is low.

It was noted that the quantity of food provided to the child was lower if the amount of food brought by the FSPs was less or the child had brought a smaller tiffin box.

The focus group discussion with children indicated that they relished Rice *Sambar* and *Puri Aloo* / soybean while they did not relish: *Vegetable Dalia*,





Sweet Dalia and Moong Dalia during the first round of evaluation and hence these were immediately removed from the menu. About 76% of the school children consumed the meals during both rounds of evaluation. Sensory evaluations indicated that most of the food items were of fair quality as is evident in Figure 2.8.

For the purpose of simplicity, data of only the round II are being presented since variations between 1st and 2nd round are not much.

A total of 250 schools have been visited in round II. Of the 250 schools, in 8 schools MDM was not supplied and 5 schools were not cooperative on the day of the visit hence data of 237 schools have been analyzed and reported (Table 2.2).

	MDM provided	No MDM	Schools not cooperative	Total
Phase II	237	8	5	250

The number of afternoon shift schools evaluated was approximately 1/4th that of the morning shift schools (Table 2.3).

Shift	Frequency	Percent
Morning	196	82.7
Afternoon	41	17.3
Total	237	100.0

At the school level evaluation was carried out with regard to the time of arrival of the meals, time taken for the food distribution, existence or formulation of the MDM committee, likes and dislikes of the children, utensils used for receiving the

MDM, sanitation and various other parameters.

In almost 50% of the schools the MDM arrived between 9 a.m. and 10 a.m. and in 18% schools between 10 a.m. and 11 a.m. In the afternoon shifts MDM arrived mostly between 2 p.m. and 3 p.m. (Table 2.4).

In most of the schools the time taken for distribution of the meals was about 15-30 minutes. However, in 15.6% cases, the distribution took more than 45 minutes (Table 2.5). In schools

Time taken in minutes	Frequency	Percent
≤15	10	42.0
16-30	125	52.7
31-45	50	21.1
46-60	37	15.6
≥60	15	6.3
Total	237	100

Time in minutes	No. Of Schools	Percent
Morning Shift		
9.00-9.59a.m	131	55.3
10.00-10.59a.m	43	18.1
11.00-11.59a.m	5	2.1
Afternoon Shift		
2.00-2.59p.m	29	12.2
3.00-3.59p.m	7	3
Morning / Afternoon Shift		
No fixed time	22	9.3
Total	237	100

where time for food distribution was more it is possible that the schools had a greater number of children.

MDM was either received at the school corridor (48.5%) or in the courtyard (40.5%). All the school authorities maintained written records but had no record of the number of children not consuming the MDM despite being present in the class. In rest of the cases food was received in some other place e.g. HMs room.

With regard to FSP's punctuality and regularity, it was observed that the majorities were punctual (88.6%) and regular (89%). Observations regarding the frequency of delay in food supply, 69.6% school authorities reported that it was never delayed and in 21.5% schools, supply was rarely (1 or 2 times in a month) delayed and in rest of the cases the food was delayed more than 3 times in a month. It was also observed that in 58.1% cases, no prior information was given to the school officials regarding inability or delay of the supply.

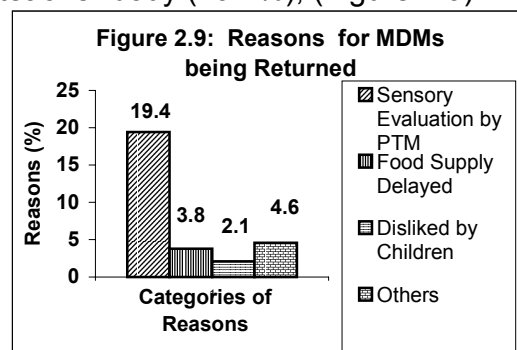
The menu on the day of the visit (Table 2.6) indicated that *Rajmah & Rice, Vegetable Pulao and Chole Rice* were served most often. In most cases-89.0% MDM was received in the schools by the teacher in-charge of MDM and in 5.9% schools by the Headmaster. The menus were rice based because of the logistics involved.

Menu	Frequency	Percent
Dal & Rice	33	13.9
<i>Rajmah & Rice</i>	61	25.7
<i>Sambhar & Rice</i>	7	3.0
<i>Puri -Aloo</i>	21	8.9
<i>Dal Parantha</i>	14	5.9
<i>Chole & Rice</i>	42	17.7
<i>Mixed Veg. Pulao</i>	49	20.7
<i>Chole & Puri</i>	10	4.2
Total	237	100.0

In 32% cases when MDM was not supplied the measures taken by the Headmasters were (1) non-action (17.7%), (2) inform the higher officials, regarding no supply (5.9%) and (3) contact the FSP (6.8%). When MDM was not supplied in some schools they distributed RTE / fruits (1.7% cases) and in 5.1% cases children were asked to bring lunch (Table 2.7).

Observations relating to whether food was ever returned back after it had reached the schools, indicated that in 65.4% cases the food had never been returned while in the rest of the schools during the second round of evaluations (34.6%) where food had been returned the reasons given were mainly on the basis of sensory evaluation by the Parent-teacher body (19.4%), (Figure 2.9).

Reason	Percent of Schools
RTE distributed	1.7
Children brought lunch from home	5.1
No Action	35



In about 81% schools, the teachers reported the food quantity to be adequate while in 19% reported that it was sometimes inadequate. The actions taken by the school authorities with regard to inadequate food supply were –

- ▶ FSPs asked to provide more from the unit – 18.6%
- ▶ FSPs provided biscuits/fruits – 1.7%
- ▶ Teachers contributed to provide food to children – 1.3%
- ▶ No action taken – 16.5%

Table 2.8: Organization chart of the MDMP at school level

Committee	Parent Teacher Association	Senior Citizen	Health Worker
94.1%	78.9%	24.1%	13.9%

At the school level, for smooth functioning and effective management of MDM programme 94.1% of the schools had some form of MDM Committee; of these

78.9% had members from the parent-teacher body, 24.1% had an elderly citizen(s) and only 13.9% had a health worker on the committee (Table 2.8).

Food handling and distribution at the schools was done by personnel employed by the FSPs (70.5% cases). The cleanliness of these personnel was rated mostly as 'fair' in 89.9% (Figure 2.10). In the absence of food handlers (10% cases), the food was distributed by the teachers (13.9% cases), school attendant(s) (15.2% cases) or the children (6.8% cases).

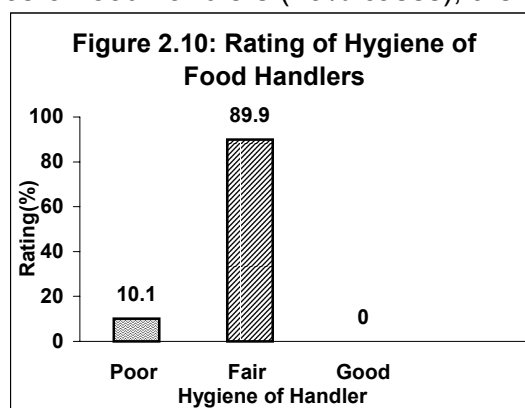


Table 2.9: Overall rating of hygiene and sanitation of the schools

Overall rating	Poor (%)	Fair (%)	Good (%)
Receiving area	7.2	92.4	0.4
Distribution area	8.4	91.1	0.4

Hygiene and sanitation aspects of the receiving and distribution areas were rated on the basis of ventilation, pest infestation and overall cleanliness (Table 2.9). Although in majority of cases (90%) the receiving and distribution area of the schools were rated as 'fair', only 75% schools were graded as fairly clean on the basis of overall cleanliness of the entire the school, toilet facilities and drainage system.

Cleanliness of the utensils in which MDM was brought to the schools is given Table 2.10. The FSPs brought food mostly in aluminum or stainless steel drums or 'dols'. The utensils were observed for the basis of their condition (dented/pitted/cracked) and provision of well-fitted lids on each container and general cleanliness. In more than 90% cases the utensils were graded as 'fair'.

A sensory evaluation (based on appearance, taste, smell and texture) of the food item served in the school on the day of visit, indicated that the overall acceptability of the food item was “fair” in the majority (70.9%), and ‘poor’ (29.1%) in the rest (Table 2.11).

Cleanliness of the utensils	Percent
Good	0
Fair	91.1
Poor	8.9

Rating	Percent
Good	0
Fair	70.9
Poor	29.1

Evaluation at the Class level and focus group discussion with teachers and children

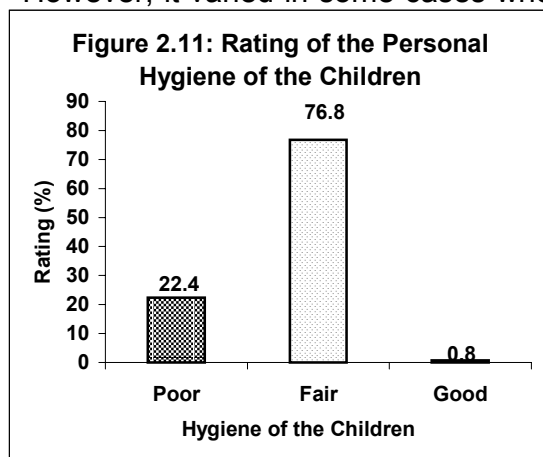
The total time taken for distribution of MDM in a class was found to vary; nearly 10 minutes in 83% cases and between 11 to 20 minutes in 16% cases (Table 2.12). Personal hygiene of the children graded on the basis of cleanliness of their nails, hair, uniform and general appearance; 76.8% children rated fair, 22.4% as poor, and only 0.8% as good (Figure 2.11).

Total time taken for Distribution (in minutes)	Percent
≤ 10	83.1
11-20	16.0

As mentioned before, it was observed that 35% of the children did not wash their hands before eating MDM, even though they used their hands to eat. The children availing the MDM in the schools were mostly bringing their own utensils from home (88.2% cases). About 35% of them did not wash their utensils at the school before receiving the MDM. However, 72.2% of the children washed their utensils regularly after eating the meals while 11.8% children did so sometimes. Steel plates were the most frequently used containers (35.8%) for receiving and eating MDM, followed by lunch boxes (21.1%). About 43.0% children used a combination of the above options for receiving MDM.

Quantity of meal served per child/day was found to be mainly between 150-200g (50.6%). The amount of food served per child was by and large the same. However, it varied in some cases when the amount of food brought by the FSPs

was itself less or the utensils for receiving the meals varied in size.



It was observed that nearly half the children consumed the whole meal provided to them and roughly the same number consumed the meal partially. Children not consuming the whole amount of the meal; were taking the leftover food home (24.5% cases), or disposing the food outside the school in the open (7.2% cases) or in dustbins (21.1% cases).

The washing area in most of the schools (54.4%) was rated as 'clean'. Drinking water facility was provided in most of the schools (91.6%) of which 73.4% cases had tap water. In majority of the cases water was stored and kept covered. It was also noted that some of the children were bringing their own water bottles.

The focus group discussion with children indicated their likes and dislikes with respect to dishes served to them. It was observed that children relished the following dishes:

- ▶ *Puri & Aloo* - 86.1%
- ▶ *Rajmah & Rice* - 4.6%
- ▶ *Chole & Rice* - 3.4%

The food items that were **not** relished by the children include:

- ▶ *Vegetable Pulao* -36.3%
- ▶ *Paranthas* -21.5%
- ▶ *Dal & Rice* -11.8%

The average number of children (in the class visited by the Investigator) consuming MDM on a regular basis was 75.5% as per head count. The reasons for the rest of the children not consuming MDM was mainly due to the food not being tasty, children not being allowed by their guardians/parents to eat MDM or not having brought their utensils on the day/(s) MDM was served. With regard to preference for cooked meal or ready-to eat food items, 73.0% of the children preferred cooked meals, 24.9% preferred the ready-to-eat food and 2.1% liked both cooked meal and RTE.

Focus group discussion with teachers was carried out to get their feedback about the MDM Programme. The focus was mainly on the issue of attendance, enrolment and attention span of the children. According to the teachers, 81.4% of children availed MDM at the schools. About 67.9% teachers opined that attendance had improved due to MDMP. Also 66.7% of the teachers felt that MDM Programme was cutting the study time. With respect to preference of MDM versus RTE, 74.7% teachers preferred cooked meal, 24.9% teachers preferred RTE and 0.4% of them had no specific preference

Comparison of schools visited in Round I and Round II

In order to assess the changes that has occurred at school level with regard to the programme, a total of 125 schools out of the 410 schools were evaluated in round I were re-evaluated in round II, however only 88 schools could be compared due to several reasons as indicated in the Table 2.13

Reasons → ↓ Rounds	RTE Distributed	No MDM	Schools not cooperative	MDM provided	Total schools
Round I	7	22	0	96	125
Round II	0	5	3	117	125
Schools excluded	7	27	3	0	37

*Schools analyzed -88

The schools were compared on the basis of school cleanliness, availability of drinking water, regularity and punctuality of MDM in the schools, quantitative adequacy of meal per child, sensory evaluation, cleanliness of utensils and personal hygiene of handlers.

This comparison has been carried out to evaluate if there has been any significant difference between the first and second year of the mid day meal implementation when maximum changes can be anticipated.

S.N.	Parameter	Difference (%)		No Difference (%)
		Improvement	Deterioration	
1.	Cleanliness of school	21.5	20.5	58
2.	Availability of water	20.4	2.2	77.4
3.	Personal hygiene of food handlers	21.5	3.4	75
4.	Punctuality of supplying MDM	11.4	4.5	84
5.	Regularity of supplying MDM	13.6	5.6	80.6
6.	Cleanliness of utensils	19.3	2.3	78.4
7.	Sensory evaluation	5.6	27.3	67.0
8.	Quantitative adequacy of meal served	19.3	11.4	69.3

It is evident from the table 2.14 that there was no perceptible difference in the quality of the MDMP in the two rounds of evaluations.

Schools visited both the Rounds vs. schools visited only Round II

A total of 250 schools were visited between September 2004 - December 2004/ Round II. Data was analyzed for 237 schools. In 8 schools MDM was not supplied on the day of visit and 5 schools were not cooperative, hence 13 schools were excluded from the data analysis. Out of 237 schools, 117 schools (have also been evaluated in Round I) were compared with 120 schools visited only in Round II.

Here too there was no significant difference observed between the MDMP operating in schools evaluated in Rounds I and II (Table 2.15). The only positive point to be noted was the improvement in adequacy of the meal served/ child / day.

Focus Group discussions with the teachers indicated that many teachers were not very happy about the Programme and viewed it as burden and a waste of valuable school time and an extra load on them. Many male teachers were not comfortable with the idea of serving meals to schools children however, it was

also observed in some cases teachers took the initiative to give more helpings to particular children who were under privileged and malnourished.

Table 2.15: Comparison of schools evaluated in both Rounds with schools evaluated in Round II only

↓ % Grading → ↓ Parameters	Schools visited in both in Round (I & II) n=117			Schools visited only in Round II n=120		
	Good (%)	Fair/Yes (%)	Poor/No (%)	Good (%)	Fair/Yes (%)	Poor/No (%)
Regularity of supplying MDM	-	86.3	13.7	-	90.8	9.2
Punctuality of supplying MDM	-	88	12	-	89.2	10.8
Adequacy of meal served/child	-	65	35	-	75	25
Sensory evaluation	-	70.1	29.9	-	77.5	22.5
Personal Hygiene of handler	-	90.6	9.4	-	93.3	6.7
Cleanliness of utensils	-	94	6	-	88.3	11.7
Cleanliness of School	3.4	74.4	22.2	1.7	75.8	22.5
Availability of water at the school	-	90.6	9.4	-	92.5	7.5

The NFI has proposed a specific teacher-training programme to the MCD in order to sensitize and orient the teachers to the MDM Programme.

Role of NFI as an Evaluator

The NFI's role as independent 3rd Party evaluator has been to augment the efforts of the MCD to run the programme successfully. The evaluation of the service units by independent party was specifically carried out to indicate to the FSPs that there was no ulterior motive of the Government in removing some of the FSPs and retaining some others. This led to the increased credibility of the Government and the NFI.

Proactive involvement of the evaluator (NFI) helped the MCD in qualitative improvement of the MDM with regard to better quality of food, training of the food service providers, streamlining of the FSPs gained during the two years of evaluation study-from initial 72 to current 13.

Observations at the school level have also helped the MCD in understanding the specific needs of the MCD schools, in terms of human resource and other basic infrastructure. Finally, last but not the very least, understand the needs of the beneficiaries for whom the programme has been instituted.

This evaluation of the NFI has helped the MCD to carry forth a Programme in a vast city, with a multi-cultural background during the initial teething period. These evaluations can stake a small claim to have helped in minimizing irregularities of

the supply in MDM to schools, food poisoning cases, as well as increased quantity servings through instantaneous action by reporting to the concerned authorities.

Hence the role by the NFI as Independent Evaluator has helped the Government to spread its tentacles over a big metro that it could not have controlled by just their own officers and make informed decisions about how the programme should be run to give the beneficiaries the maximum benefit.

There were several suggestions at the level of the FSPs and at school level, which emerged during the course of evaluation as listed below

For FSPs

- ▶ Service units should follow the standards given by the Indian Standards Institution (1972).
 - Management of storage space
 - Management of unit
 - Preparation of hygienic food
 - Safe transportation of the cooked meals
- ▶ Use of standardized recipes employing proper method(s) of cooking for preparing the food items.

For Schools

- ▶ Monitoring and ensuring the quality and quantity of food served.
- ▶ Maintenance of daily record of MDM.
- ▶ Inculcating good hygienic practices among the children.
- ▶ Safe drinking water and toilet facility.
- ▶ Orientation of headmasters and teachers of the schools to use MDMP:
 - As a tool for imparting nutrition and health education to the children,
 - Making them aware that MDM is a supplement not a substitute.

The evaluation also indicated that the FSPs were neither fully aware nor following BIS codes. It was also felt that for a more efficient system of the food production the MDM providers have to shift from manual to automated / semi-automated service units. Hence NFI proposed to the MCD to organize training of the MDM providers.

The Training programme of the Food service providers (FSPs)

The training programme was conceptualized on the basis of the recommendation of the third party evaluation and evolved mainly based on the Code for Hygiene conditions for the establishment and maintenance of the mid day meal school programme.

The training programme was formulated more as a workshop and made effective by using –

- ▶ Focused Group Discussion
- ▶ Power Point Presentations and Lectures.
- ▶ Quiz, Rapid Fire Round.
- ▶ Slides and Visual show.
- ▶ Puppet show & Posters.
- ▶ Microbial Assay and Demonstration.

The training programme was conducted at Saroja Nutrition Studio at Lady Irwin College (University of Delhi) from 3rd October 2005 (Monday) - 7th October 2005 (Friday). The Workshop had three sessions for each group. One group comprising 26 managers and two batches of food handlers, 52 in number from 13 service units under took the training. It was followed by an on-site training at their units spread over a month.

The Training Programme commenced with a welcome address by Dr. Anupa Siddhu, Director, Lady Irwin College (LIC) who lauded the Municipal Commissioner for initiating a step in providing dialogue and partnership between the stakeholders. Mr. Rakesh Mehta, the Municipal Commissioner in his inaugural speech emphasized the need for the training programme and stated that the mission should be to make the mid day meal programme in Delhi so exemplary that it is cited to be the best and becomes the role model for the rest of the country.

The training session started with an exercise of ice breaking wherein the participants were grouped into four groups for different activities.

- ▶ Group activity and Focus Group Discussion
Models of balanced meal, vegetables & fruits, a slide of mid day meal and collage of hygiene practices were given to each group respectively for discussion and each group presented their views. The objective being that they understand that:
 - ▶ It is important to provide a balanced meal to the children.
 - ▶ Inclusion of adequate amounts of fruits and vegetables in MDM to make them rich in protective nutrients.
 - ▶ Importance of MDMP in alleviating hunger and improving school enrolment and attendance.
 - ▶ Maintenance of clean environment and following good hygiene and sanitation practices for safe food production.
 - ▶ The concept of correct measures to ensure hygiene and sanitation in unit producing mid day meal was explained explicitly with illustrations through power point presentation which dealt on
 - Food Hygiene.
 - Personnel Hygiene.
 - Plant Hygiene, which was followed by discussions.
- ▶ Learning through play was executed through the quiz, which helped to assess their knowledge prior to the training and the rapid fire helped to evaluate the

knowledge gained. This exercise also brought about a competitive spirit for acquiring information.

- ▶ Puppet show was an innovative method using the story of Ramu who ate food from a vendor and fell sick. From the story they learnt methods to prevent food poisoning.
- ▶ The consequence was related to:
 - Food Hygiene.
 - Food colours.
 - Personnel Hygiene.
 - Environmental Hygiene.
- ▶ A film show was aired titled “**Food for all** -the spiritual dimension of food- in pursuit of a hunger free world developed by the MSSRF. The film revolved around the key message “**Anna Daan Maha Daan** ” emphasizing the fact as stated by Mahatma Gandhi: “**To those who are hungry, God is bread**”.
- ▶ Posters were designed and were critically evaluated and messages discerned from them as group activity. The posters were on
 - Do’s and Don’ts while preparing food
 - Discretion is the key to safety
 - One’s Safety lies in Food Safety
 - Progression of micro-organisms contamination with time
- ▶ The menus served by the MCD were critically assessed for their nutritional adequacy. An attempt was made to enhance its nutritional quality especially of micronutrients by incorporating vegetables. For this a seasonal calendar for vegetables was made. Vegetables were incorporated in the menu and additional items suggested to add variety The suggested menu is:

<i>Aloo Sabzi and Poori</i>	:	<i>Aloo Sabzi with Palak / Kasuri Methi / any other GLV / Pumpkin / Kala Chana</i>
<i>Rice and Chana Dal</i>	:	<i>Chana Dal with Ghiya</i>
<i>Rice and Moong Chilka</i>	:	<i>Moong Chilka with Palak</i>
<i>Rice and Chole</i>	:	<i>Chole with Kasuri Methi</i>
<i>Rice and Kadhi:</i>		<i>Kadhi with Palak / Sarson / Methi</i>
<i>Rice Sambhar:</i>		<i>Sambhar with Pumpkin / Brinjal / Ghiya /Carrot / Beans</i>

- ▶ Interactive demonstration was a do and learn technique used with food handlers to train them in correct sanitary measures
 - Items in the store shown and the participants asked to identify some of the good practices.
 - Participants were asked to demonstrate how to handle raw and cooked food
 - Some of the correct work habits such as holding glass, spoon, and use of protective wear were shown with participative demonstration.
 - Some of measures used in the lab to ensure sanitation and safety in unit were pointed out such as floor, counters, tiles, hood, exhaust, drains and RO system for water and fire extinguisher.
- ▶ The concept of microorganism was aptly demonstrated by microbial assay and demonstration. Swab test was shown where in they saw the microbial colonies and even viewed specific ones under the microscope.

- ▶ The participants were asked to list the concepts that they would reinforce in their unit as a part of the training. This exercise indicated their perception of change needed and also provided a checklist for on site evaluation.

Thus the training programme was greatly appreciated by the participants as they felt that it provided them an avenue to:

- To learn new concepts, also get to know the different ways to put it into practice.
- Group discussions and other modes of training techniques provided them opportunity: -
 - To learn from each other.
 - To discuss the problems and seek solutions.
 - Opportunity to do and learn
 - Provided a checklist for use in their respective units.

On site evaluation was undertaken after a gap of two weeks to assess the status of their unit and observe if any concepts have been enforced. A checklist was used and 8 of the 13 units satisfied most of the criteria. In others there was scope for improvement. Overall improvement in practices of food, personnel and plant hygiene was seen.

The following were the recommendations:

- On site training to include all food handlers.
- Reinforcement of training.
- Periodic monitoring to check adherence to standards.
- Maintenance of standards in unit as measure of efficiency.
- Strategy plan for better transportation of food.
- Orientation and better participation of Teachers in MDMP.
- Better facilities to be provided in school for distribution.
- Incentives for well maintained units.

The latter aspect is now taken care by regular testing of the MDM for microbiological content.

Conclusions

- ▶ MCD must continue to put MDM Programme on top of their agenda.
- ▶ Stockholder's collaboration is a must.
- ▶ Simple monitoring and evaluation system required.
- ▶ Good management practices, forward planning and adequate flow of finances are essential.
- ▶ Educability must go hand in hand with education.
- ▶ Field Experience and capacity building from top down is most important.
- ▶ The state must take care of the health / nutrition of ~ 90% children in the classroom who are in need of additional support.

Chapter III

THE WAY FORWARD

Using School System for Nutrition and Health Upliftment

As early as 1974, Dr. Gopalan laid emphasis that “the school could be a valuable second front in our attempts to bring about nutrition and health upliftment of our population”. The school system in our country offers a vast infrastructure of enormous potential; and can therefore become a most powerful instrument for bringing about transformation. It can exert a profound influence not only on children but on the community at large; and can serve as a focal point for a meaningful synthesis and integration of the currently compartmentalized / fragmented health, MCH and family welfare operations addressing our communities

- ▶ Nutrition related messages/education need to be directed towards children in primary classes so as to lay a firm foundation for good eating habits and proper lifestyle practices.
- ▶ For the headmasters and school teachers workshops should be conducted for reinforcing the nutrition and health related concepts again and again.
- ▶ Nutrition related games should be developed as a source of entertainment packed with knowledge, which the children can benefit from.
- ▶ Competitions with the main theme on nutrition related areas could be proposed and conducted at school level to enthuse the children.
- ▶ Establishment of school gardens as another nutrition education tool.

The Schools

Data from the visits to the schools in which MCD is providing midday meal have indicated that by and large the programme is being implemented satisfactorily. In majority of schools, the meals served were well cooked, adequate and palatable.

Several schools lack essential infrastructure such as potable /drinking water, toilet facilities and water to wash hands; in some cases environmental hygiene was poor. Focus group discussions with school teachers and children showed that as MDMP has been in operation only for a relatively short period neither the teachers nor the students have fully realised the potential role of MDMP in improving health and nutritional knowledge in schools and catalytic role it could play in improving school retention rates.

It has been observed that wherever there was either a head master or a teacher who understood this, was able to overcome infrastructural gaps and lack of awareness and successfully implement the programme. It was obvious that overcoming the lacunae with regard to infrastructure will take time and expenditure. The MCD may try to fill the infrastructural gaps in these schools in a phased manner

However, it is recommended that highest priority may be accorded to orienting and training head masters/teachers so that they

- ▶ Understand the importance of MDM and do not regard Supervision of MDM distribution to the children as additional workload.
- ▶ Highlight to the students and inform the parents that the midday meal is additional to the home meal and not a substitute for it.
- ▶ Become aware that the MDM provides an opportunity for health and nutrition education and give practical lessons on personal hygiene and environmental sanitation to children in primary schools.
- ▶ Utilise to the maximum, the Parent Teacher Associations and other mechanisms for the involvement of society in improving monitoring of the MDM and ensuring that the problems if any, are detected and rectified at the earliest.
- ▶ The school should develop a system in which the teachers play a key role in
 - Monitoring and ensuring quality and quantity of food served, persuading children to consume all the food provided and to observe hygiene practices during eating.
 - Ensuring that left over food is not thrown in and around the school to prevent environmental deterioration.
 - It would be useful to find out the causes for refusal to take MDM by some children / parents so that acceptance is improved. For this parents/ views could give an insight.
- ▶ The schools are also suggested to mention the approximate number of children that could be expected to be present for the next day so that the FSPs may prepare accordingly and the supplies is not in excess or fall short.
- ▶ The teachers and the parents need to be sensitized regarding importance of whole hearted participation by all in order to get optimum benefits from MDM. MDM can become a part of the curriculum where good hygiene practices are not just taught but put into effective action.
- ▶ In the urban setting of Delhi, children are exposed to unhygienic junk foods sold outside the schools. Some of the children are able to afford them. Therefore, there is a great need for educating the children to choose healthy, wholesome food.
- ▶ The school children should get a school health check up. Height and weight should be recorded as a part of school health card. It is suggested that as the session begins in July a health check up is undertaken. If this is not possible in all the schools at least height and weight should be recorded and children with severe / moderate under nutrition identified. These children should receive priority in MDM and also in health care. If possible they may be provided a large share of MDM, until their nutritional status improves. Improvement may be monitored by weight and height assessment after every 3 months.
- ▶ The children of the schools should also receive Iron/folate supplements and be dewormed regularly as a part of the school health component.
- ▶ Some schools that have been ranked 'good' and 'poor' could be selected for an in-depth study to understand the functioning of the Programme better and reported as case studies.

- ▶ It is important to supply adequate potable water in the schools and also maintain clean toilets to reduce morbidity.

The FSPs

- ▶ Mid day meals served are by and large rated as 'fair' on the basis of taste, texture, appearance and odour, the actual process of cooking leaves much to be desired. The FSPs have been rated as 'fair' with regard to infrastructure but they are still not functioning as an organized unit. The MCD may have to look into adequacy of space, environmental hygiene in the vicinity of the unit, general hygiene practices of the cooks.
- ▶ The FSPs should be sensitized to be socially and morally responsible to providing hygienic / wholesome cooked meals to the students and not just view it as a commercial venture alone.
- ▶ MCD should ensure that adequate amount of seasonal vegetables are incorporated into MDM menus. Since the MCD provides only the list of the food items, it is suggested that the MCD also provide **standardized methods** of preparing the food items so that the product could be more or less same from all the service units. Further the use of iodized salt should be mandatory.
- ▶ Evaluations cannot replace monitoring and therefore, it is important that the public health personnel and the MCD officials carry out continuous monitoring and make appropriate mid-course corrections, in order to make the Programme successful. A simple checklist can be developed for monitoring purpose.
- ▶ It is important to develop regular monitoring of the programme at various levels, utilizing existing infrastructure/manpower so as to ensure food safety, quality and optimum utilization of food provided. The service units should be monitored by MDM Programme Officers as well as Public Health Officials to detect and rectify any shortfalls in food preparation and distribution.
- ▶ For **monitoring** of the process of cooking and packing of MDM, it would be ideal to visit the service units between 6.00 and 7.00 a.m. (morning shift) 12.00 and 1.00 p.m. (afternoon shift). MCD officials should facilitate the visits during these time periods so that the cooking process can be observed.
- ▶ The Public Health Department may carry out microbiological testing of the cooked meals and water especially in the summer months to assess the quality of the food. This objective has also been achieved.

Finally the positive aspects of the MDM scheme in India are

- ▶ India's shift from grain for education to hot-meal for education.
- ▶ School meal programme gets more financial support from GoI.
- ▶ MDMP extended to children in Education Guarantee Scheme (EGS) and Alternative Innovative Education (AIE).
- ▶ 100 million school children are eligible for hot meal; 50 million are getting the meals; of which 27 million also get the "4-in-one health package."
- ▶ Proposal to extend MDM to class VII.
- ▶ Child labourers will get "Flexi-schools" and a "Hot meal".

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Annexure I

Mid day meals in India-A historical perspective				
Year	State / UT	Implementing Agency	Meal / Food Provided	Target Group(s)
1925	Tamil Nadu	Madras Corporation (Dept of Edu.)	Rice, samber and egg.	500 elementary school children
1928	West Bengal	Kesav academy of Calcutta	Compulsory tiffin 25p/child per month	School boys
1941	Kerala	State Govt. of Education	Rice/ Wheat Kanji and side dish	--
1942	Maharastra	State Govt and Rural Development Department	UNICEF skim milk powder	Children below 14 yrs of age
1946	Karnataka	Bangalore Govt. and village school betterment committee	Cooked rice and curds	Pregnant women
1947	Pondichery	Directorate of Education	Rice	Children of 6-11 yrs. of age
1953	Uttar Pradesh	State Govt on Voluntary Basis	Boiled, roasted, sprouted, grains, groundnut, puffed rice, boiled potato, fruit	1,20,000 children
1956	Lakshwadeep	Department of Education	130 g rice and curry	Children from 1st to VIIIth class.
1959	Orissa	Applied Nutrition Programmes, Department of Education	Wheat, balahar and vegetable oil	--
1961	Haryana	Department of Education	Kheer using wheat, rice, milk, jaggery	--
1962	Andhra Pradesh	Village council and Education Department assisted by CARE	Corn soya milk (CSM) Veg oil milk powder	Children between 6-11 yrs
1962	Punjab	Department of Education	80 gm grains 7gm of veg. Oil +CSM	Children between 6-11 yrs
1962	Rajasthan	State Govt. of Tribal and Harijan welfare	Cereal –pulse combination vada	--
1962	Gujrat	Assisted by CARE+City bread programmes	80g of bulgar grain and 7g of veg oil + CSM	Primary school children
1965	Madhya Pradesh	Department of education	80g of bulgar wheat and 75 g of bread	Primary school children
1965	West Bengal	Assisted by CARE	Biscuit, bread, cake and bananas	Primary school children
1966	Goa, Daman and Diu	Directorate of Education	85 g of wheat, bananas / (CSM and 14 g veg. oil)	Poor School going children from backward classes
1968	Bihar	Dept. of Health and Family Welfare	Roasted grains	6-11 yrs aged children
1974	Himachal Pradesh	Assisted by CARE	Biscuits and buns	School children
1976	Sikkim	District and State Govt.	50g of CMS and 7g of oil	I-V th class children
1979	Haryana	Assisted by CARE	Bread, Biscuit, Seasonal Fruits, Khichri	300 primary school children
1979	Tripura	Assisted by CARE and planning Department	Only milk	81 community development block

Source: Reference 2

Annexure II

Current Implementation Status of MDMP as informed by the various States/ UTs:						
S.N.	Name of States/ UTs	No. of children enrolled during 2003-04	No. of children covered under cooked meal programme	Coverage of the MDMP	Nature of food	
1	Andhra Pradesh	7,717,673	7,717,673	Across the State	Cooked	Meals
2	Chattisgarh	2,828,582	2,828,582	Across the State	Cooked	Meals
3	Gujarat	3,004,496	3,004,496	Across the State	Cooked	Meals
4	Karnataka	5,349,540	5,349,540	Across the State	Cooked	Meals
5	Kerala	2,166,510	2,166,510	Across the State	Cooked	Meals
6	Madhya Pradesh	7,729,652	7,729,652	Across the State	Cooked	Meals
7	Maharashtra	9,721,167	9,721,167	Across the State	Cooked	Meals
8	Rajasthan	7,731,051	7,731,051	Across the State	Cooked	Meals
9	Sikkim	76,828	76,828	Across the State	Cooked	Meals
10	TamilNadu	5,529,945	5,529,945	Across the State	Cooked	Meals
11	Tripura	453,854	453,854	Across the State	Cooked	Meals
12	Uttaranchal	787,193	787,193	Across the State	Cooked	Meals
13	A&N Islands	35,179	35,179	Across the State	Cooked	Meals
14	D & N Haveli	29,480	29,480	Across the State	Cooked	Meals
15	Daman & Diu	15,163	15,163	Across the State	Cooked	Meals
16	Pondicherry	62,349	62,349	Across the State	Cooked	Meals
17	Chandigarh	42,520	42,520	Across the State	Ready to eat food	
18	Goa	69,647	11,535	3 block (pilot basis)	Ready to eat food	
19	Haryana	1,578,538	93,497	6 backward blocks	Cooked	Meals
20	Himachal Pradesh	614,847	19,876	In first phase in Tribal Areas in three districts	Cooked	Meals
21	Meghalaya	485,980	429,986	Across the State except 3 distt	Cooked	Meals
22	Mizoram	94,042	47,021	546 schools	Cooked	Meals
23	Orissa	4,631,826	1,523,316	314 Tribal Areas	Cooked	Meals
24	Punjab	1,559,678	113,225	17 Blocks	Cooked	Mea
25	West Bengal	9,474,238	178,054	1100 Schools	Cooked	Meals
26	Delhi	1,036,711	325,000	MCD Schools & some NCT schools	Cooked	Meals
	Total	72,826,689	55,697,692			
	All India	?	55,697,692			

Source: Reference 7

Annexure III

Menu of cooked meals served in Some States	
Gujarat	<i>Dal Dhokli, Khichidi, Veg. Pulav, Handvo, Upma, etc.</i>
Karnataka	<i>Kara/Sweet-Pongal, Rice-Sambar, Roti-Sabzsi, Bisibele Bhath, Upma, Chitarana</i>
Rajasthan	<i>Ghooghri, Daliya, Sattu, Lapsi, etc.</i>
Andhra Pradesh	<i>Rice-Sambar, Hot Pongal, Tomato Rice</i>
Delhi	<i>Mixed Veg. Pulao, Dal Parantha, Rajmah – Rice, Aloo –Poori, Dal/Sambar – Rice, Chole – Rice, Chole –Poori</i>
<i>Source: Reference 8</i>	

Annexure IV

Physical Progress									
	1995-96	96-97	97-98	98-99	99-2000	2000-01	2001-02	2002-03	2003-04
Number of Districts	378	474	506	544	544	575	582	586	596
Number of Blocks	2495	4417	5565	5764	5764	5912	6844	6809	6760
Number of Children targeted to cover (in crore)	3.34	5.57	9.10	9.79	9.90	10.54	10.35	10.36	10.50
Number of schools targeted to cover (in lakhs)	3.22	4.74	6.41	6.88	7.17	7.42	7.69	8.04	10.50
<i>Source: Reference 7</i>									

Annexure V a

FOOD SERVICE PROVIDER CHECKLIST

- a) Date of visit: _____ h) Code no.: _____
 b) Name: _____
 c) Address: _____
 d) MDM supply started: _____
 e) Total no. of schools catering to: _____
 f) Total no. of children catering to: _____
 g) Approximate kitchen area: _____

Location of the kitchen _____

Surroundings: _____

Accessibility: _____

I. INFRA STRUCTURAL FACILITIES

1(a)

S. N.	Area of working +	Adequate space	Cleanliness*	Dryness	Well lit	Ventilation	Grade points
1	Receiving						
2	Storing						
3	Pre-preparation						
4	Preparation/ cooking						
5	Food assembly/serving						
6	Washing						

*Cleanliness with respect to pest and rodent infestation, cracks /crevices, flies/vermins, dust/webs. +To be rated on 3 point scale

1. Poor
2. Fair
3. Good

2. PROCUREMENT AND STORAGE OF FOOD ITEMS

Key: Daily-1 Weekly-2 Fortnightly-3 Monthly-4

2(a)

S.N	Raw materials	Quantity (kg) Purchased at one time	How often	Containers/Bag used for storage				
				Metal	Plastic	Gunny Bags		Any Other Specify
						Jute	Laminated	
1	Cereals							
2	Pulses							
3	Vegetable							
4	Spices							
5	Fats and oils							
6	Any other specify							

3(a) Do you check for the following parameters of quality in the raw ingredients?

- 1. Stones
- 2. Insects
- 3. Over ripeness
- 4. Bad odor
- 5. Any other (specify)

3(b) where are the containers /bags containing raw ingredients placed?

- 1 On a raised platform
- 2 Floors
- 3 Any others (specify)

4. Water: Source, Availability, Storage

4(a) Source of water

- 1. Tap 2. Bore Well 3. Pump

4. Any other, specify

4(b) Is the supply of water

- 1. Continuous
- 2. Periodic

4(c) Is water stored in any vessel? Y/N

4(d) If yes which type of vessel?

1. Metal	<input type="checkbox"/>
2. Plastic	<input type="checkbox"/>
3. Any other (Specify)	<input type="checkbox"/>
4. Combination of the above	<input type="checkbox"/>

4(e) how long has the water been stored?

- a) 12 hours
- b) 1 day
- c) 2 days
- d) More than 2 days

4(f) Are water-storing utensils covered? Y/N

5. PRE-PREPARATION

5(a) What are the equipments used during prepreparation?

Mechanical
Chopping Board
Patilas
Knives
Peeler
Grater
Grinding Stone
Other (specify)
Electrical gadgets :dough kneader/potato peeler
Mixer

5(b) Look for the following in the equipments used:

1. Broken
2. Cracked
3. Chipped
4. Dented
5. Rusted

5(c) Are they cleaned before use?

Y/N

5(d) Look for signs of

1.	Grease	
2.	Dirt	
3.	Rust	
4.	Detergent	

5(e) Are all food items washed before preparation?

Y/N

5(f) Is there any facility for refrigeration?

Y/N

6. PREPARATION

6 (a) What are the food items cooked on the day of the visit?

Y/N

6(b) what is the fuel used for cooking?

1. LPG
2. Any other specify

6(c) How do the cooks add the dry ingredients during food preparation?

- a) Spoons
- b) Hands
- c) Ladles
- d) Any other (specify)

6(d) Are prepared food items kept covered?

Y/N

6(e) What is the time lapse between preparation and packing?

1 hour	
2 hours	
3 hours	
More than three hours	

6(f) How is the food packed?

1. Cartons
2. Tiffin carrier
3. Patilas
4. Steel drums
5. Aluminum drums
6. Steel dols
7. Sacks
8. Basket
9. Patila/basket lined with newspaper
10. Any other (specify)

6(g) Is the packaging material clean? Y/N

7. MANAGEMENT OF THE LEFTOVER FOOD

7(a) is the entire food prepared sent to schools is utilized there? Y/N

7(b) if No, is it:

- 1. Reused in some other form
- 2. Sold
- 3. Discarded
- 4. Any other please specify

7(c) What the suppliers do with the food left uneaten by children of different schools?

- 1. Consumed by suppliers
- 2. Packed and taken home by cooks/handler
- 3. Thrown away
- 4. Distributed among the poor in the nearby slums

7(d) Has the food ever been returned by the Headmaster/school authorities? Y/N

7 (e)if yes, how often in a month?

- 1. Once
- 2. Twice
- 3. More than twice

7(f) reason for the returned

- 1. Food disliked by children
- 2. Late arrival
- 3. Returned on the basis of MDM committee's evaluation
- 4. Quantity of food was not enough
- 5. Combination of above

8. DISHWASHING

8(a) Is there a washing area? Y/N

8(b) Utensils are cleaned with

- 1. Only water
- 2. Water+ Detergent/soap
- 3. Scrubber+ detergent/soap +water
- 4. Any other (specify)

9. ORGANIZATION CHART

9 (a)

Employees	Number (n)
1.Kitchen-in-charge	
2. Store-in-charge	
3. Purchase-in-charge	
4. Head cook	
5. Cooks	
6. Helpers	
7. Handlers and distributors	
8. Cleaners/sweepers	
9. Any other	
10. Total	

9 (b) Do they display the organization chart?

Y/N

10. PERSONAL HYGIENE PRACTICES

KEY- 0-N.A
1-NO
2-YES
3- not observed

10(a)

		FOOD HANDLER 1	FOOD HANDLER 2
1	Cleanliness of uniforms		
2	Wearing headgears		
3	Well groomed		
4	Fingernails short and clean		
5	Suffering from cold, cough, sore throat, vomiting, diarrhea, boils, cuts, or any other skin disease.		

10 (b) Do they have any toilet facility?

Y/N

10 (c) Do they carry gloves while handling food?

Y/N

10(d) How would you rate the hygiene of the cooks/handler?

1.	Poor	
2.	Fair	
3.	Good	

10 (e) Do you observe any unhygienic practices followed by the food handlers?
if yes, specify

Y/N

11.KITCHEN WASTE DISPOSAL

1	Garbage bins provided?	Y/N
2	Are garbage bins equipped with lids?	Y/N
3	Is garbage lying around in vicinity?	Y/N
4	Are garbage bins cleaned well after they are emptied?	Y/N
5	Is garbage removed from premises at frequent intervals?	Y/N

12. FOOD TRANSPORTATION

12(a) Mode of transporting the food

1	Car	
2	Matador	
3	Van	
4	Others	

12(b) Are the food containers kept in the vehicle covered properly?

Y/N

12(c) Is food compartment of the vehicle clean and dry?

Y/N

12(d) Does any person accompany the packed food in the vehicle?

Y/N

13. FOOD EVALUATION

Key-
Poor-1 Fair-2 Good-3

S.N	Sensory evaluation	Rating
a)	Appearance	
b)	Taste	
c)	Smell	
d)	Texture	
e)	Overall Acceptability	

14.MENU FOR THE WHOLE WEEK

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY

Comments if any :

ANNEXURE V b

SCHOOL LEVEL CHECKLIST

1. General information:

- a) Date of visit
- b) Zone code
- c) School code
- d) Shift
- e) Date of commencement of MDM
- f) Time of receiving food
- g) Total time of food distribution
- h) Menu of the day
- i) Total no. Of children enrolled
- j) Total no. of children present
- k) Principal M/F
- l) Supplier
- m) Has the meal been supplied on the day of visit Y/N

2. DETAILS OF MDM PROGRAMME

2(a) Who is the in charge of receiving the food?

- 1. HM
- 2. Teacher
- 3. Any other

2(b) Where is the food received?

- 1. HM's room
- 2. Corridor
- 3. Classroom
- 4. Courtyard

2(c) What is the approx. quantity of receiving food?

2(d) Are written records maintained daily? Y/N

2(e) What is the format of the record?

3. REGULARITY/PUNCTUALITY OF MDM SUPPLY

3(a) Is the food normally supplied on time? Y/N

3(b) Is the supply of MDM regular? Y/N

3(c) If no, number of days missed in the previous month?

3(d) If no, number of days the supply was delayed in the previous month?

3(e) What was the reason stated by the supplier to in charge for irregularity / delayed supply?

- 1. Bad Weather
- 2. Traffic
- 3. Financial problem
- 4. Supply hurdle
- 5. Combination of above.
- 6. Any other

3(f) Was any prior information given to the HM/ school authority by the supplier regarding his inability to supply MDM? Y/N

3(g) What action was taken by the HM/MDM in charge w.r.t irregular/delayed supply of MDM?

Action taken	Food Missed	Food delayed
1. Tried to contact supplier		
2. Informed higher officials		
3. Both of the above		
4. No action		

3(h) The action taken by the HM/MDM in charge w.r.t children?

1. RTE/fruits distributed.
2. Informed children to bring lunch from home.
3. Informed parents to give their children lunch
4. No action

3(i) Has the food ever returned back? Y/N

3(j) If yes, what was the reason?

1. Food disliked by children.
2. On the basis of poor quality
3. Less quantity of food.
4. Food delayed
5. Combination of above.
6. Any other.

3(k) What is your opinion regarding quantity of food supplied?

1. Adequate
2. Inadequate

3(l) If quantity of food supplied was inadequate, what was the action taken by the HM?

1. Supplier gets more from the kitchen
2. HM and teachers contribute to provide food
3. Supplier gets RTE / fruits
4. No action taken

4. ORGANIZATION OF MDM AT SCHOOL LEVEL

4(a) Is there any committee for MDM? Y/N

4(b) Is there any PTA/committee involved? Y/N

4(c) Is there any senior citizen involved? Y/N

4(d) Is there any health worker involved? Y/N

5. FOOD HANDLING

a) Is the food being distributed by the personnel sent by the food supplier? Y/N/Both

b) If No, who is handling the food?

- I. Teachers
- II. Students
- III. School attendant
- IV. Any other

c) Cleanliness of food handler

Key- 0-N.A Poor-1 Fair-2 Good-3

Check for	FOOD HANDLER 1	FOOD HANDLER2	FOOD HANDLER 3	FOOD HANDLER 4
1 Cleanliness of uniforms/ clothes				
2 Wearing headgears/apron/gloves				
3 Well groomed				
4 Fingernails short and clean				
5 Any observable sign of illness				

d) Overall rating for personal hygiene of the Food Handler.

Poor	1
Fair	2
Good	3

6. CLEANLINESS OF DIFFERENT AREAS

Key: Poor-1 Fair-2 Good-3

	Receiving Area 5(a)	Distribution area 5(b)
1. Clean and dry.		
2. Well Lit/ Ventilated		
3. Insects/pest infestation		
4. Overall Rating of the area		

7. UTENSILS/EQUIPMENT FOR DISTRIBUTION

7(a) Material/metal - Aluminum-1 steel-2 other-3 (specify)

S.No	Name of the equipment used	Material/metal of utensil
I.	Patilas	
II.	Dols	
III.	Plates	
IV.	Drums	
V.	Buckets	
VI.	Ladle	

7(b) Are the containers provided with lids? Y/N

7(c) Rating of cleanliness of the utensils

Poor	1
Fair	2
Good	3

8. FOOD EVALUATION

Key- Poor-1 Fair-2 Good-3

S.N	Sensory evaluation	Rating
f)	Appearance	
g)	Taste	
h)	Smell	
i)	Texture	
j)	Overall Acceptability	

ANNEXURE V c

CLASS LEVEL CHECK LIST

1. SCHOOL-
2. CLASS-
3. DATE-
4. NO. OF CHILDREN ENROLLED-
5. NO. OF CHILDREN RECEIVING FOOD-

5. Time of distribution of MDM for the class being evaluated?

6. What is the total time taken for food distribution for the class being evaluated?

7. Overall rating for cleanliness of children

Poor	1
Fair	2
Good	3

8. In what kind of utensils the food served to children?

- Disposable plates
- Steel plates
- Lunch boxes
- Combination of above
- Any other

9. Do children wash their hands before eating?

Y/N

10. Are the children getting their own utensils from home daily

Y/N

11. Are the utensils washed?

(a) Before

Y/N

(b) After eating food

Y/N/sometimes

12. Amount of food served per child

Key: 20-50g – A, 50-100g-B, 100-150g- C, 150-200g –D, 200-250g – E, 260-300g-F

S.N	Food items	Serving (per child)	Amount in (g)
1			
2			
3			

13. Is the same amount of food served to every child?

Y/N/sometimes

14(a). With what were the majority of children eating the food?

1. Hands
2. Spoons
3. Any other
4. Combination of above.

14.(b) percentage of children eating with spoons

1. 0-25 %
2. 26-50%
3. 51-75%
4. 76-100%

15.

S.N.	Washing area	
1	Adequate space	Y/N
2	Is the space fairly clean	Y/N

16. Is there any food left uneaten by the children?

17. If yes what is done with it

(a) Throw away in dustbins

(b) Packed and taken home

(c) Throw away in open

DRINKING WATER

18 (i) Are they provided with drinking water?

Y/N

(ii) Is the water supply regular?

Y/N

(iii) If yes, then

iv	Source of water 1. Tap 2. Hand pump 3. Tube well 4. Any other	
v	Is it stored	Y/N
vi	Is it kept Covered	Y/N
Vii	How is water drawn from stored container Ladle Glass using bare hands Others	
Viii	Is the water supply adequate for children?	Y/N

19. (a) Do the children bring their own water bottles from home?

Y/N

(b) If yes, the percentage of children bringing water bottles from home

1. 0-25 %

2. 26-50%

3. 51-75%

4. 76-100%

(c) In case of non-availability of water, children have water from

1. Outside the school

2. Share water with friends

3. Any other

ANNEXURE V d

FOCUS GROUP DISCUSSION (TEACHERS)

Number of teachers in the group:

29. What is the percentage of children?

Key: 90- 100% -1 ; 75-90%-2 ; 50-75%-3 ; <50%-4 , none-5

a) Eating MDM regularly

b) Refusing MDM regularly

30. Has the enrolment increased after implementation MDMP? Y/N

31. Has the attendance increased after implementation MDMP? Y/N

32. Has the attention span of the children increased after implementation of MDMP? Y/N

33. Were you informed or sensitized about MDMP? Y/N

34. Are you satisfied with the quality of food served? Y/N

35. Is there any feedback from you to the supplier? Y/N

36. Is MDMP cutting into the studying time? Y/N

37. What is your opinion about RTE and cooked meal ?

	On Prompting	Without prompting
1. Tasty		
2. Nutritious		
3. Variety		
4. Time taken		
5. Satiety		

ANNEXURE V e

FOCUS GROUP DISCUSSION (CHILDREN)

20. Name of the dish, which is liked the most?
21. Name of the dish disliked by the children?
22. Did you have the entire amount of food given to you? Y/N
23. Do you ask for more serving? Y/N
24. Do you eat before coming to school? Y/N
25. Do you eat after going home? Y/N
26. What is the percentage of children?
Key: 90- 100% -1 ; 75-90%-2 ; 50-75%-3 ; <50%-4, NONE-5
- a) Eating MDM regularly
 - b) Refusing MDM regularly
27. What is reason for not eating the food?
- a) They don't have plates
 - b) Social discrimination
 - c) Food is not tasty.
 - d) Parents don't allow having.

28. What is your opinion about RTE and cooked meal?

	On Prompting	Without prompting
1. Tasty		
2. Nutritious		
3. Variety		
4. Time taken		
5. Satiety		