

Faizabad Project Report

Executive Summary

The Swami Sivananda Memorial Institute, New Delhi had organized a two day workshop where the Mid-Day Meal Scheme was comprehensively discussed by experts, administrators and government official, NGOs and others. Recommendations made at this workshop were then validated with experts at IIT Delhi and the Punjab Agricultural University.

With the objective of creating templates for systematic improvement of MDMS, the Department of School Education & Literacy, Ministry of HRD, Govt. of India approved a pilot study to be carried out in two blocks in the Faizabad district, Uttar Pradesh. The blocks selected were Sohawal and Masauda. Baseline survey was conducted in 70 Primary and Upper primary schools representing different strengths of students. Most schools had the strength between 50-100 whereas only a few schools had the strength greater than 200 students.

Framework

The Hon'ble Supreme Court's Judgement of Nov. 2001 read with Schedule II of the National Food Security Act defined the legal status of MDMS as "*Mid-Day meal, in the form of cooked food, having the scheduled calories and proteins, shall be the legal right of the children studying in Govt. and aided Govt. schools*" thereby create a legal entitlement for children studying in Government and Government aided schools.

Most developed countries have laws specifically to regulate school lunch (MDMS) and also to regulate food safety for school lunch. In India there is no legislation that regulates MDMS or food safety for the scheme.

MDMS is an entrepreneurial activity involving transactions worth crores of rupees, but unlike Company Law, Societies and Trusts laws regulating NGOs, MDMS have no provisions for probity and acts of malfeasance.

Multiple agencies hamper delivery of nutrition and health. Nutritional status of a child is determined in the first 1000 days (second birthday). Children suffering from under-nutrition (except extreme cases) could catch up with normal children by the time of admission to school, provided, between the first 1000 days and joining school, a child is subject to scientifically designed stimulation in addition to nutrition. This requires greater working together and convergence between the Ministry of Women and Child Development - ICDS and Ministry of Health and Family Welfare – Child Health and Food Safety and the Ministry of Human Resource Development - MDMS.

MDMS is only a means to an end and cannot be an end in itself, the end being a physically and mentally healthy child. A healthy child should be the yardstick for evaluation of Mid-Day Meals Scheme.

Nutrition

The most obvious conclusion from the Fifth Joint Review Mission (JRM) is that there is no compliance of the MDMS guidelines, either in terms of quantity of cooked food and in terms of nutrition. The worst offenders are the centralized kitchens. In comparison, Faizabad rural schools provide close to the prescribed amount of cooked food. However, they are able to meet only 80 % of the nutrition prescribed.

Within the present cost of conversion, it was possible to achieve improvement in delivery of nutrition with the following steps:

- Standardizing methods of preparation and portion sizes.
- Enable economies of scale.
- Effective monitoring to ensure regular provision of vegetables.
- Training of cooks
- Savings on fuel cost using fuel efficient cook stoves could enrich MDMS.

Survey conducted in Faizabad identified that for a large numbers of children mid-day meal is the first and the main meal in a 24 hour cycle, coming as they do on an empty or near empty stomach to school.

The problem of ensuring delivery of calories and proteins was addressed in Faizabad in two ways:

- Standardizing quantities and processes - SOPs framed for given menu
- Splitting mid-day meal into a of snack and a meal (for 10 days with different snacks)

As a means of dealing with both hunger and nutrition, in one primary school, snack (based on local food habits) was served to the students immediately on arrival at school. Cost of the snack varied from Rs 1.1 to Rs 2. Cost Preparation of a snack did not take more than 10-15 min. Different snacks were tried out on daily basis to provide variety and to judge the cost and ease of preparation.

It is unlikely that a hungry child would be attentive in class and therefore cognition and not mere physical presence needs to be on the policy-makers agenda.

Health

Various nutritional deficiencies affecting the preschool children ranged from 4 percent to 70 percent. Developmental delays are common in early childhood affecting at least 10 percent of the children. These delays, if not intervened timely, may lead to permanent disabilities with regard to cognition, hearing and vision.

Field data in Faizabad (on a random sample from 70 schools) indicated presence of nutritional deficiencies among children. Around 57 percent of children reported ulcers in the mouth, indicating vitamin B deficiency, a high percentage had dental caries. Both these problems restricted consumption of meals leading to more under nutrition status. Other clinical symptoms observed among them were of dry scaly skin, dull thin sparse hair, hair depigmentation, bleeding gums.

Early identification of ailments through child health screening and treatment would achieve efficient and equitable child health care.

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Food Safety

The potential hazards associated with foods can be classified as: Physical- usually foreign objects which have somehow entered the food. Chemical- includes a range of compounds which can include agricultural and cleaning chemicals, naturally occurring toxicants, and allergens. Biological- includes bacteria, parasites and viruses that can cause food-borne illness.

The relationship between food safety and temperature is a critical in regulating food safety. Regulations of most countries require school meals to be kept within safe limits of temperature zone. Cooked food is not allowed to be transported over long distances or kept for long hours except under refrigeration and reheating. Australian School Lunch regulations require that “If perishable food has been in the temperature danger zone (5 to 60 degrees centigrade) for 2 to 4 hours consume it immediately, after 4 hours throw it out.” .

Food safety requires investment in safe water, sanitation and storage and other physical infrastructure. Similarly, there is a need to invest in human resource by:

- a) Creating a cadre of food auditors within MDMS to ensure self-regulation and avoid problems associated with licenses, inspections and encumbrances.
- b) Training of staff of MDMS particularly the cooks.

In Faizabad, samples of raw ingredients and spices, along with water and cooked food were tested by a NABL laboratory against the relevant FSSAI standards. Hand swabs were also tested to study the impact of hand washing.

Human Resource Development

The principle weakness of the MDMS is the lack of professionalization of the Human Resources. Training and capacity building would

- a) Improve efficiency
- b) Minimize the need for monitoring
- c) Enable Mid-Day meal kitchens to be compliant with Schedule II of the Food Security Act and the statutory regulations set by the Food Safety and Standards Authority.

Training of cooks and other functionaries at the delivery end cannot be universalized or taught outside the context in which they function - the systems and facilities of cooking at the village school and the levels of understanding of the cooks must be factored in while designing training programmes. Training has to be in the local language with local idioms and examples with which the women can identify. Handouts should be illustrated.

Under the Faizabad project a draft training manual was used to train cooks and teachers in a few rural kitchens and schools. Based on the experience gained and feedback, modifications were made. The modified manual was used to train trainers (TOT). Training sessions were also held with Pradhans, mothers, members of SMC and others.

Participation of Women

Women from the under-privileged community are dis-empowered. Women are both victims and holders

of the keys to an efficient and effective fight against un-acceptable levels of mal-nutrition. The fundamental challenge is how to give the women from the beneficiary community a critical and pivotal role in the management of MDMS.

Transforming raw material into a cooked meal is a value addition process; therefore providing cooked food under the MDMS is an entrepreneurial activity. An enterprise would survive only if it is both viable and sustainable.

Viability of MDM in rural Faizabad was examined. Based on the average costs given by several village Pradhans and Head Masters and cross checked with the retail price at the village level the actual conversion cost (raw material and fuel, excluding labour) was estimated. For primary classes against the sanctioned conversion cost/ meal of Rs. 3.14 the actual conversion cost/meal in schools with a strength of more than 200 was Rs. 3.75 (increasing as the strength decreases) For upper primary against the sanctioned conversion cost/meal of Rs. 5 the actual conversion cost/meal in schools with a strength of between 50 – 100 was Rs. 5.94. Most rural schools are un-viable.

MDMS guidelines do not allow solutions based on economies of scale (Even if there are two schools - primary and upper primary - within the same compound, guidelines require that two kitchens operate independently). An alternative to make the enterprise viable could be to add external activities like Vegetables grown on a patch of school land and/or milk from cattle rearing, paid for by the Mid-Day Meals Scheme.

Three successful project of women based delivery of public nutrition have been discussed in detail.

- **SSMI's Jehangirpuri Model:** Women based food service model for ICDS and MDMS.
- **Green-House Value addition – Karnataka:** Micro-enterprises like green-house growing value added plants; multi-grain, plates made of dry leaves etc. The women's enterprise spend 5 to 10 % of their income to provide vegetables to the MDM kitchens at the rate of 50 grams per child.
- **NDCC under SERP – Andhra Pradesh:** Self Help Groups (SHG) are federated at village as Village Organizations (VO), Mandal as Mandal MahilaSamakhya (MMS) and district as ZillaSamakhya (ZS). Through this structure women, as a collective, participate in providing cooked food to improve perinatal and neonatal outcomes

Women's participation in MDMS cannot be achieved through the instruments of Government Orders (G.O.s) and guidelines. MDMS should on an experimental basis explore bold, difficult and untried alternative methods as part of the existing schemes like: **Aajeevika** and **Kudumbashree Projects**.

Community Participation and Campaigns

The beneficiaries are the least empowered, generally children of the landless labour. Therefore, even if a School Management Committee exists, the social, economic and political status of the parents renders participation mere tokenism. There is a gross imbalance in the power equation, leaving little scope for negotiations.

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Another major problem is that no economic transaction takes place between the community and the MDMS. Food grain is “*parachute dropped*” into the village. Farmers grow maize or barley but their children's meals are not a market for them. There is a need to do agro-climatic mapping - identify agricultural produce - design menus that link farmers with the MDMS and ICDS.

The objective and purpose of community participation should be to

- Improve reach,
- Enhance access and coverage,
- Provide quality services,
- Address synergistic interventions

The starting point has to be awareness building through campaign. It is necessary to transform public nutrition schemes into a people's movement and make all the linkage clear and transparent through mass campaign. Campaigns need to be designed to meet the specific needs of various levels National level; State/District Level; Village Level. Each level should have - campaign Messages; campaign structure and format. Faizabad project's campaign “*Sehatmand Ho Apna Jahan*” was successful in creating awareness regarding the Mid-Day meal Scheme and nutrition.

Improved Kitchen Design and Zero Energy Cool Chambers.

The designs of kitchen based on the Govt. of India and Govt. of U.P guidelines are more suitable for using LPG, whereas school based kitchens in Faizabad use firewood. Data showed that:

- 78 % of the schools had pucca sheds, some schools use classrooms as kitchen due to less work space.
- 50% of the kitchens did not have any racks or shelves to store spices and utensils.
- In 17 schools (out of 70 studied) cooking was carried out in open.
- 47 % of the kitchens had problem of ventilation and light.
- Only 9 % of kitchens had a defined washing area. The concept of separation of food and non- food storage did not exist.
- Only 25 % kitchens were using a store rooms for storage of grains. There were no proper storage for kitchen utensils

To improve the storage of vegetables, Zero Energy Cool Chamber designed by IARI was modified to suit local conditions and reduce the cost. A Cool Chamber was successfully set up in a school.

Fuel efficiency and energy conservation

Assuming that only half to three fourth of quantity prescribed in the guidelines are actually cooked and given to the 120 million children (covered under MDMS) simple arithmetic suggests that about 24,000 tons of food is cooked every day. Almost 80 to 90 percent of the cooking is done on a three stones and a vessel conflagration using fire wood, with a

thermodynamic efficiency between 8 to 10 % depending on the calorific value and moisture content of the firewood. This is a major ecological crisis.

Fuel economy (i.e., the fuel cost per meal per student) is dependent on a combination of several factors such as type of stove, quality of fuel wood (type, size, moisture content, etc.), skill of the cook, and the matching of the cooking vessels with the stoves.

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Several such factors need to be examined before “cooking solutions” can be prescribed for a school. The term “*cooking solutions*” would imply: *Optimal technological and fuel efficient solutions to produce nutritious and safe food, in a safe and healthy cooking environment*” There should be a system of district mapping to determine the most efficient fuel- energy cooking solution for the schools in the district.

In Faizabad, two high efficiency cook stoves - forced draft and natural draft were tested in two schools. The cooks were trained and were comfortable with using the stoves. The stoves not only improved the efficiency and thereby saved fuel but also reduced the cooking time. Savings on fuel was used to enrich the mid-day meal. However, the cost of the cook stoves running into thousands of rupees inhibits replication.

Kitchens are not well ventilated consequently smoke endangers the life and health of the cooks. Carbon Monoxide in the smoke is poisonous. Providing a smokeless environment, to the lowly paid cooks, is a statutory obligation of MDMS - fundamental right to life, guaranteed under Article 21 of the Constitution of India.

Specifically for MDMS (based on size of vessel, process of cooking and other considerations) smokeless chullahs were designed by TIDE Bangalore. The cost of the chullahs was around Rs. 3000 (including the cost of labour). Half the cost was bricks, mud and other locally available material. Experts from TIDE came to Faizabad and trained a group of six local illiterate women. Using the TIDE moulds, smokeless chullahs were fabricating and tested in two schools. Subsequently, the trained women’s group successfully fabricated, without supervision, ten more chullahs. A women’s micro-enterprise, creating livelihood for a small group of women, could be set up in every taluka/ tehsil/mandal. Every panchayat could provide funds from within its budget.

Corrective mechanism

There is need for institutional arrangements both at the national and the local level. This does not imply creating of a plethora of institutes across the country. What is suggested is a mechanism that can pool together scientific, technological, managerial and communication solutions and to disseminate the solutions through the existing public funded institutions.

A Center for Delivery of Cooked Food and Nutrition (CDCFN) to apply S&T and Social Science to find solutions to problem related to public nutrition schemes (ICDS +MDMS) has been suggested. Templates need to be prepared in various areas, like standard operating procedures for cooking, food safety, and fuel efficiency; develop campaigns for greater involvement of the community and design the agenda for transforming MDMS into micro-enterprise run by women. These generic designs should then be trans-created for local application by public funded institutions like Home Science/ agricultural institutions, KrishiVigyanKendras etc.

Reorienting MHRD designated monitoring institutions is important given the extent of non-compliance of guidelines in delivery of cooked food and nutrition as well as gaping holes in critical areas like food safety calls. Joint Review Missions need to be better designed with standard procedures and protocols to make them more comprehensive and enable comparisons between states.

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Summing up

Flagged below are the most important fault lines that require the attention:

- **Recognize and accept** that MDMS is only a means and not an end in itself. Undeniably the end can and should only be a healthy child. Without proper support structures it is not possible for rural schools to provide safe and nutritious food or provide smokeless and healthy working conditions for the cooks.
- **Ensure** delivery of nutrition in compliance with Schedule II of NFSA. This requires complete overhaul of menu planning, induction of local foods and recipes, splitting of Mid-Day meals into a snack and a meal.
- **Comply** with food safety laws and regulations particularly in urban areas. Creating a self-regulatory mechanism through trained cadre of food safety auditors.
- **Address** an ecological crisis caused by thousands of tonnes of firewood burnt every day at thermodynamic efficiency of less than 10. Ensuring a safe and smoke free environment for the cooks.
- **Transform** a huge army of illiterate, untrained, underpaid women into professionals through proper training and capacity building schemes.
- **Create** participatory role for the community to understand the importance of nutrition in the growth of their children. An enabling environment that directly involves women (with a supportive role of men) and a need for a paradigm shift in favour of greater procurement processes involving farmers and service provision of MDM through women enterprise.