

Naandi Foundation's Centralized Kitchens for Midday Meal Programme

Naandi Foundation has pioneered one of the most effective ways to operationalise the Midday Meal (MDM) programme by setting up **centralized kitchen** in an 'urban' or a 'peri-urban' region having a relatively high density of population and schools. The centralized kitchen offers the benefits of cooking the meal in 'food-grade' quality vessels under strict supervision in a safe environment ensuring hygienic standards and provision of nutritious and uniform quality of food to a large number of children. The centralized kitchen is a factory-like setting, which optimizes automation in the entire process and is able to achieve economies of scale. Further, the transport of food is closely monitored and delivered to the schools at the stipulated time.

Background

"Schooling can be a major possibility of nourishment and the food reaches exactly where you want it to reach" - Amartya Sen

Approximately 60 million children are under weight in India. Given its impact on health, education and productivity, persistent under-nourishment is a major obstacle to human development and economic growth in the country, especially among the poor and the vulnerable, where the prevalence of malnutrition (a key cause for stunted growth, muscle wastage and anaemia) is highest. The economic and mortality consequences of malnutrition in developing countries are staggering. According to Pelletier et al, 54% of child deaths in developing countries are attributable to malnutrition, the single greatest cause of child mortality.

According to the National Nutrition Monitoring Board Survey (2000), 70% of the children dropping out of school in India are undernourished. Poor enrolment and high drop out rates are attributed to the poor nutritional status of the children compounded by poor socio-economic conditions. Various studies conducted on the issue show that children's nutritional standards have a direct bearing on their learning abilities.

In this context, Honorable Supreme Court of India issued a directive on November 28, 2001 to all the State Governments to introduce a 'cooked midday meal in schools' in response to which all states have adopted various strategies of implementing the midday meal.

Naandi's rationale for having a centralized kitchen

The mandate of the Supreme Court clearly spells out that 'cooked midday meals' are a necessary component for the drive towards *Universalisation of Education*. Naandi recognizes that children cannot study on a hungry stomach. To retain a child who has made the effort of enrolling and coming to school, addressing the basic nutritional need is important. And this can be done by providing her with one wholesome meal a day free of cost.

The centralised kitchen model offers the benefit of preparing a cooked meal under strict supervision in a safe environment ensuring hygienic standard and provision of quality food to a large number of children in time. This model addresses the challenges of poor infrastructure, susceptibility to fire accidents and drain on teaching time faced by schools by attempting to prepare the meal themselves. Another feature of this centralized kitchen model is the use of technology to maximize efficiency and minimize cost, time and labour. At Naandi Foundation, therefore, the centralized kitchen is seen as the solution to the challenge of providing mid-day meals to the children attending government schools.

Naandi Foundation's MDM programme as it stands today

Andhra Pradesh:

Following an MOU with the Government of Andhra Pradesh in 2003, Naandi built its first centralised kitchen at Uppal in Hyderabad (spread over 2 acres with built up area of 14,000 sq ft), which supplies high-nutrition mid day meals with a minimum of 500 calories per child per day to 964 schools in **Hyderabad and Secunderabad**, feeding 106,000 children each day. This kitchen in Hyderabad is probably the world's largest for children and has supplied over **70 million meals** till now, without a single complaint or delay in delivery. Schools have been energized, attendance rates have gone up and communities have become more engaged in schooling thanks to this unique "ban hunger from school" program.

The Government of Andhra Pradesh invited Naandi to set up another kitchen in **Vishakhapatnam** in 2004, to provide nutritious meals to 35,450 children studying in 110 government schools every day.

Madhya Pradesh:

In 2005, Naandi entered Madhya Pradesh to provide nutritious meals to 57,000 government school children in **Jabalpur**, 72,000 in **Bhopal** and about 50,000 in **Indore**. In kitchens in Andhra Pradesh, Naandi was preparing rice based meals. In Madhya Pradesh, a state where both rice and chapatti are the staple diet, the Naandi team had to engage in considerable research and development to introduce the large scale roti making machine, which rolls out 10,000 rotis every hour, in the centralized kitchens.

Rajasthan:

In October 2005, Naandi signed MoU with the Government of **Rajasthan** and has since then, rolled out centralised kitchens in 10 cities, currently feeding 308,000 government school children everyday.

Orissa:

In December 2008, Naandi entered into an MoU with Government of Orissa and then rolled out a centralized kitchen in Brahmpur in Ganjam district and Kalahandi districts.

Chhattisgarh:

In May 2009, Government of Chhattisgarh has invited Naandi to implement the same program in Korba and the implementation has started in the academic year 2010-11

Today, Naandi is providing nutritious mid-day meals to more than a million hungry school going children every day.

Description of equipment & operations

The primary activity of a centralised Mid Day Meal kitchen is the preparation and delivery of rice or rotis (100 grams before cooking) and *sambar/dal/vegetable curry* (150 ml) to every child enrolled in Government and Government-Aided Schools in the designated area. The nutritive value of the meal as prescribed by Supreme Court is 450 Kcalories, 12 gms of protein and adequate quantities of micro nutrient - iron folic acid and vitamin A. The food is delivered to the government schools between 09:30 am and 12:00 pm on all working days. While the government supplies the required quantity of rice/wheat free of

cost, other food items like salt, dal, oil and vegetables are procured from open market at market costs.

The following steps are undertaken in the setting up a centralized kitchen

Land & Building:

The kitchen is located in an industrial shed in a logistically strategic location in a large area which is divided into Cooking Area, Material Cleaning and Processing Area, Material Go-down, Steam Generation Area, Washing Area, Dockyard, Staff Quarters, Administrative Block, Transport Bay and Security.

Acquisition of Plant, Machinery / Equipment:

The following equipments are acquired for the centralized kitchen:

- Stainless steel vessels, trays, trolleys for drying, cooling and loading;
- 'Food-grade' HDPE & stainless steel distribution containers for distribution;
- Boilers generating steam at temperatures above 180 centigrade;
- Back-up generators;
- Rice de-stoning machine;
- High speed vegetable cutters;
- Pulverizing machines for making in-house mixtures;
- High speed automatic washing scrubbers for dish washing;
- High speed automatic washing scrubber for floor cleaning;
- Diesel tanks;
- Water tanks;
- Water softening plant;
- Testing Laboratory
- Industrial Roti Machine
- Vegetable cutting machine
- The rice de-stoning machine

Staff description:

- Works managers
- Cooking staff headed by a chief cook
- Safety and Maintenance staff

- Quality Control Inspectors
- Boiler operators
- Loading & distribution supervisors
- Project accountant
- Distribution coordinators
- Cook helpers, loading helpers, cleaning, washing staff
- Security staff

Logistics management:

Fleets of vehicles are hired to transport food along pre-determined routes. There is also a transportation expert who lays down plans for efficient and cost-effective distribution of the meals to schools across the city. These plans are based on locating schools through the satellite GPS (Global Positioning System).

The cooked meal is packed into stainless steel containers and loaded into the trucks, delivered to the government schools at the stipulated time, usually between 09:30 am and 12 noon. At the school, when the cans are delivered at a particular school, the driver gets the 'truck sheet's signed by the teacher-in-charge, certifying the quantity and quality of the food. The truck then picks up the empty cans on its way back to the centralized kitchen.

Procurement of raw material:

The government provides rice from the godowns of Food Corporation of India (FCI); pulses and vegetables are sourced from wholesale dealers. At the Hyderabad kitchen, three tonnes of pulses and six tonnes of vegetables are used every day. While these are procured from the open market keeping cost and quality in mind, power and water connections are provided by the government making programme truly public-private in nature. Health Inspectors from the department of health visits the centralized kitchens to monitor the quality of the food prepared on a regular basis. Department of education of each state where Naandi is operating Mid day Meal programme takes feedback from the schools through Mandal Education Officers or Block Development Officers on monthly basis to check the delivery mechanisms and quality of the Mid Day Meal supplied by Naandi