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Government of India
Ministry of Human Resource Development
(Department of School Education & Literacy)
MDM Division
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New Delhi, 13th February, 2015

To

Principal Secretary/Secretary of Nodal Department for National Programme of Mid Day Meal in Schools (NP-MDMS) of all the States/UTs

Subject : Guidelines on Food Safety and Hygiene for School Level Kitchens under Mid Day Meal Scheme - regarding

Sir/Madam,

The Guidelines on Food Safety and Hygiene for School Level Kitchens finalized in pursuance of the decision taken by the Empowered Committee in its meeting held on 15.10.2014 are enclosed. These broad guidelines have been formulated with an aim to help the States and the UTs to focus more intensively on the safety aspects of procurement, storage, preparation, serving, waste disposal of food items as well as issues of personal hygiene of students and those involved in cooking and serving of food.

2. In order to effectively implement these guidelines, the States and UTs will need to develop their own standard operating procedures and undertake training of the officials including Cook-cum-Helpers and members of School Management Committees on a continuous basis.

Yours faithfully,

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GUIDELINES ON FOOD SAFETY AND HYGIENE FOR SCHOOL LEVEL KITCHENS UNDER MID-DAY MEAL (MDM) SCHEME

ABBREVIATIONS

AGMARK : Agriculture Grading and Marketing

CCHs : Cook- cum Helpers

CSIR : Council of Scientific and Industrial Research

DFS : Double Fortified Salt

FAQ :Fair Average Quality

FCI : Food Corporation of India

FEFO : First Expire First Out

FIFO : First in, First Out

FSSAI : Food Standards and Safety Authority of India

ISI : Indian Standards Institute

KS : Kitchen cum Store

LPG : Liquefied Petroleum Gas

MDMS : Mid-Day Meal Scheme

NABL: National Accreditation Board for testing and calibration Laboratories

PDS : Public Distribution System

RTE : Right to Education

SHGs: Self Help Groups

SMC: School Management Committee

STC: Special Training Centre

WASH: Water Sanitation and Hygiene

WHO: World Health Organization |

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1. FOOD SAFETY AND HYGIENE

1.1 Introduction

Mid-day Meal (MDM) scheme is a Centrally Sponsored Scheme which serves hot cooked mid-day meal to school children studying in Classes I-VIII of Government, Government-aided schools, Special Training centres (STC) and Madarasas and Maktabs supported under the Sarva Shiksha Abhiyan. The MDMs guidelines envisage to provide cooked mid-day meal with 450 calories and 12 g of protein to every child at primary level and 700 calories and 20 g of protein at upper primary level. This energy and protein requirement for a primary child comes from cooking 100 g of rice/flour, 20 g pulses and 50 g vegetables and 5 g oil, and for an upper primary child it comes from 150 g of rice/flour, 30 g of pulses and 75 g of vegetables and 7.5 g of oil.

The mid-day meal should contain adequate nutrients and should be, palatable, hygienic, and operationally feasible. These food safety guidelines are for school level kitchens only, where the mid-day meal is cooked for children. Quality assurance of mid -day meal and food safety should be an integral part of food handling procedures at the school kitchen. The food provided through these kitchens should be nutritious, free from food adulterants, contamination pathogens, artificial non food grade colours, and additives and adhere to food safety and quality norms.

Food safety encompasses selection, handling, preparation, and storage of food in ways that prevent food borne illness and contamination. This includes a number of routines that should be followed to avoid potentially severe health hazards

Food contamination refers to the presence in food of harmful chemicals and microorganisms which lead to illness. The types of contaminants can be categorised as under:

a) **Biological contaminant**: includes bacteria, yeasts, molds, viruses or parasites that are present in air, food, water, soil, animals and humans etc.

b) **Physical contaminant**: Foreign bodies in food are usually due to accidental contamination and / or poor handling practices these are visible particles like pebbles,

stones, metal, glass, wood, insects, soil, dirt, jewellery, hair, fingernails sneezing and coughing etc.

c) **Chemical contaminant**: Includes Chemicals used for cleaning and sanitizing food contact surfaces; Pest control chemicals, paints and water treatment chemicals; Pesticides, fertilizers, fungicides.

1.2 Lifting and transportation of food grains

i. As mandated under MDM scheme, food grains are provided by Food Corporation of India. Food grains are to be allocated bi-annually by the Department of School Education & Literacy with the concurrence of Department of Food and Public Distribution for primary and upper primary school level separately. FCI is to ensure continuous availability of adequate quantity of food grains, which will be in any case not less than of Fair Average Quality (FAQ) in its Depots. FCI will appoint a Nodal Officer for each State to take care of various problems in supply of food grains under the scheme.

ii. The sample (in triplicate) of stocks proposed to be lifted will be drawn jointly in the presence of the representatives of the Collector and/or Chief Executive Officer, District Panchayat and the FCI and the sample slips will be jointly signed and sealed. One such sealed sample will be given to State Government representative, one will be sent to FCI District Office and one will be retained at the depot.

iii. Samples of lifted food grains shall be retained for 3 months in token of quality of grains received from FCI. In case any complaint of low quality of food grains is received within this period, these samples can be used to ascertain the veracity of the complaint

iv. The guidelines relating to lifting and transportation of food grains are based on the guidelines issued by MHRD vide letter no F.1-15/2009 – Desk (MDM) dated 10th February, 2010.

1.3 Procurement of oil, pulses and condiments

i. Only packed dals, salt, spices, condiments and oil with AGMARK quality symbol should be purchased. Any ingredient being sold loose should never be bought. The packaging and expiry date of the ingredients should be checked.

ii. Only "double fortified salt" should be used for cooking mid day meals. Food grains should be stored in standard bins while, plastic food grade containers are ideal for storage of dals, spices, condiments and other ingredients.

1.4 Procurement of perishable raw material

i. Vegetable, fruits and perishable food commodities should be procured fresh and storing for longer time/duration should be avoided.

ii. Perishable items should not be stored in plastic bags as these get spoilt quickly due to lack of transpiration. Such items have to be stored away from sunlight, in a cool place.

iii. Zero energy cool chambers are a low cost alternative to store horticulture produce. This is an on-farm storage chamber, for fresh fruits, vegetables to extend their marketability. Due to their high moisture content fruits and vegetables have very short life and are liable to spoil. The zero energy cool chambers can be constructed easily with materials like brick, sand, bamboo, khas khas/straw, gunny bag etc. The chamber can keep the temperature 10-15 ^{0} C cooler than the outside temperature and maintain about 90% relative humidity. It is most effective during the summer.

iv. Storage of raw materials, ingredients should be subject to FEFO (First Expire First Out) or FIFO (First in, First Out) stock rotation system as applicable. Containers made of non-toxic materials should be provided for storage of raw materials. The food materials shall be stored on racks / pallets such that they are reasonably well above the floor level and away from the wall so as to facilitate effective cleaning and prevent harbouring of any pests, insects or rodents.

v. No raw material or ingredient should be accepted if it is known to contain parasites, undesirable micro-organisms, pesticides, veterinary drugs or toxic items, decomposed or extraneous substances, which would not be reduced to an acceptable level by normal sorting and/or processing.

vi. All raw materials, food additives and ingredients, wherever applicable, should conform to all the regulations and standards laid down under the relevant laws.

vii. All raw materials should be physically checked & thoroughly cleaned. Raw materials should be purchased in quantities that correspond to storage/ preservation capacity. Packaged raw material must be checked for 'expiry date'/ 'best before'/ 'use by' date, packaging integrity and storage conditions.

1.5 Storage of raw material

i. The supply of food grains like wheat and rice should not be stored for more than a quarter; they may be stored in airtight bins or stacked neatly in gunny bags or bins

and stored in area free of rodents and insects. Food grain should not be stored directly on the ground; a wooden plank should be used for stacking of food grains.

ii. In respect of storage of other raw materials, it should be stored in bags, should be away from the walls (about one feet) to avoid absorption of moisture; the height of the wooden plank may be at least 8 to 12 cms above the floor.

iii. Ingredients like double fortified salt, condiments, oils soya bean, pulses etc. should be stored in airtight containers.

iv. All containers should be of materials that do not impart toxicity to food. These containers should be cleaned at regular intervals and thoroughly dried before use. It should be ensured that ingredients used for cooking such as food grains, pulses, vegetables, cooking oil and condiments, are free from adulteration, contaminants, pest and infestation.

v. All stored raw materials and ingredients must be kept under dry and cool and ventilated conditions that will prevent spoilage, protect against contamination by pathogenic microorganisms, insects, rodents, foreign bodies, chemicals and damage. This implies that food and non-food materials should not be stored in the same area and not all food materials can be stored together because of risk of contamination.

vi. Storage of fuels, disinfectants, detergents, cleaning agents should be strictly away from the stored raw materials and under lock and key.

1.6 Food Safety Measures:

1.6.1 Food Safety measures during preparation

i. The cereals and pulses should be manually cleaned before cooking to remove any extraneous matter.

ii. **'Single Dish Meals'** using broken wheat or rice and incorporating some amount of a pulse or soya beans, a seasonal vegetable/green leafy vegetable, and some amount of edible oil will save both time and fuel besides being nutritious.

iii. Cereal pulse combination is necessary to have good quality protein. The cereal pulse ratio could range from 3:1 to 5:1.Sprouted pulses have more nutrients and should be incorporated in single dish meals.

iv. Leafy vegetables when added to any preparation should be thoroughly washed before cutting and should not be subjected to washing after cutting**.**

v. For chopping vegetables a clean chopping board should be used.

1.6.2 Food Safety Measures during Cooking

i. Recipes requiring fermentation and sprouted pulses lead to increase in nutrition value and accordingly should be considered as an option in the menu.

ii. Cooking must be done with the lid on to avoid loss of nutrients and contamination.

iii. The containers should be checked for its cleanliness.

iv. Temperature of the mid-day meal when served should be maintained at 65°C. Microorganisms multiply at a fast pace when the food is kept at temperature between 5°C and 60°C which represents the danger zone due to thermophilic and thermoduric nature. Therefore, food should be served to children immediately after being cooked.

v. Vegetarian and non-vegetarian items should be segregated. Fridge wherever available should be cleaned at least once a week to remove stains, ice particles and food particles. The temperature in the fridge should be in the range of 4°C - 6°C

vi. Requisite number of CCHs should be deputed at school level for the distribution of food from centralized kitchen for the distribution of mid-day meal with proper gear (gloves, apron and caps etc).

vii. The school management should be encouraged to draw on the support of the community. Gram Panchayats and School Management Committees/Village Education Committees may be approached for involving community members in regular inspections, on a rotation basis, to help the school management in ensuring efficient quality cooking, serving and cleaning operations. Support of the community members, including mothers' groups, should also be solicited to ensure that children wash their hands with soap before eating, use clean plates and glasses, avoid littering and wastage of food, and rinse their hands and mouth after eating.

1.7 Tasting of the mid-day meals by teacher

The tasting of the food by a teacher just before serving is mandatory. The teacher is to maintain a record of tasting in a register. SMC member should also taste the food on a rotation basis along with the teachers before it is distributed to the children.

1.8 Testing of mid-day meal

The States/UTs must consider engaging CSIR Institutes / NABL accredited laboratories and FSSAI accredited laboratories for undertaking testing of samples of MDM for food safety and contamination (microbial and chemical).

1.9 Cleaning of cooking areas

i. The floors of kitchen and the slabs should be cleaned every day before and after the food is cooked. Special attention should be paid to the cleaning of obstructed sites including cooking areas and at the junction of floors and walls.

ii. The cooking areas must be kept cleaned at all times. It is important that surfaces in direct contact with food must be both clean and dry before use. Cracks, rough surfaces, open joints etc. must be repaired as soon as possible.

1.10 Cleaning of utensils, equipments and other materials

i. Cleaning accessories such as cloths, mops and brushes carry a very high risk of cross contamination. They must therefore be thoroughly washed, cleaned and dried after use. Cleaning accessories used in the cooking area/packing area should not be used in other parts of the kitchen. Sun drying of the cleaning accessories in a clean and tidy place should be done.

ii. Tables, benches and boxes, cupboards, glass cases, etc. shall be clean and tidy. Cooking utensils and crockery should be clean and in good condition. These should not be broken/ chipped.

iii. Utensils should be cleaned of debris, rinsed, scrubbed with detergent and washed under running tap water after every operation. Wiping of utensils should be done with clean cloth. Clean cloths should be used for wiping hands and for clearing surfaces. Cloth used for floor cleaning should not be used for cleaning surfaces of tables and working areas and for wiping utensils. Dust or crumb from plates or utensils should be removed into dustbin by using cloth or wiper.

iv. Assessories and containers that come in contact with food and used for food handling, storage, preparation and serving should be made of corrosion free materials which do not impart any toxicity to the food material and should be easy to clean and /or disinfect.

v. Equipment and utensils used in the preparation of food should be kept at all times in good order and repair and in a clean and sanitary condition. Such utensil or container should not be used for any other purpose.

vi. Every utensil or container containing any food or ingredient of food should at all times be either provided with a properly fitted cover/lid or with a clean gauze net or other material of texture sufficiently fine to protect the food completely from dust, dirt and flies and other insects.

1.11 Personal hygiene, cleanliness and health checkups of Cook cum Helpers

i. Cooks and helpers should maintain a high degree of personal hygiene and cleanliness.

The person suffering from infectious disease should not be permitted to work. Bi-annual health checks up should be undertaken to ensure fitness for the job of CCH. Cooks/helpers should report immediately to their supervisors, if they are suffering from any disease likely to be transmitted via food, e.g. diarrhoea or vomiting, infected wounds like, skin infections, jaundice or sores.

ii. All food handlers should remain clean, wear washed clothes and keep their finger nails trimmed, clean and wash their hands with soap/ detergent and water before commencing work and every time after touching, raw or contaminated food or using toilet. All Cook cum helpers should avoid wearing loose items that might fall into food and also avoid touching or scratching their face, head or hair.

iii. It should be ensured that all CCHs are instructed and trained in food hygiene and food safety aspects along with personal hygiene requirements commensurate with their work activities, the nature of food, its handling, preparation, service and distribution.. Training programmes should be regularly reviewed and updated wherever necessary.

iv. Nail polish or artificial nails should not be worn because they can become foreign bodies and may compromise on food safety. No watches, rings, jewellery and bangles should be worn during cooking, serving and distribution where there is a danger of contamination of product.

v. Chewing, smoking, spitting and nose blowing should be prohibited within the premises especially while handling food.

vi. The CCHs should have adequate and suitable clean protective clothing, head covering hair should be tied up neatly and ensured that the CCHs at work wear only clean protective clothes and head covering essentially during MDM operation.

vii. The CCHs should wash their hands at least each time work is resumed and whenever contamination of their hands has occurred; e.g. after coughing / sneezing, visiting toilet, using telephone, smoking etc; avoid certain hand habits - e.g. scratching nose, running finger through hair, rubbing eyes, ears and mouth, scratching beard, scratching parts of bodies etc.- that are potentially hazardous when associated with handling food products, and might lead to food contamination through the transfer of bacteria from the employee to product during its preparation. When unavoidable, hands should be effectively washed before resuming work after such actions.

1.12 Pest Control

i. Cleanliness is essential for effective control of all pests (mainly rodents, birds, and insects). Wire mesh screens, for example on open windows, doors and ventilators,

will reduce the problem of pest entry.

ii. Generally no pesticides/insecticides should be encouraged or used in cooking area. However if unavoidable, care must be taken to protect people, food, equipment and utensils from contamination before these are applied. Pesticides should always be kept in its original containers, clearly marked and be stored in a locked storage separate from cooking ingredients storage areas. Records of pesticides / insecticides used along with dates and frequency should be maintained.

iii. Kitchen and the store area should be kept clean and tidy to prevent pest access and to eliminate potential breeding sites. Holes, drain covers and other places where pests are likely to gain access should be kept in sealed condition or fitted with mesh / grills / claddings or any other suitable means as required and animals, birds and pets should not be allowed to enter into the food storage and cooking area. The school maintenance grant made available under the Sarva Shiksha Abhiyan may be used for this purpose.

iv. Adequate arrangements including installation of fire extinguishers should be made to deal with incidents of accidental fire in the kitchen area of the school.

2. HAND-WASHING FOR CHILDREN

i. There should be a dedicated time within the daily time table that will allow enough time for all children, cooks and teachers in the school to wash their hands with soap. The hand washing of the children should be supervised and monitored vigorously .

ii. Hand wash with soap before and after eating should be vigoursly promoted. The schools may define an area for hand washing where very simple scalable and cost effective multiple hand washing facilities can be installed to be used by large groups of children at a time.

Empty plastic bottles can be filled with liquid soap and diluted with water. 20-30 plastic bottles filled with diluted hand wash liquid can be used for approximately 200 children for hand washing.

iii. Wherever proper hand washing facilities are either not available or inadequate for all children, buckets and mugs can be used to supplement the available facilities.

3. INFRASTRUCTURAL REQUIREMENTS FOR FOOD SAFETY AND HYGIENE

3.1 Guidelines for Safety and hygiene of Kitchen-cum-Store

i. The Kitchen cum Store should be located in a clean and open place and free from filthy surroundings and should maintain overall hygienic environment.

ii. The premises should be clean, adequately lighted and ventilated and have sufficient free space for movement.

iii. Floors, ceilings and walls must be maintained in a sound condition. They should be smooth and easy to clean with no flaking paint or plaster.

iv. The floor and skirted walls should be washed as per requirement with an effective disinfectant. The premises should be kept free from all insects. No spraying should be done during the cooking of Mid Day Meal, but instead fly swats/ flaps should be used to kill flies getting into the premises. Windows, doors and other openings should be fitted with net or screen, as appropriate to make the premise insect free. The water used in the cooking shall be potable.

v. Continuous supply of potable water should be ensured in the premises. In case of intermittent water supply, adequate storage arrangement for water used in food or washing should be made.

vi. Arrangements for cleaning of containers, tables, working parts of machinery, etc. should be provided.

vii. All utensils should be kept clean, washed, dried and stored at the Kitchen cum store to ensure freedom from growth of mold/ fungi and infestation.

viii. All utensils should be placed well away from the walls to allow proper inspection.

ix. There should be efficient drainage system and there should be adequate provisions for disposal of refuse.

x. Potential sources of contamination like rubbish, waste water, toilet facilities, open drains and stray animals should be kept away from kitchen.

xi. Kitchen should be separate from classrooms, preferably located at a safe, but accessible distance. The current norm for a kitchen shed is 20 sq.m of floor space for every 100 children enrolled and thereafter 4 sq. m for every additional 100 children.

xii. As far as possible, the layout of the Mid day Meal kitchen should be such that food preparation/processes are not amenable to cross-contamination from washing vegetables/cereals/Pulses/ etc). Floors, ceilings and walls must be maintained in a sound condition to minimize the accumulation of dirt, condensation and growth of undesirable molds.

xiii. Floors should be sloped appropriately to facilitate drainage and the drainage should flow in a direction opposite to the direction of food preparation. Adequate control measures should be in place to prevent insects and rodents from entering the processing area from drains. Windows, doors & all other openings to outside

environment should preferably be covered with wire-mesh or insect proof screen as applicable to protect the premise from flies and other insects / pests / animals.

xiv. Ventilation systems natural and /or mechanical including air filters, exhaust fans, wherever required, should be designed and constructed so that air does not flow from contaminated areas to clean areas.

xv. A display board mentioning do's & don'ts for the CCHs should be put up inside at a prominent place in the premise in local language for everyone's understanding.

xvi. Properly constructed chimneys are required in the kitchens. Chimneys should not be the entry point of insects; reptile's etc. Fuel (kerosene/fuel wood/ charcoal/LPG) should be stored/installed safely, so that there is no fire hazard. Smokeless chulhas should be used to the extent possible. The Kitchen should have full visibility with sunlight or artificial light.

xvii. If kerosene/gas is used for cooking, the CCHs should be specifically trained in safe handling of stoves, gas cylinders, etc. Raised platform for cooking, adequate light, proper ventilati***o***n and arrangement for drainage and waste disposal. The dustbin should have a lid and should be always covered.

xviii. The Right to free and Compulsory Education (RTE) Act 2009 provide the legal framework for the quality education in India and mandates minimum norms and standards for infrastructure in schools including kitchen cum store .

3.2 Water supply

i. Continuous supply of potable water should be ensured in the premises. In case of intermittent water supply, adequate storage arrangement for water used in food or washing should be made. Water used for cleaning, washing and preparing food should be potable in nature.

ii. Water storage tanks, if available, should be cleaned periodically and records of the same should be maintained. Non potable water can be used provided it is intended only for cleaning of equipment not coming in contact with food.

iii. Non potable water pipes should be clearly distinguished from those in use for potable water.

3.3 Testing of Water

In the kitchens of Mid-day Meal bore water/tap water/hand-pump water is being used (in general) for cooking, drinking and washing. Water needs to be tested for chemical as well as microbiological contamination. The testing of water can be done in

convergence with the concerned water supply/Public Health Engineering departments of the States/UTs.

3.4 Drainage and Waste Disposal

i. Adequate drainage, waste disposal systems and facilities should be provided and they should be designed and constructed in such manner so that the risk of contaminating food or the potable water supply is eliminated. Waste storage should be located in such manner that it does not contaminate the food process, storage areas, the environment inside and outside the kitchen and waste should be kept in covered containers and removed at regular intervals. Periodic disposal of the refuse/ waste should be made compulsory.

ii. Waste material generated during the cooking of food should be kept in a separate container of adequate size with a proper cover preferably one which need not be touched to open should be provided in the premises for collection of food waste material. This should be emptied and washed and dried daily before next use.

3.5 Food serving area

i. If the meals are served in a dining room, or school veranda/class room or a hall in the schools, this should be spacious enough, well ventilated and with windows having wire mesh. The room should be cleaned every day before the school starts functioning.

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