UNIT 24 FOOD AND NUTRITION

Structure

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24.0 OBJECTIVES

After studying this unit, you will be able to:

- explain the various components of balanced food;
- highlight the importance of nutritious food;
- describe the methods of collection and storage of food;
- explain the methods for food distribution and
- highlight the sanitary equipments during mass feeding in the wake of disasters.

24.1 INTRODUCTION

Food is the necessity of life. It provides nutrition, sustenance and growth to the human body. Foods can be classified into cereals, pulses, nuts and oilseeds, vegetables, fruits, milk and milk products and flesh food. Food comprises proteins, fats, carbohydrates, vitamins, minerals, salts and water. Most of the food items contain all these in varying proportions. Oils and ghee are exclusively fats while sugarcane and starch contain high amounts of carbohydrates. Accordingly, food items are termed as protein rich, vitamin rich, fat rich food etc.

Proteins, fats and carbohydrates are usually termed as 'proximate principles'. Along with water, which is an important food element, proximate principles form the main bulk food. These are burnt or oxidised in the body to provide energy for the different activities of life. Consequently, different age groups need different food mix.

Vitamins and mineral salts do not supply energy but they play a very crucial role in regularisation of various body functions. Some of the minerals are important components of the body structure like bones and teeth.

When we talk about food in the context of disasters, what becomes important is the availability of nutritious food in the wake of disasters. In such situations, the food served to the children in arms, pregnant women and nursing mothers and the aged needs special attention.
24.2 FOOD COLLECTION

Specialists are required to assist and advise in surveying the availability of local food and related supplies and in supervising their collection, storage, transportation and distribution. This would involve collecting food from donors, government controlled stocks or trade sources, moving it to the locations where required, using various agencies for its carriage and other related activities.

One agency whose contribution to disaster relief is often ignored is the effort put in by the community itself in taking care of the needs of the less fortunate among them. The village elders representing the community often organise their own relief and rescue operations till outside help can reach them. In this foodstuff is their major contribution where they pool in the available food and distribute it. The formal and informal linkages that bind the community together are of great help in such situations. However, over a period of time the role of community participation has come down in organising food collection and increased dependence is visible on organised activity from government and NGO sources. These organisations may send food as an emergency aid or they can pre-locate the food for use when disaster occurs.

Government Food Stocks

Large amount of food stocks including some buffer stock is maintained by government agencies like the Food Corporation of India. These are the primary source from where the bulk of the food is collected, on instructions of the government, by the local administration for use amongst the affected population. It may be financed by either central or state government, or partly by both. This may be brought to the open market for sale to check against price rise and shortages in retail outlets. Also, certain quantities may be distributed as outright relief to the needy people or offered under “food for work” programmes.

The government administration monitors the overall food situation in its disaster management strategy. All food brought or intended to be brought for the disaster relief is co-ordinated by the local administration. Other agencies assist the local authorities in procuring suitable transportation, handling and storage requirements.

Food Security

Food security is an important issue in disaster management for ensuring a balanced and nutritional food. This implies that people have access to sufficient quantities of food, when they need it and at a price they can afford. Principal conditions to be satisfied for achieving food security are:

- The supply of foodstuffs should be adequate to meet the demand.
- Fluctuations in seasonal food supply should be minimised, and reflected in relatively stable seasonal food prices.
- The population should have access to food supplies, either through adequate real income or, through targeted programmes such as food for work programmes.

The overall objectives of short term relief measures should be to provide to the people access to food by ensuring the availability of food in the affected area, and protecting the entitlements of groups within the affected population. Some of the principal measures for maintaining food security include:
- Price stabilisation
- Food subsidies
- Employment generation programmes
- General food distribution
- Supplementary feeding programmes
- Special programmes for livestock and pastoral populations, e.g., fodder banks, “Gaushalaas”
- Complementary water programmes
- Complementary health programmes

Food security interventions in many areas are being implemented as part of their general development and welfare programmes and are potentially capable of expansion to serve as key components of a disaster relief strategy. How rapidly such an expansion can be implemented will in part reflect the amount of preparedness planning that has been carried out in advance.

Check Your Progress 1

Note: i) Use the space given below for your answers.
   ii) Check your answers with those given at the end of this Unit.

1) What is the system of food collection during disasters?

2) How can food security be ensured during disasters?

24.3 FOOD STORAGE AND DISTRIBUTION

In the emergencies created by disaster, storage and distribution of food is one of the essential and important aspects that need careful attention. Every effort should be made to minimise damage of foodstuff already available in the affected areas. The proper storage and distribution of food in disaster situations require the following:
24.3.1 Warehousing

Proper selection, supervision and control of warehouses and storage facilities should be ensured. Warehouses should be located centrally at key points in the area they intend to serve. Always maintain buffer stocks to meet needs when the system cannot keep up with the demand. Regional warehouses provide greater flexibility for field staff in timing the distribution to the beneficiaries and in receiving additional supplies. The storage and delivery system is very important. The logistics organisation responsible for receipt, storage and delivery of supplies must implement a system for recording, reporting and monitoring the flow of goods from receipt to final distribution. Significant losses can occur due to poor planning. Protecting the goods against inclement weathers, and theft is essential.

Warehouse Requirements

The warehouse should have sufficient capacity to meet forecast requirements for temporary or transit storage, reserve and buffer stocks. Following points should be considered when selecting warehouses or storage accommodation.

1. Warehouses must provide proper storage in terms of their capacity and the preservation of the quantity and quality of the items stored. Cool and dry storage facilities are preferred. Warmth and dampness encourage infestation and growth of microorganisms. Every effort should be made to prevent foodstuff from being exposed to sun, rain, humidity or high temperature.

2. Open storage areas should be avoided. In case it is unavoidable, necessary precautions must be taken for covering the food items.

3. The capacity of warehouse to be selected depends upon the number of people to be served and the quantity to be stored. Provision for anticipated reserve and buffer stocks should be made, but ordering and holding contingency supplies for indeterminate future needs must be avoided. Consumption rates and shelf life have to be considered. Supplies should be procured and stored in manageable quantities.

4. Warehouse buildings should be conveniently located with access from transportation system and provide protection from rain, flash floods, dampness, solar heating, rodents, insects and birds. A single large building is better than several small ones. The warehouse must be provided with adequate fencing, lighting, fire protection and security system. The area surrounding the warehouse should have good drainage and easy access; with areas for parking and turning the vehicles.

Good Storage Practices

1. Each storage facility requires a storage plan, to allocate sufficient space for goods before the consignment arrives. Ideally, the floor of the warehouse is laid out in a grid pattern, and stacks of items designated to different areas. A chart of the storage plan showing supplies location and available space should also be maintained.

2. Goods must not be stored against walls, pipes, pillars, roof trusses or partitions. One metre wide aisles should separate stacks. Foodstuff should be segregated from other supplies to avoid contamination.

3. Supplies and food commodities should be stacked neatly on pallets placed on the floor. Different consignments and items should preferably be stacked separately.
4. Easy accessibility to stacks placed earlier at the rear should be ensured.

5. Ventilation and good air circulation along with natural or electrical lighting must be ensured.

6. Limit stack height to prevent excessive floor loading causing structural damage to the warehouse or pressure damage to the packaging or the contents.

7. Individual stack dimensions at the floor should not exceed six metres so as to facilitate inspection and cleaning.

8. Stack packages in their upright position, especially those containing cans or bottles.

9. Stack damaged goods separately, repair or re-pack and issue them earliest.

The following details should be available for all the stored items:

- Type of supply, with expiry dates, if any
- Intended beneficiaries
- Quantities received with dates
- Source of supply
- Place where supply is received
- Mode of transport
- All related costs
- Any losses and their reasons
- Issue details (date, quantity and to whom issued)

24.3.2 Family Food Stocks

Families may have some stocks of foodstuff, and these may be stored at home but have to be shifted to safer areas during evacuation at the time of a disaster where there may also be a shortage of fuel and cooking utensils for the families. A system has to be identified and devised where the entire community may have common storage of food and arrange for its security, as part of community effort.

24.3.3 Methods of Food Distribution

Food must be delivered to the beneficiaries who are often located in remote and inaccessible geographical areas. Local transportation and communication infrastructures may have to be reinforced and the process of control and information feedback introduced, to ensure that the supplies from the source reach the beneficiaries at the destination, in the quantity and quality prescribed.

Distribution of food is an important activity in disaster management, especially during relief and recovery phase. Due to hostile weather and disruption of communications after a disaster, food cannot immediately reach the affected people. All possible means like helicopters and boats may be employed for this purpose.

Transportation may become a problem as certain areas may be cut off. This may require pre-positioning of supplies, air dropping, carriage by boats or other suitable means depending on the situation. To overcome disruption, alternate routes or transport methods should be explored. Groups may also be organised to repair bridges or roads so that supplies can come in from outside. Personnel are required to monitor this system by conducting checks and inspections,
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manage and supervise operations at key control points. When food is procured locally, suppliers should deliver it to the control point nearest to the location where it will be needed. Distribution reports are necessary to confirm that supplies have been used for intended purpose.

Transportation of Food Stuff

Generally relief agencies may not have sufficient transport of their own and will have to hire available transport for moving bulky food supplies.

a) Road Transport. When moving supplies inland, trucks provide greater flexibility than other means in terms of capacity, scheduling and routing. If destinations can be reached by road, appropriate vehicle selection is determined by:

- The condition of terrain or weather, which will be, encountered en-route.
- The nature and quantity of goods to be transported.
- The time frame and frequency of each trip and the duration of the supply requirement at particular destinations.
- The availability of fuel, spares and servicing facilities.

The carrier should check their load carefully to ensure that the quantities and condition of the cargo coincide exactly with the information on the despatch challan, which should also be acknowledged by the receiver of the consignment.

b) Rail Transport.

If an adequate rail network exists and is functional between the place of origin and near the disaster site, rail is usually the cheapest alternative, especially for transporting large, bulky consignments of food. As compared to the trucks, rail freight is usually fixed for a given period and is fairly stable. Railways, being a public service, usually reduce or waive freight charges on goods being transported for use in the disaster area.

c) River Transport

River transportation depends upon:

- Availability of navigable waterways
- Availability of ship, ferry or boat service on such waterways.
- Availability of cargo-carrying boats in good condition, with adequate capacity and in required number.
- Availability of personnel to handle boats.
- Docking facilities with personnel on both ends for handling, storing and transporting the cargo.
- Constraints and seasonal considerations.
- Costs and contractual options.

d) Air Transport

Aircraft are the fastest and most reliable means of transporting foodstuff, but it is expensive and should only be considered as a last resort, when supplies are urgently needed in an area where no other transport is feasible. In emergencies, airlifting may be an initial response to the situation, but funds are better spent by moving supplies using other modes of transport.
At the receiving and transhipment points, supplies must be stored properly to maintain their quality, protection from pilferage or theft and keeping track of their location. Each location should have sufficient capacity with suitable facilities for handling and stocking.

### 24.3.4 Food Distribution to the People

Ultimately the food is to be distributed among the disaster affected population. The food distribution to the communities can be done in two ways i.e. dry rations and wet rations or cooked food distribution.

#### a) Dry Ration Distribution

Dry food distribution method allows the families to prepare their food as they like and permits them to continue to eat together as a unit. This method is more acceptable culturally and socially in case of emergencies. The people must be provided, if they do not possess, the utensils, fuel and containers to protect and store food rations. Distribution may be done at 7 or 14 days intervals.

#### b) Wet Ration Distribution

In this method, the food has to be given in the ready-to-eat or cooked form, especially in the relief camps. This method requires centralised kitchens with adequate utensils, water etc. and trained healthy personnel for cooking, packing and distributing it in hygienic manner. At least two meals must be provided per day. The quality and quantity must be discussed regularly with the affected population and complaints must be taken care of. In this method, it is very important to check that food is being properly distributed and utilised at family level. If the food is provided by the contractors, inspection and checks must be made.

Distribution of relief food must be done after a survey of the affected population so that the meagre resources are best utilised. In this case, cards or coupons may be issued to those requiring food aid and can come to the distribution point. Care should be taken to ensure that most vulnerable and poor segments like the women, aged, children and sick are not left out in preference to other stronger or more privileged people.

Immediately after a disaster, only cooked food would be required, as the people even if they have not lost their cooking utensils, will be in a state of psychological shock and require assistance. However, they must be encouraged to commence cooking for themselves, as it will also help in restoring normalcy. Mobile distribution points will be required so that the people can collect food from reasonable distance from their locations. If there are large number of persons to be given food, care will have to be taken to maintain law and order.

### Food for Work

To ensure employment opportunities to the victims of a disaster rendered unemployed or without livelihood, particularly in drought prone areas, the local government implements food for work schemes. Here some development project is started where the wages are given in kind in the form of grains or food. This has the advantage of developing assets and ensuring gainful employment in the area preventing people to migrate to different areas. This also helps in maintaining the self-respect of the disaster-affected people as they have the satisfaction of earning their food and not depending on charity.

### 24.3.5 Sanitation Requirements during Mass Feeding Services

Unless proper sanitary measures are applied to the storage, preparation and distribution of food under emergency conditions, mass feeding programme will
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be under constant danger to health. Various services connected with the food preparation and protection i.e. water supply and waste disposal require special attention. The various measures that can be applied in order to ensure good sanitation include:

- quality control of incoming food in order to check spoilage and contamination.
- quality control for food preparing centres.
- cooking staff and food handling persons to be free from infections and should observe proper hygiene.
- control of insects and rodents in stores, kitchens and feeding centres.
- proper storage of cooked food
- proper disposal of kitchen waste and food waste
- proper washing of utensils
- cleanliness of premises where food is prepared and served.

Check Your Progress 2

Note:  
1) Use the space given below for your answers.
   ii) Check your answers with those given at the end of this Unit.

1) What are the essentials of safe food storage system in disasters?

2) What are the methods of food distribution.

24.4 LET US SUM UP

Food and nutrition are essential to life but they assume an important role when an emergency situation is created by any disaster. While performing the exercise of food collection and distribution, the basic tenet of nutritious and balanced diet is to be kept in mind. Also, hygiene and sanitation measures have to be taken and duly maintained, which otherwise may worsen the already bad conditions in a disaster. Food security becomes important. Adequate stocks need to be maintained in properly managed warehouses. Food distribution has to be very
quick and this can be ensured by the most feasible and available mode of transport such as road, rail or air. Likewise a fair distribution practice has to be adopted for the vulnerable population and adequate sanitary measures have to be adopted during mass feeding programmes.

### 24.5 KEY WORDS

- **Aisle**: Passage between rows
- **Docking**: Berthing of a ship or boat for loading or unloading
- **Logistics**: Process of transporting and supplying
- **Pallets**: Wooden planks on which goods can be stacked
- **Navigable**: River or canal in which ships or boats can ply
- **Trusses**: Supporting structure
- **Waterways**: Rivers or Canals

### 24.6 REFERENCES AND FURTHER READINGS

- Kotze, Astrid von and Holloway, Alisa "Reducing Risk", International Federation of Red Cross and Red Crescent and Department of Adult and Community Education, University of Natal.

### 24.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

**Check Your Progress 1**

1) Your answer should include the following points:
   - Food collection can be in the form of:
     - Government stocks
     - Loans, aids and grants from NGOs
     - Community Collection

2) Your answer should include the following points:
   - Price stabilisation
   - Food subsidies
   - General food distribution
   - Employment creation programmes
   - Special programmes for livestock (cattle)
Check Your Progress 2

1) Your answer should include the following points:
   - Proper warehousing
   - Good storage practices

2) Your answer should include the following points:
   - Road transport
   - Rail transport
   - River transport
   - Air transport