



MINISTRY OF HEALTH

INTERIM GUIDELINES FOR FOOD RATIONS

TO GUIDE FOOD DISTRIBUTION IN KENYA

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1. INTRODUCTION

Relief assistance provides food and other commodities to households affected by emergencies. Food contains nutrients. Different foods provide different nutrients and no single food provides all the nutrients that people need. Nutrients have many functions in the body. They provide materials for growth and repair of body tissues and energy for physical activity and basic body functions; including breathing, body temperature and blood circulation. They help to keep the immune system healthy so that the body can resist and fight diseases. In effect, nutrients maintain people's lives.

General food distribution covers all household members. Each individual in a household has daily nutrient needs for optimal nutrition and health. In addition to general nutrient needs, there are household members who have vulnerabilities due to age or other underlying conditions.

Specification of Nutrient requirements are;

Macronutrient requirements - This includes energy and protein needs.

Micronutrient requirements - This includes vitamin and mineral needs such as Vitamin A, D, E K, the B complex, Vitamin C, K, and minerals such as calcium, iodine, zinc, potassium and Iron.

Micronutrient deficiencies may lead to increased risk of death, morbidity and susceptibility to infection, blindness, adverse birth outcomes, growth stunting, low work capacity, decreased cognitive capacity and mental retardation. In emergencies, the affected population can easily suffer endemic micronutrient deficiencies, often exacerbated by a general deterioration in nutritional status, a limited access to fresh foods, a loss of access to their usual foods and a lack of food diversity.

Populations that are highly dependent on food assistance are at risk of micronutrient-deficiency diseases. Efforts should be made within the context of emergency food assistance programmes to recognize factors that increase the likelihood of micronutrient-deficiency diseases, including:

- Endemic micronutrient deficiencies;

- Lack of suitable diversification in rations (e.g. only one or two commodities are provided);
- Lack of access to fresh foods;
- Rations based on highly refined cereals that may be low in B vitamins, iron, potassium, magnesium and zinc; and Iron deficiency.
- High rates of infection and/ or diarrhoea in children.

Iron deficiency anaemia, vitamin A deficiency and iodine deficiency are recognized as the three most significant micronutrient-deficiency diseases worldwide. Others include scurvy (vitamin C deficiency); Pellagra (niacin deficiency) and Beriberi (thiamine deficiency) have re-emerged among emergency-affected populations.

1.1 Nutritional needs of the most vulnerable persons in emergencies

1.1.1 Infants and young children

Infancy and early childhood is a period of increased nutrition needs to meet the requirements for growth and development. During emergencies, meeting these requirements can be compromised due to constraints in food access. This can result in malnutrition in terms of wasting and underweight and other micro-nutrient deficiencies. Malnutrition during the early years of life has a negative impact on cognitive, motor-skill, physical, social and emotional development. Child morbidity and mortality rates often dramatically increase during emergencies. As part of estimating food and nutritional needs, specific interventions are required during emergencies to protect and promote optimal Infant and Young Child Feeding (IYCF) practices. These interventions should be routinely included in any relief response and should be sustained throughout the period of relief assistance.

Annex 3 below captures interventions that should be integrated within relief assistance to address IYCF.

1.1.2 Pregnant and lactating women

During pregnancy and lactation, women's nutritional needs significantly increase. Pregnant women require an additional 285 kcals/day, and lactating women require an additional 500 kcals/day including increased needs for micronutrients. Adequate intake of iron, folate, vitamin A and iodine are particularly important for the health of both women and their

infants. The consequences of poor nutritional status and inadequate nutritional intake for women during pregnancy and lactation can affect the women's health status and have a negative impact on infant birthweight and early growth development. The increased energy requirements of pregnant and lactating women are generally incorporated in the basic ration. However, the increased micronutrient needs of pregnant and lactating women may not be met through provision of a basic ration.

To meet the additional requirements of pregnancy and lactation, complementary interventions may be undertaken in addition to the provision of a basic food ration (refer to annex 3).

1.1.3 Older persons

The energy requirements for older persons usually decrease in comparison with younger adults because of less physical activity and decreased basal metabolism those results from a higher relative loss of muscles mass. The requirements for micronutrients, however, do not decrease. Hence, an adequate diet for older persons must ensure that micronutrient requirements are met even with reduced energy intakes (i.e. foods must be sufficiently nutrient-dense). Another important consideration for older persons is that sufficient intakes of fluids are required to prevent dehydration and improve digestion. Theoretically, a well-planned general ration is usually adequate for older persons. However, in practice, a number of other factors often results in the general ration not actually meeting the nutritional needs of the older persons. Some of these factors include; poor physical access to the ration as a result of marginalization or isolation; poor digestibility, especially of whole-grain cereals; lack of motivation or inability to prepare foods; and poorer access to opportunities for supplementing the ration. In emergencies, these factors are exacerbated due to a general breakdown in normal family and community-support mechanisms. Annex 3 outlines additional strategies that should be considered to ensure that the nutritional and food needs of older persons are better addressed.

1.2 FOOD RATION DESIGN

The relief assistance will adopt 2,100 kcal as the daily nutrition requirement for each household member. Individual energy requirements are estimated for different population

groups according to age, gender, weight and physical activity level. The mean per capita energy requirement for a population has been calculated by taking the weighted-average requirements for each age-sex group. The estimate of 2,100 kcal/person/day is designed to include the needs of pregnant and lactating women within the population. Population sub-groups with obvious additional nutritional requirements may require an additional ration over and above the standard basic ration.

Protein should provide at least 10–12 percent of total energy and at least 17 percent of energy in the ration should be provided in the form of fat. The requirements of a population can be readily satisfied with mixtures of proteins of plant and animal sources.

Other factors to consider in determining food rations include:

- The food ration will be adequate to address the protein, fat and micronutrient requirements of the population.
- The food ration will be adequate to address the nutritional needs of all sub-groups of the population.
- A monitoring system will be established to ensure adequacy of the ration.

Special consideration will be given to households with vulnerable populations mentioned above.

Food baskets based on providing 2,100 kcal per person per day:

The 2100 Kcal is met through a range of commodities (Cereals, Fortified Blended Flour, and Pulses).

Choosing commodities:

Using the 2,100 Kcal, food commodities that meet the basic energy, protein, and fat and micronutrient requirements of the affected population will be selected first. The commodity selection will include a cereal, a pulse, fat, oil, salt and Fortified Blended Flour. (Additional support in terms of Fortified Blended Flours will be considered to support the household but especially vulnerable populations)

Meeting the Micro Nutrient needs

The following can be put in place to improve access to micronutrients in a relief assistance emergency response.

1. Use of fortified commodities for the food commodities identified for assistance. This can be fortified flour, salt and oil.

The following box shows foods with mandatory fortification requirements:

	Food Vehicle	Nutrient
1	Vegetable oil	Vitamin A
2	Salt	Iodine
3	Wheat and maize flour	Vitamin A, thiamine (B1), riboflavin (B2), niacin (B3), Pyridoxine B6, B12, folic acid, zinc and iron
4	Fortified Blended flour	vitamin A, B1, B2, niacin, folic acid, vitamin C and B12, iron, calcium and zinc.

2. A single fortified food commodity is not a practical vehicle for the delivery of all essential micronutrients. Inclusion of a number of fortified food commodities in the food ration will contribute to addressing the micronutrient requirements.
3. The inclusion of a fortified blended food— this is an important part of the basic ration in an emergency, particularly for the micronutrient needs of young children, pregnant and lactating women and the elderly.

(Examples of rations that meet minimum energy, fat and protein requirements are annexed below).

ANNEXES

Annex 1: Food rations tables

OPTION 1: RATION WITH MILK

Ration						
FOOD COMMODITY	Daily requirement (g/ml)	7 day requirement (g/ml)	30 day requirement (g/ml)	30 day requirement (kg/litres)	Ration for a household of 5	30 day roundoff (for packaging)
Fortified maize meal	215	1,505	6,450	6.5	32.3	33 kgs
Assorted legumes	100	700	3,000	3.0	15.0	15 kgs
Fortified vegetable oil	35	245	1,050	1.1	5.3	5 litre
Iodised salt	5	35	150	0.2	0.8	1 kg
Sugar	5	35	150	0.2	0.8	1 kg
Milk,UHT	150	1,050	4,500	4.5	22.5	23 litres (46 packets)
Rice	150	1,050	4,500	4.5	22.5	23 kgs

OPTION 2: RATION WITH MILK AND VEGETABLES

Ration/person/day (includes milk and cabbage)						
	Daily requirement (g/ml)	7 day requirement (g/ml)	30 day requirement (g/ml)	30 day requirement (kg/litres)	Ration for a household of 5	30 day roundoff (for packaging)
Fortified maize meal	215	1,505	6,450	6.5	32.3	33 kgs
Assorted legumes	100	700	3,000	3.0	15.0	15 kgs
Fortified vegetable oil	35	245	1,050	1.1	5.3	5 litre
Iodised salt	5	35	150	0.2	0.8	1 kg
Sugar	5	35	150	0.2	0.8	1 kg
Cabbage	200	1,400	6,000	6.0	30.0	30 kgs
Milk,UHT	150	1,050	4,500	4.5	22.5	23 litres (46 packets)
Rice	150	1,050	4,500	4.5	22.5	23 kgs

Ration						
Commodity	Daily requirement (g/ml)	7 day requirement (g/ml)	30 day requirement (g/ml)	30 day requirement (kg/litres)	Ration for a household of 5	30 day roundoff (for packaging)
Fortified maize meal	215	1,505	6,450	6.5	32.3	33 kgs
assorted legumes	150	1,050	4,500	4.5	22.5	23 kgs
Fortified vegetable oil	35	245	1,050	1.1	5.3	5 litre
Iodised salt	5	35	150	0.2	0.8	1 kg
Sugar	5	35	150	0.2	0.8	1 kg
Rice	150	1,050	4,500	4.5	22.5	23 kgs

OPTION 3: RATION WITHOUT MILK AND VEGETABLES

SPECIAL NEEDS GROUPS

This should be given in addition to the rations above to households with pregnant and lactating women and children 6-23 months

Group	Commodity	Daily requirement (g)	7 day requirement (g)	30 day requirement (g)	30 day requirement (kg)	Ration for a household of 3	21 day round-off (for packaging)
Pregnant and lactating women	Fortified blended flour (CSB+)	150	1050	4500	4.5	13.5	14 kgs
Children 6-23 months	Fortified blended flour (CSB++)	150	1050	4500	4.5	13.5	14 kgs

Annex 2

Food rations tables showing the kilocalorie contribution

IN-KIND RATION WITH FORTIFIED BLENDED FLOUR (FBF)	Daily Ration g/person/day	Energy kcal	Protein G	Fat g	Calcium mg	Copper mg	Iodine µg	Iron mg	Magnesium mg	Selenium µg	Zinc mg
MAIZE MEAL, FORTIFIED	200	732	17.0	3.3	10	0.2	0	5.2	-	15.6	7.4
BEANS, DRIED	85	289	18.7	1.0	120	0.7	-	5.3	147	11.6	2.3
OIL, VEGETABLE	35	309	0.0	35.0	0	-	-	0.0	-	-	-
FORTIFIED BLENDED FLOUR	40	150	6.1	3.2	159	0.2	16	3.8	-	6.4	3.1
SALT, IODISED	5	0	0.0	0.0	-	-	200	-	-	-	0.0
SUGAR	5	19	0.0	0.0	0	0.0	-	0.0	0	0.0	0.0
CABBAGE, RAW	150	38	1.9	0.2	60	0.0	-	0.7	18	0.5	0.3
RICE, WHITE, MEDIUM GRAIN	180	648	11.9	1.0	16	0.2	-	1.4	63	-	2.1
Ration totals:	700	2,185	56	44	365	1.3	216	16.4	228	34.0	15.2
Beneficiary requirements for:		2,095	52.4	39.9	987	1.1	138	31.9	201	27.5	12.4
% of requirements supplied by ration:		104%	106%	110%	37%	119%	157%	51%	113%	124%	123%
% of energy supplied by protein or fat:			10.2%	18.0%							

Ration Name: Example saved ration 1

IN-KIND RATION – NO FBF	Daily Ration g/person/day	Energy kcal	Protein g	Fat g	Calcium mg	Copper mg	Iodine µg	Iron mg	Magnesium mg	Selenium µg	Zinc mg
MAIZE MEAL, FORTIFIED	200	732	17.0	3.3	10	0.2	0	5.2	-	15.6	7.4
BEANS, DRIED	90	306	19.8	1.0	127	0.8	-	5.6	155	12.2	2.4
OIL, VEGETABLE	35	309	0.0	35.0	0	-	-	0.0	-	-	-
MILK, COW, UHT	100	61	3.2	3.3	113	0.0	-	0.0	10	3.7	0.4
SALT, IODISED	5	0	0.0	0.0	-	-	200	-	-	-	0.0
SUGAR	5	19	0.0	0.0	0	0.0	-	0.0	0	0.0	0.0
CABBAGE, RAW	75	19	1.0	0.1	30	0.0	-	0.4	9	0.2	0.1
RICE, WHITE, MEDIUM GRAIN	180	648	11.9	1.0	16	0.2	-	1.4	63	-	2.1
CARROTS, RAW	80	33	0.7	0.2	26	0.0	-	0.2	10	0.1	0.2

Ration totals:	770	2,127	54	44	323	1.2	200	12.8	247	31.9	12.7
Beneficiary requirements for:		2,095	52.4	39.9	987	1.1	138	31.9	201	27.5	12.4
% of requirements supplied by ration:		102%	102%	110%	33%	111%	145%	40%	123%	116%	102%
% of energy supplied by protein or fat:			10.1%	18.6%							

RATION FOR SPECIAL GROUPS – PREGNANT AND LACTATING	Daily Ration g/person/day	Energy kcal	Protein g	Fat g	Calcium mg	Copper mg	Iodine µg	Iron mg	Magnesium mg	Selenium µg	Zinc mg
FORTIFIED BLENDED FLOUR (PLUS)	130	512	21.2	13.2	644	0.5	76	11.6	-	19.7	9.8
Ration totals:	130	512	21	13	644	0.5	76	11.6	0	19.7	9.8
Beneficiary requirements for: Lactating		2,900	72.5	64.4	1,000	1.3	200	30.0	270	38.5	21.1

% of requirements supplied by ration:	18%	29%	20%	64%	42%	38%	39%	0%	51%	47%
% of energy supplied by protein or fat:	16.6%	23.2%								

RATION FOR SPECIAL GROUPS – PREGNANT AND LACTATING		Daily Ration g/person/day	Energy kcal	Protein g	Fat g	Calcium mg	Copper mg	Iodine µg	Iron mg	Magnesium mg	Selenium µg	Zinc mg
FORTIFIED BLENDED FLOUR		150	564	22.9	12.0	595	0.7	60	14.1	-	24.0	11.5
Ration totals:		150	564	23	12	595	0.7	60	14.1	0	24.0	11.5
Beneficiary requirements for: Lactating			2,900	72.5	64.4	1,000	1.3	200	30.0	270	38.5	21.1
% of requirements supplied by ration:			19%	32%	19%	59%	56%	30%	47%	0%	62%	55%
% of energy supplied by protein or fat:				16.3%	19.2%							

RATION FOR SPECIAL GROUPS – CHILDREN 6-23 MONTHS	Daily Ration g/person/day	Energy kcal	Protein g	Fat g	Calcium mg	Copper mg	Iodine µg	Iron mg	Magnesium mg	Selenium µg	Zinc mg
FORTIFIED BLENDED FLOUR (PLUS)	130	512	21.2	13.2	644	0.5	76	11.6	-	19.7	9.8
Ration totals:	130	512	21	13	644	0.5	76	11.6	0	19.7	9.8
Beneficiary requirements for: children 6-23 months		834	20.8	27.8	472	0.6	90	13.9	58	15.1	8.3
% of requirements supplied by ration:		61%	102%	47%	136%	91%	85%	83%	0%	131%	118%
% of energy supplied by protein or fat:			16.6%	23.2%							

RATION SPECIAL GROUPS – CHILDREN 6-23 MONTHS		Daily Ration g/person/day	Energy kcal	Protein g	Fat g	Calcium mg	Copper mg	Iodine µg	Iron mg	Magnesium mg	Selenium µg	Zinc mg
LNS- PLUMPY'DOZ®		46	258	5.6	15.9	409	0.3	92	9.0	59	18.4	9.0
Ration totals:		46	258	6	16	409	0.3	92	9.0	59	18.4	9.0
Beneficiary requirements for: 6-23 months			834	20.8	27.8	472	0.6	90	13.9	58	15.1	8.3
% of requirements supplied by ration:			31%	27%	57%	87%	48%	102%	64%	101%	122%	108%
% of energy supplied by protein or fat:				8.6%	55.3%							

Optimal nutrition for children 0-59 months

Breastfeeding; Breast milk is the ideal food for healthy growth and development of infants and young children. The availability of nutrients from breast milk exceeds that from any other substitute. Breast milk not only provides all the nutrient requirements for infants but also protects children from infection. The practice of exclusive breastfeeding for the first six months of life can also provide a contraceptive effect for the mother, who is spared the depleting effects of closely spaced pregnancies. In addition, breastfeeding enhances bonding between mother and child, providing crucial physical and emotional support for the child. In most emergencies, breastfeeding becomes even more important for infant nutrition and health. Supplementary feeding may be an important intervention for protecting the nutritional status of the lactating mother and maintaining the nutritional quality of the breast milk. Support and encouragement may also be required to maintain and enhance breastfeeding in individuals affected by high levels of psychological stress.

1. Complementary feeding for older infants and young children

At 6 months of age, infants should start to receive complementary foods in addition to breast milk. These should be safely prepared from locally available foods that are rich in energy and micronutrients to meet the infants' changing nutritional requirements. Accessing complementary foods can be a significant challenge during emergencies, since constraints often exist. Available foods may be difficult to prepare into a soft, semi-solid form. Environmental conditions may hinder safe food preparation and feeding. The usual ingredients that are normally used to prepare complementary foods may not be available. Furthermore, basic food-aid commodities—cereals, pulses and oil—do not by themselves readily meet the nutritional needs of young children.

During the complementary feeding period, older infants and young children require foods that are easily digestible. Equally, important, complementary foods used during this period should provide adequate amounts of fats and oils (30–40 percent of energy should come from fat). The period from ages 6 to 24 months is the most critical for a young child because of rapid growth and an increasing reliance on complementary food. To meet the additional

requirements of young children, complementary interventions may be undertaken in addition to the provision of a basic food ration.

Pregnant and lactating women

- Access to easily digestible micronutrient rich foods; older persons, or families including older persons, should be provided with blended foods.
- Access to milling facilities in situations where whole-grain cereal is provided.
- Family and community support for food preparation; older persons, without family or community support, can be assisted through community-based support programmes. Assistance with tasks such as collection of rations, food preparation and collection of water may be required for older people.

Special Considerations:

2. In situations where blended food is not provided to the whole population, children 6-59 months, pregnant, lactating women, and older persons should be prioritized. If Fortified Blended Flour (FBF) is selected for provision of supplementary rations to children 6-59 months, the FBF should adhere to the 2015 Codex international food safety standard, which has set maximum levels for 200 mcg Deoxynivalenol (DON)/kg in cereal-based foods.
3. Provision of cash to households for food support allows for diversity of diets, and improves access to fresh foods such as vegetable, fruit and meat.
4. Dried milk powder should NOT be distributed to emergency-affected populations as part of the general ration. There is a danger that it will be used to feed infants. Also, when it is prepared with unclean water or in unsanitary conditions, the risk of high levels of bacterial contamination is significant.
5. For practical and nutritional reasons, it is preferable to provide cereal in flour, rather than grain form, particularly in the early stages of emergency. Compared to whole grains, flours have improved palatability. Flours can be effectively fortified to improve bioavailability of nutrients. They will also require less cooking time (and therefore less

fuel). Cereal flours, though, do have a reduced shelf life in comparison to whole-grain cereals.

6. Access to sufficient fuel for food preparation is a critical issue to consider in emergencies. Fuel shortages are often a major constraint due to foods that require lengthy cooking (e.g. hard beans); and loss of access to normal cooking fuel supplies.