INTRODUCTION

The Commodities Reference Guide (CRG) provides information on food commodities distributed under Title II of Public Law 480 (P.L. 480), as amended. This program is administered by the United States Agency for International Development (USAID) in conjunction with the United States Department of Agriculture (USDA), and comprises emergency and development activities. Since its inception in 1954, the P.L. 480 Program and other food assistance instruments have distributed 375 million metric tons of US food commodities valued at well over $50 billion. In 1990, the Congress amended the P.L. 480 legislation, reasserting the United States' intent to use its agricultural productivity to enhance food security in the developing world.

The CRG is an information tool, providing relevant information about the food commodities used in P.L. 480 Title II program. All food commodities are available to the P.L. 480 Program as long as they are not determined to be in short supply by the US Secretary of Agriculture, a determination that is made every October (per Section 401(a) of the FAIR Act, 1996) by the Secretary of Agriculture. The CRG is intended for use by Title II cooperating sponsors as they develop new proposals or modify previously approved activities. The CRG is designed to provide these organizations with a description of available food commodities, their nutritional values and physical properties, a guide to appropriate storage and handling, and important general information regarding their safe and effective use as rations in Title II programs that distribute food directly to recipients. It is also designed as a reference for USAID Food for Peace officers (FFP), other USAID officers, the staff of cooperating sponsors, and recipient governments and agencies that are involved in decision-making for planning, managing, controlling, and evaluating appropriate uses of Title II food commodities.

The CRG provides information on the food commodities that are in general use in the Title II program in Part One (Title II Food Aid Commodities and Fact Sheets) and information and examples on selecting rations for different program scenarios in Part Two (Guidelines for Selecting Food Aid Commodities). It should be noted that the information here is not a substitute for the very detailed guidance provided by the Office of Food for Peace annual proposal guidance, the monetization manual, and the USAID food aid and food security policy paper. The CRG program examples are for illustration. It does not attempt to anticipate all the ways in which rations may enter into programs. The CRG is <u>not</u> intended to offer programming guidance, which is derived from USAID policies on program design, management, performance monitoring and evaluation which are all available elsewhere. Policy guidance is provided in other documentation from the Bureau for Humanitarian Assistance, Office of Food for Peace (BHR/FFP). The CRG web site does provide links to relevant representative complementary policy and program documents and key web sites.

Title II food assistance programs illustrated in the CRG are geared to impact food security through improved access to food, increased availability of food and/or improved nutrition and utilization of food of the target groups. In addition to providing emergency relief from hunger and malnutrition, Title II programs emphasize sustainable food security and nutrition goals.

The following is a major revision and update of the original CRG, issued in January 1988, by the

USAID/BHR/FFP. The decade following the publication of the CRG has seen significant changes that necessitate updating both the content of the CRG and the methods of dissemination of that content. New information regarding micronutrients and their importance in food assistance has become available. Understanding has evolved on the bioavailability of micronutrients (e.g., the advisability and feasibility of fortification of vegetable oil with vitamin A), the nutritional needs of food assistance recipients, methods for delivery of micronutrients, and changes in the fortification requirements for the U.S. food supply. Changes in the availability of key food commodities used to make blended products also have affected the composition of the P.L. 480 food assistance basket. The 1999/2000 revision process has incorporated input from all the stakeholders: USAID, USDA, the cooperating sponsors and the commodity groups and includes input from headquarters and field personnel.

Significant advances in communication and information systems (e.g., satellite/wireless communication, the Internet and the World Wide Web), have made it possible to present, publish and disseminate information in an entirely new fashion -- on the World Wide Web. Thus, the 1999 edition of the CRG is available in both hard copy and on the USAID Web site as a downloadable PDF file, and can be accessed at http://www.usaid.gov. This method has the added advantage of ensuring that the CRG is updated and revised quickly and inexpensively to reflect new commodity specifications or program requirements, making the CRG a vital, "evergreen" document.

Furthermore, users of the Guide anywhere in the world can share their decades of experience, offer recipes, preparation methods, specific anecdotal information or suggestions regarding ways in which the CRG can be made more useful to recipients of Title II P.L. 480 food commodities. Similarly, USAID and USDA can update the nutritional composition data, reflecting state-of-the art technology, bioavailability data, and other related issues. Manufacturers of Title II food commodities are also able to offer timely input on packaging, distribution, insect and rodent control, and other operations-related matters. The use of web site technology makes all of the information available at low cost and in short time frames.

The Commodities Reference Guide is organized into three parts:

Part One: TITLE II FOOD AID COMMODITIES AND FACT SHEETS

Section I provides a list of the food commodities generally used in Title II projects along with a brief description of each one, and explains the rationale for USDA exclusion of those in shortage in any given year.

Section II presents individual Commodity Fact Sheets. Included are detailed descriptions of commonly used food commodities, including their nutritional content, components, USDA specifications, and packaging information.

Section III addresses commodity storage and shelf life concerns.

Section IV provides information on controlling damages to food commodities.

Part Two: GUIDELINES FOR SELECTING FOOD AID COMMODITIES (Draft)

The Overview section outlines the features of the Food for Peace Program and a general guideline for selecting food rations. The guidelines consist of five steps: (1) Program Design, (2) Suitability of Food Commodities, (3) Ration Specifications, (4) Ration Calculation, and (5) Ranking and Selection. In five **Modules**, these steps are applied to types of programs in which food aid is commonly used. The following modules are designed so each can be read independently of the others:

Module 1 provides information for Maternal and Child Health and Nutrition programs.

Module 2 provides information for Food for Work program components.

Module 3 provides information regarding Food for Education and school feeding program components

Module 4 provides information for Non-Emergency Humanitarian Assistance

Module 5 provides information for Emergency Programs

Part Three: **ANNEXES** (Draft)

Annex I – Definitions
Annex II – Tools and Indicators
Annex III – Recommended Energy Allowance Tables
Annex IV – Recommended Dietary Allowance Table
Annex V – Illustrative Commodity Prices

Comments on the draft parts of the guide and additional information on commodity specification and P.L.480 program management can be obtained from

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List of Acronyms

BHR	Bureau for Humanitarian Response
CCC	Commodity Credit Corporation
CDO	Cooperative Development Organization
CFW	Cash-for-Work
CIDA	Canadian International Development Agency
CS	Cooperating Sponsor
CSB	Corn Soy Blend
DA	Development Assistance (funds)
DAP	Development Activity Proposal
ERS	Economic Research Service (USDA)
EU	European Union
FAC	Food Aid Convention
FAC	Food Aid Coordinating Committee/Sierra Leone
FACG	Food Aid Consultative Group
FAMP	Food Aid Management Plan
FAO	Food and Agriculture Organization of the United Nations
FFE	Food-for Education
FFP	Office of Food for Peace (in USAID/BHR Bureau)
FFP/DP	Development Programs Division in FFP
FFP/ER	Emergency Response Division in FFP
FFPO	Food for Peace Officer
FFPr	Food for Progress Program of P.L. 480 Title I
FFW	Food-for-Work
FTE	Full-time equivalent (direct-hire staff)
FVA	Bureau for Food and Voluntary Assistance
GDP	Gross domestic product
GHAI	Greater Horn of Africa Initiative
GNP	Gross national product
ICRC	International Committee of the Red Cross
ICSM	Instant Corn-Soy Milk
IFPRI	International Food Policy Research Institute
IGAD	Inter-Governmental Authority on Development
IMR	Infant mortality rate
IO	International organization
IR	Intermediate Result
ISG	Institutional Support Grant
LAC	Latin America and Caribbean Bureau (USAID)
LDC	Least developed country
LIFDC	Low-Income Food-Deficit Country
MCH	Maternal-Child Health
M&E	Monitoring and evaluation
MOU	Memorandum of Understanding
MT	Metric ton(s)
NIS	Newly Independent States of the Former Soviet Union
NGO	Non-Governmental Organization
OCF	Other child feeding
OFDA	Office of U.S. Foreign Disaster Assistance (USAID)
OE	Operating Expense (funds)
ORT	Oral Rehydration Therapy
OYB	Operating Year Budget
PAA	Previously Approved (Title II) Activity
SF	Soy Fortified
SFB	Soy-Fortified Bulgur
SFCM	Soy-Fortified Cornmeal
SFSG	Soy-Fortified Sorghum Grits
P.L. 480	U.S. Public Law 480
PVO	Private voluntary organization
R4	USAID's Results Report and Resources Request
REDSO	Regional Economic Development Support Office/USAID
Section 202(e)	Section of USAID's P.L.480 authorizing funds to support Title II activities
SF	School feeding
SO	Strategic Objective
SO1	BHR/FFP's Strategic Objective #1
SO2	BHR/FFP's Strategic Objective #2
SPO	Special Objective
UNDP	United Nations Development Program
UNHCR	United Nations Office of the High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WFS	World Food Summit
WSB	Wheat Soy Blend
WHO	World Health Organization

List of Cooperating Sponsors (FY 1997)

ACDI/VOCA	Agricultural Cooperative Development International/ Volunteers in Overseas Cooperative Assistance
ADRA	Adventist Development and Relief Agency
AFRICARE	Africare
AG.FOUND	Agricultural Foundation
AGUDATH	Agudath Israel of America, Inc.
AIA	American International Association of the Hematologists of the World for Children, Inc.
AKF	Aga Khan Foundation
ARC	American National Red Cross
CARE	Cooperative for Assistance and Relief Everywhere, Inc.
CARITAS/Bolivia	Caritas Bolivia
CARITAS/Peru	Caritas Peru
CFI	Counterpart Foundation Inc.
CHAMAH	Chamah
CITIHOPE	CitiHope International
CNFA	Citizens Network for Foreign Affairs
CRM	Christian Rescue Mission
CRS	Catholic Relief Services – USCC
DOULOS	Doulos Community, Inc.
DPPC	Disaster Prevention and Preparedness Commission/Ethiopia
EOC	Ethiopian Orthodox Church
FAR	Fund for Armenian Relief
FHI	Food for the Hungry, Inc.
FTC	Feed the Children
GJARN	Global Jewish Assistance Relief Network
IOCC	International Orthodox Christian Charities
IPHD	International Partnership for Human Development
LEA	Lishkas Ezras Achim
MCI	Mercy Corps International
NCBA/CLUSA	National Cooperative Business Association
NPA	Norwegian Peoples' Aid
OICI	Opportunities Industrialization Centers International, Inc.
PCI	Project Concern International
PRISMA	Projects in Agriculture, Rural Industry, Science & Medicine, Inc./Peru
PROJECT AID	Project Aid
REST	Relief Society of Tigray
RFCP/CBI	Russian Farm Community Project, Inc./Cooperative Business International
SALESIANS (SSI)	Salesian Missions
SAWSO	Salvation Army World Service Office
SCF	Save the Children Federation, Inc.
SHARE	World SHARE
SUSTAIN	Sharing U.S. Technology to Aid in the Improvement of Nutrition
TECHNOSERVE	TechnoServe
UMCOR	United Methodist Committee on Relief
WFP	World Food Program
WINROCK/WI	Winrock International Institute for Agricultural Development
WVRD	World Vision Relief and Development, Inc.

CONVERSION TABLES

Cubic Measure

1 cubic inch	= 16.39 cubic centimeters
1 cubic foot	= 0.03 cubic meter
1 cubic yard	= 0.76 cubic meter
1 cubic centimeter	= .06 cubic inch
1 cubic meter	= 35.31 cubic feet
1 cubic meter	= 1.31 cubic yard

Liquid Measure

1 pint	= 0.47 liter
1 quart	= 0.95 liter
1 gallon	= 3.79 liter
1 liter	= 1.06 quarts
1 kiloliter	= 264.18 gallons

Weights

1 grain	= 0.06 gram
1 ounce	= 28.35 grams
1 pound	= 453.59 grams
1 ton	= 907.18 kilograms
1 gram	= 15.43 grains
10 grams	= 0.35 ounce
1 kilogram	= 2.2 pounds
1 metric ton	= 2,204.6 pounds

SECTION I
Commodities

Table I 1

Commodities Provided by the United States Food Aid Programs in FY 1997:

	Thousand Metric Tons
BEANS	*26*
BULGUR	*68*
CORN	*269*
CORN SOY MASA FLOUR	*1*
CORN SOY BLEND	*211*
CORNMEAL	*24*
COTTON	*6*
LENTILS	*20*
PEAS	*30*
RICE	*218*
NONFAT DRY MILK	*1*
SORGHUM	*44*
SOY BEAN MEAL	*108*
SOY BEANS	*10*
Soy-Fortified BULGUR	*60*
Soy-Fortified CORNMEAL	*43*
Soy-Fortified SORGHUM GRITS	*14*
TALLOW	*2*
VEGETABLE OIL	*184*
WHEAT	*1,329*
WHEAT FLOUR	*161*
WHEAT SOY BLEND	*9*
WHOLE DRY MILK	*3*
TOTAL:	***2,841***

In FY 1997, P.L. 480 Title II distributed a total of 1.66 million metric tons, valued at $821 million, to 43 million people in 53 countries. Title II accounted for approximately 58% of the entire P.L. 480 program.

(Source: USDA/FAS/ 11-18-97*)*

This Section provides general characteristics of food commodities used in P.L. 480 Title II Program (***Food for Peace Program***). The commodities are inexpensive food staples used to provide basic nourishment to populations in extreme food security emergencies as well as for development activities designed to address food security goals.

I COMMODITY AVAILABILITY

While the Secretary of the United States Department of Agriculture (USDA) determines the total supply of commodities, USAID's Bureau for Humanitarian Response Food for Peace Office (USAID/BHR/FFP) coordinates the eligibility, procurement, allocation, and delivery of commodities with the USDA. USAID also coordinates the development and implementation of project procedures of cooperating sponsors, including private voluntary organizations (PVO), non-governmental organizations (NGO), international agencies, and the World Food Programme (WFP).

The legal provisions for determining commodity eligibility for P.L. 480 were revised in the Federal Agricultural Improvement and Reform (FAIR) Act of 1996. Section 401(a) of this Act stipulates that all agricultural commodities are essentially eligible for programming under P.L. 480. T he only exception being when the Secretary of Agriculture determines that the inclusion of a commodity under P.L. 480 would reduce its domestic supply so that it does not meet domestic requirements (including commercial exports) or provide for an adequate carryover. Under prior legislation, the Secretary of Agriculture used similar criteria to determine the specific commodities and the quantity of those commodities that were available for P.L. 480 programming.

Under Section 401(a) of the FAIR Act, the Secretary of Agriculture continues to have the authority to determine if some portion of a commodity in short supply can be made available to address the urgent humanitarian purposes of this Act. For example, during fiscal year 1997, corn was defined as being in short supply and therefore not available for P.L. 480, yet the Secretary of Agriculture determined that up to 700,000 metric tons of corn would be available to meet urgent humanitarian needs under P.L. 480, Title II.

Commodity availability for P.L. 480 is also determined by the Bill Emerson Humanitarian Trust Act. This Act provides for a reserve of funds or up to 4 million metric tons of eligible commodities including wheat, rice, corn and sorghum. These commodities may be released to meet unanticipated emergency needs under the P.L. 480 Title II program or when the domestic supply of eligible commodities is so limited that commodities in the reserve cannot be made available under the provisions of P.L. 480, Section 401(a).

II GENERAL COMMODITY CHARACTERISTICS

A brief review of the general commodity characteristics is provided here to facilitate the selection process. The commodities provided under P.L. 480 Title II programs generally fall into two categories: A) *non-processed foods*, such as whole grains and pulses (legumes) and B) *value-added foods*, which are processed foods that are manufactured and fortified to particular specifications for the P.L. 480 Title II program on an as-needed basis. This category includes: milled commodities, soy fortified processed commodities, blended commodities, and fortified refined vegetable oil.

A more detailed fact sheet for each commodity is provided in Section II.

A. NON-PROCESSED FOODS

These commodities are whole grains and pulses (legumes) which have been cleaned but not ground, milled or heated. They have a long shelf life if stored under cool conditions and low humidity.

1. WHOLE GRAINS

Whole grains are considered unprocessed. They are readily available and relatively inexpensive. They are recommended for use primarily in regions that are familiar with processing and cooking these types of commodities. Whole grains normally need to be ground prior to use in cooking or baking.

Corn (Maize)

This is whole-grain yellow corn. In some corn-consuming parts of the world, large-kernel white corn is preferred but yellow corn can be substituted for it. Due to its abundance, low price and widespread acceptance, whole corn is widely used in emergency programs, both by relief agencies and recipient country governments.

Sorghum

This unprocessed whole grain is used as a staple in parts of Asia and Africa. It has limited utility as it can present problems of digestibility in areas where the population is not familiar with how to process it.

Wheat

Wheat is widely accepted but requires more processing than the other whole grains to be converted into food. It can be either soft or hard in texture and white or red in color. Soft wheat is often closer to the type of wheat used in most recipient countries and is the easiest to process into flour at home. Hard red wheat is prized for use by commercial mills to

make into bread flour. Hard wheat and durum wheat is used by mills to produce semolina for use in couscous and pasta.

2. PULSES (LEGUMES)

Dry beans, peas and lentils fall into the category of pulses (or legumes). There are many varieties grown in the Unites States that can match local preferences. Pulses are high protein foods and good natural sources of fiber, B vitamins and minerals. Beans, in particular, are high in iron. They generally have a good market value locally. Taste and variety preferences vary significantly within and between countries. Pulses can be used in all categories of food aid programs.

The combination of pulses and cereals, such as rice and beans, provide the diet a better quality of protein than either one consumed separately. Pulses need to be cleaned to remove any debris prior to preparation. Cooking times and water and fuel requirements vary based on size and age (smaller, fresher varieties cook faster). Most beans and whole peas need to be soaked in water prior to preparation.

Dry Beans

White, red/pink, and other colored varieties are grown in the United States. Beans are eaten throughout the world. Central/Latin America and the Caribbean and the Great Lakes Region of Africa are bean-eating regions. Taste, size and color preferences differ widely. For example, Black Beans are eaten in most of Brazil while Small Reds are preferred in Nicaragua. Title II programs historically have used about ten varieties: Black Beans, Dark Red Kidney Beans, Great Northern Beans, Light Red Kidney Beans, Navy Beans (Pea Beans), Pink Beans, Pinto Beans, and Small Red Beans. Other varieties are available. Specific variety and acceptable alternates should be specified when ordering.

Dry Whole and Split Peas

Dry Peas (Green Peas, Split Green Peas, Yellow Peas, Split Yellow Peas) are used in many P.L. 480 Title II programs, as inexpensive protein sources. Peas are dried naturally by the sun. Split peas have shorter cooking times than beans and do not need to be soaked. Whole peas need to be soaked overnight. Specific variety and acceptable alternates should be specified when ordering.

Lentils

Lentils are preferred throughout Asia, where color and taste preferences are local. They are easy to prepare, as they require no soaking, have shorter cooking times and need less fuel requirements than most beans and whole peas. The most common type used in P.L. 480 Title II programs is the U.S. Regular Lentil. Other types grown in the U.S. are Red Chief, Pardina, Eston, Crimson and Grande Lentils.

B. VALUE ADDED COMMODITIES

1. MILLED COMMODITIES

Many raw commodities are ground and purified in order to make them more acceptable and easier to prepare and consume. This often results in a decrease in micronutrients from their

whole-grain equivalent, but they are normally fortified with calcium and iron and enriched with four B vitamins (including folic acid) to restore some of the lost nutrients.

Corn Masa Flour

Corn soy masa flour is made from lime-treated whole corn. It is primarily intended for use in the preparation of tortillas and similar products but may also be used to make gruel.

Cornmeal (Maize or Mealy Meal)

Ground, degermed, yellow cornmeal can be used to make porridge, ugali or baked items. It is fortified with iron, calcium, vitamin A and four B vitamins.

Rice

White rice is processed from long, medium or short grain rough rice by removing the hull and bran layers. Parboiled rice is precooked with a steam-pressure process that gelatinizes the starch and ensures a firmer, more separate grain. The kernel in the process absorbs some of the fiber and minerals from the bran layer as well. Rice has high acceptability and market value in many parts of the world. It has all eight of the essential amino acids, and is a good source of other essential nutrients: thiamin, riboflavin, niacin, phosphorous, iron and potassium. White rice provided under this program is not fortified with vitamins and minerals.

Sorghum Grits

Degermed and dehulled sorghum grain can be prepared similar to rice or employed as a baking ingredient. It is used mainly in Africa and parts of Asia.

Wheat Bulgur

Bulgur is made from cleaned, cracked, debranned, partially precooked whole wheat. It is often accepted as a substitute for rice and prepared in a similar manner. Bulgur is fortified with minerals and vitamins to same levels as in cornmeal.

Wheat Flour

All-purpose flour made from hard wheat can be used in a variety of applications including bread making. It is fortified with iron, calcium, vitamin A and four B vitamins.

2. SOY-FORTIFIED PROCESSED FOODS

Soy flour is added to cereals because it greatly improves their protein content and quality. Soy fortified processed foods are used as staples in all categories of P.L. 480 Title II programs. They have been formulated to resemble as much as possible the appearance and taste of similar unfortified foods.

Corn Soy Masa Flour, Instant

Corn soy masa flour is made from lime-treated whole corn, fortified with 5% soy flour, plus vitamins and minerals. It is primarily intended for use in the preparation of tortillas and similar products but may also be used to make gruel.

Soy-Fortified Bulgur

Cracked, debranned, and partially precooked bulgur wheat is fortified with 15 percent soy grits and vitamins and minerals. It is often accepted as a substitute for rice and is generally used to make porridge. Soy-fortified bulgur is also fortified with minerals and vitamins to same levels as bulgur and cornmeal.

Soy-Fortified Cornmeal

Degermed cornmeal is fortified with 15 percent soy flour and vitamins and minerals. Soy-fortified cornmeal can be prepared the same way as plain cornmeal.

Soy-Fortified Sorghum Grits

Soy-fortified sorghum grits is degermed and dehulled grain sorghum that has been fortified with 15 percent soy grits. They are a good replacement for rice in rice-consuming areas of the world.

3. BLENDED FOODS

Blended foods consist of a granulated mixture of partially precooked cereal flour, soy flour, vegetable oil, and vitamins and minerals. (See Table I 2 for composition.) Blended foods are nutrient-dense due to their fortification with protein and a full range of 11 vitamin and 6 minerals, as shown in Table I 3. They require minimal cooking (only five to seven minutes), are easily digestible and are widely accepted, making them usable in Maternal and Child Health programs and emergency programs. They retain stability during storage for at least one year at 77°F.

Blended foods or formulated cereal foods, as they also are called, were introduced into the program in August 1966. They were intended to be a substitute for nonfat dry milk and to serve as a high quality protein source for weaning-age children, older preschool-age children, pregnant women, and other malnourished individuals. The vitamin and mineral fortification levels make blended foods a good vehicle to boost micronutrient intakes in vulnerable populations. If blended foods are used as the primary component of the diet, sugar or vegetable oil should be added to increase their energy density.

Corn Soy Blend (CSB)

Corn soy blend has a bland flavor and tan color and has been widely used in P.L. 480 Title II programs, especially in India for MCH programs. CSB is a blend of partially cooked cornmeal, soy flour, salt, vegoil, plus vitamins and minerals. It is often used for weaning-age children in the form of a thin, drinkable gruel. The only preparation necessary is to mix CSB with water in the appropriate proportions and boil for 5 to 7 minutes. Many other preparations are possible. Vitamin A and C retention is improved if prepared into a thick paste, or *ugali*. Additional salt, sugar and other ingredients may be added for flavor.

Wheat Soy Blend (WSB)

WSB is a blend of partially precooked wheat or bulgur flour, wheat protein concentrate, and soy flour. It is supplemented by oil, salt, vitamins and minerals. Unlike the bland taste of CSB, WSB has a distinctive wheat-type flavor and a darker color. It produces a thicker paste than CSB with the same level of added water and can be formed into dumplings. It is

quite versatile and used in many programs.

4. FORTIFIED REFINED VEGETABLE OIL (EDIBLE VEGOIL)

Fortified refined vegetable oil is made from refined, deodorized, and bleached vegetable oil that is then further purified, filtered, fortified, and packaged. Normally, it is derived from soybean oil, although, based on availability, corn oil, sunflower oil, cottonseed oil, peanut oil, or rapeseed oil, individually or in combination may be utilized.

Unless otherwise specified in the request, all refined vegetable oil must be fortified with vitamin A to a level of 60 to 75 IU/g. Edible vegoil has a high caloric density, provides essential fatty acids and aids in the absorption of fat-soluble vitamins. It increases the fluidity of cereal foods, making it an important component of feeding programs for young children. Vegetable oil is used as an ingredient in cereal dishes, such as porridge or rice, and is used as a cooking medium for frying and sautéing foods.

Table 1 2 Composition of Blended Commodities Provided under P.L. 480 Title II

Ingredient	CSB	WSB
Cornmeal, processed	69.9 %	
Soy flour, defatted, toasted	21.8 %	20.0 %
Bulgur flour		52.9 %
Wheat Protein Concentrate		20.0 %
Soybean oil	5.5 %	4.0 %
Vitamin premix	0.1 %	0.1 %
Tricalciumphosphate	2.0 %	2.0 %
Salt/Mineral premix	1.0 %	2.7 %

Table 1 3 Micronutrient Addition Level Standards for Fortified Blended Foods Provided under P.L. 480 Title II*

Micronutrient	units per 100g	Current CSB/WSB Levels Added
Calcium	mg	775
Calcium d Pantothenate	mg	2.76
Folic acid	mg	0.20
Iodine	ug	57
Iron	mg	14.7
Magnesium	mg	82.5
Niacin	mg	4.96
Pyridoxine HCl	mg	0.17
Riboflavin	mg	0.39
Salt	g	0.81
Thiamin	mg	0.28
Vitamin A	IU	2,315
Vitamin B12	ug	3.97
Vitamin C	mg	40.1
Vitamin D	IU	198
Vitamin E	IU	7.5
Zinc	mg	3.98

*(WFP has other nutrient level specifications, which are lower in all cases except *Riboflavin, Vitamin C and Zinc)*

P.L. 480 TITLE II Generally Used Commodities

Beans
- Black Beans
- Kidney Beans (Light Red, Dark Red, All types)
- Great Northern Beans
- Blackeye Beans (Cowpeas)
- Pink Beans
- Pinto Beans
- Small Red Beans
- Navy Beans (Pea Beans)

Bulgur (BW)
Bulgur, Soy Fortified (SFBW)
Corn (bagged, bulk)
Cornmeal
Corn Meal, Soy Fortified (CMSF)
Corn Soy Blend (CSB)
Corn Masa Flour
Corn Soy Masa Flour
Lentils
Peas
- Green Peas (whole, split)
- Yellow Peas (whole, split)

Rice, milled non-parboiled (bagged, bulk)
Rice, milled parboiled (bagged, bulk)
Sorghum (bagged, bulk)
Sorghum Grits, Soy Fortified (SFSG)
Soybeans (bagged, bulk)
Soybean Meal (bulk)
Fortified Refined Vegetable Oil (Edible Vegoil)
Wheat (bagged, bulk)
Wheat Flour (all purpose [AP] flour, bread flour)
Wheat, Soy Blend (WSB)

For further information on restricted and available commodities see the FFP web site, ***http://www.info.usaid.gov/hum_response/ffp/***.

III REFERENCES

U.S. International Food Assistance Report 1997. USDA/FAS/ 11-18-97.

Title II P.L. 480 Commodities List. USAID/BHR/FFP/POD. http://www.usaid.gov/

USDA/FSA/PDD/EOB. December, 1997. http://fas.usda.gov/

Lentils

These are dry whole lentils with seedcoat. They can be used in all program categories.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	11.2	g
Energy	338.0	Kcal
Protein	28.1	g
Total Lipid	1.0	g
Carbohydrate	57.1	g
Fiber, total dietary	30.5	g
Ash	2.7	g
Calcium	51	mg
Iron	9.02	mg
Magnesium	107	mg
Phosphorus	454	mg
Potassium	905	mg
Sodium	10.0	mg
Zinc	3.6	mg
Copper	0.9	mg
Manganese	1.4	mg
Selenium	8	mcg
Vitamin C	6	mg
Thiamin	0.48	mg
Riboflavin	0.25	mg
Niacin	2.62	mg
Pantothenic acid	1.8	mg
Vitamin B-6	0.5	mg
Folate	433	mcg
Vitamin B-12	0	mcg
Vitamin A	39	IU
Vitamin E	0.3	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Lentils, unprocessed, whole

3. SPECIFICATIONS

Lentils shall be grade U.S. No. 3 or better.

(Source: USDA:FSA:PDD:EOB December, 1997.
Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

One year. See "Section III: Storage/Shelf Life Specifications" for more information.

Peas

These unprocessed commodities are used as protein sources in all categories of programs. Local tastes and preferences differ. Peas are available as whole or split, green or yellow varieties. Please specify pea variety (including color and whether whole or split peas) preferred and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	11.3	g
Energy	341.0	Kcal
Protein	24.6	g
Total Lipid	1.2	g
Carbohydrate	60.4	g
Fiber, total dietary	25.5	g
Ash	2.7	g
Calcium	55	mg
Iron	4.4	mg
Magnesium	115	mg
Phosphorus	366	mg
Potassium	981	mg
Sodium	15	mg
Zinc	3.0	mg
Copper	0.9	mg
Manganese	1.4	mg
Selenium	1.6	mcg
Vitamin C	1.8	mg
Thiamin	0.7	mg
Riboflavin	0.2	mg
Niacin	2.9	mg
Pantothenic acid	1.8	mg
Vitamin B-6	0.2	mg
Folate	273.8	mcg
Vitamin B-12	0	mcg
Vitamin A	149	IU
Vitamin E	0.3	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Whole or Split Green or Yellow Peas.

3. SPECIFICATIONS

Whole dry peas shall be Grade U.S. No. 2 or better, except U.S. No. 3 or better because of cracked seed oats. Split peas shall grade U.S. No. 2 or better.

(Source: USDA:FSA:PDD:EOB December, 1997. Contact 202-690-3565 http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Rice

(Non-parboiled)

This processed, milled commodity is used in all categories of programs as a staple food

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	11.6	g
Energy	365.0	Kcal
Protein	7.1	g
Total Lipid	0.7	g
Carbohydrate	80.0	g
Fiber, total dietary	1.3	g
Ash	0.6	g
Calcium	28	mg
Iron	0.80	mg
Magnesium	25	mg
Phosphorus	115	mg
Potassium	115	mg
Sodium	5.0	mg
Zinc	1.1	mg
Copper	0.2	mg
Manganese	1.1	mg
Selenium	15	mcg
Vitamin C	0	mg
Thiamin	0.07	mg
Riboflavin	0.05	mg
Niacin	1.60	mg
Pantothenic acid	1.0	mg
Vitamin B-6	0.2	mg
Folate	8	mcg
Vitamin B-12	0	mcg
Vitamin A	0	IU
Vitamin E	0.1	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Rice.

3. SPECIFICATIONS

Milled from short, long, or medium grain rice, U.S. Grade No. 5 or better, containing not more than 20 percent broken kernels. Not more than ten days prior to packaging, fumigate with Methyl Bromide or Phostoxin to inhibit infestation by weevils or other insects. The rice shall be long, medium, or short grain milled rice grading U.S. No. 5 or better, except the rice shall be reasonably well-milled and not contain more than 20 % broken kernels.

Unless otherwise specified, milled rice of the special grades "parboiled light" or "parboiled" which meet class and grade specifications shall be acceptable. No specialty rice, including but not limited to aromatic rice, shall be acceptable unless specified in the applicable invitation for offers.
(Source: USDA:FSA:PDD:EOB April, 1996.
Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/no5rice.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Rice

(Parboiled)

This processed, milled commodity is used in all categories of programs as a staple food

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

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Nutrient	Amount	Unit
Water	10.2	g
Energy	371.0	Kcal
Protein	6.8	g
Total Lipid	0.6	g
Carbohydrate	81.7	g
Fiber, total dietary	1.7	g
Ash	0.8	g
Calcium	60.0	mg
Iron	1.5	mg
Magnesium	31.0	mg
Phosphorus	136.0	mg
Potassium	120.0	mg
Sodium	5.0	mg
Zinc	1.0	mg
Copper	0.2	mg
Manganese	0.9	mg
Selenium	23.0	mcg
Vitamin C	0.0	mg
Thiamin	0.1	mg
Riboflavin	0.1	mg
Niacin	3.6	mg
Pantothenic acid	1.1	mg
Vitamin B-6	0.4	mg
Folate	17.0	mcg
Vitamin B-12	0.0	mcg
Vitamin A	0.0	IU
Vitamin E	0.1	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Rice.

3. SPECIFICATIONS

Milled from short, long, or medium grain rice, U.S. Grade No. 5 or better, containing not more than 20 percent broken kernels. Not more than ten days prior to packaging, fumigate with Methyl Bromide or Phostoxin to inhibit infestation by weevils or other insects. The rice shall be long, medium, or short grain milled rice grading U.S. No. 5 or better, except the rice shall be reasonably well-milled and not contain more than 20 % broken kernels.

Unless otherwise specified, milled rice of the special grades "parboiled light" or "parboiled" which meet class and grade specifications shall be acceptable. No specialty rice, including but not limited to aromatic rice, shall be acceptable unless specified in the applicable invitation for offers.
(Source: USDA:FSA:PDD:EOB April, 1996.
Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/no5rice.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Sorghum

This unprocessed whole grain is intended primarily for distribution in emergency situations and in Food for Work programs in those areas where sorghum is a common staple food.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	9.2	g
Energy	339.0	Kcal
Protein	11.3	g
Total Lipid	3.3	g
Carbohydrate	74.6	g
Fiber, total dietary	n/a	g
Ash	1.57	g
Calcium	110.0	mg
Iron	3	mg
Magnesium	n/a	mg
Phosphorus	287.00	mg
Potassium	350	mg
Sodium	6	mg
Zinc	n/a	mg
Copper	n/a	mg
Manganese	n/a	mg
Selenium	n/a	mcg
Vitamin C	0	mg
Thiamin	0	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	n/a	mg
Vitamin B-6	n/a	mg
Folate	150.0	mcg
Vitamin B-12	0	mcg
Vitamin A	2205	IU
Vitamin E	0.00	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Yellow or white grain sorghum grown in the United States.

3. SPECIFICATIONS

Class: Yellow or white. Dehulled or degermed.

Grade: No. 2 or better

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Sorghum Grits, Soy-Fortified

This processed commodity is generally used for emergency programs, and where sorghum is a local staple food, for other categories.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

Nutrient	Amount	Unit
Water	8.9	g
Energy	337.2	Kcal
Protein	17.3	g
Total Lipid	3.0	g
Carbohydrate	68.5	g
Fiber, total dietary	n/a	g
Ash	2.3	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	n/a	mg
Phosphorus	345	mg
Potassium	655	mg
Sodium	8.1	mg
Zinc	n/a	mg
Copper	n/a	mg
Manganese	n/a	mg
Selenium	n/a	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	n/a	mg
Vitamin B-6	n/a	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205.00	IU
Vitamin E	0.0	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

85% Sorghum Grits: Sorghum Yellow or white grain sorghum which has seedcoat, hulls, and germ removed.

15% Soy Beans: Cracked, dehulled, defatted and toasted, (or expeller) processed from selected soybeans.

3. SPECIFICATIONS

Class: Yellow or white grain sorghum as defined by "Official United States Standards for Grain," revised February 1970, pages 6.1-6.4, except that the grain must contain no more than 2% of kernels having brown subcoats.

Grade: US No. 1, US No. 2, or US No. 3, if downgraded because of moisture only.

Other: The grain must be thoroughly cleaned to remove stones, sticks, trash, weed seeds, and shriveled kernels; dehulled; degermed; and reduced to grits. The sorghum must be milled to remove seed coat so that the product color and general appearance will be that of typical sorghum grits which are reasonably well-milled. (See Table next page.)

4. PACKAGING

25 kg (55 lb.) multi-wall paper bags. Three plies of paper (minimum) with an inner polyethylene plastic liner. The outer paper ply is treated to provide wet strength.

5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

CHEMICAL AND PHYSICAL REQUIREMENTS

ITEM	REQUIREMENT [1] Minimum	Maximum
Moisture, %	--	13.5
Protein (Nx6.25), % [2]	15.0	--
Crude Fat, % [2]	--	2.0
Ash, % [2]	--	[3]
Crude Fiber, % [2]	--	2.1
Total bacterial count per gram [4]	--	50,000
Material that will pass through a U.S. Standard No. 8 woven-wire-cloth sieve, %	90.0	--
Material that will pass through a U.S. Standard No. 14 woven-wire-cloth sieve, %	--	35.0
Material that will pass through a U.S. Standard No. 30 woven-wire-cloth sieve, %	--	5.0

[1] All percentages are on the basis of weight.
[2] These limiting values are on a moisture-free basis.
[3] For maximum ash see Table on "Maximum Ash Allowable Without Discount at Specified Calcium Levels" (paragraph 9.D) in USDA Specifications.
[4] Bacterial plate count in excess of 50,000 per gram will constitute rejection. However, at contractor's request only, the following additional requirements will apply: If the bacterial plate count is higher than 50,000 per gram but not more than 500,000 per gram, product will be rejected, unless coliform count does not exceed 100 organisms per gram of product. If the bacterial plate count is higher than 500,000 per gram but not more than 1,000,000 per gram, product will be rejected, unless the product is proved to contain:

1. No more than 100 coliform per gram.
2. No more than 10 staph aureus per gram.
3. No salmonella in 20 grams of product.

If bacterial plate counts higher than 1,000,000 organisms per gram, product will be rejected. Cost of additional testing required for acceptance of product having plate counts in excess of 50,000 per gram will be for contractor's account.

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb.	16.0	24.0
Iron (reduced iron, 325 mesh to be used as the iron source), mg/lb.	13.0	26.0
Vitamin A Palmitate, IU/lb.	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	750

(Source: USDA:FSA:PDD:EOB January 12, 1998. Contact 202-690-3565;
SFSG9: PURCHASE OF SOY-FORTIFIED SORGHUM GRITS FOR USE IN EXPORT PROGRAMS – SPECIFICATIONS)

Soybeans

Soybeans are used primarily for their high protein content. They can be used in all categories of programs.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	8.5	g
Energy	416.0	Kcal
Protein	36.5	g
Total Lipid	19.9	g
Carbohydrate	30.2	g
Fiber, total dietary	9.3	g
Ash	4.9	g
Calcium	277.0	mg
Iron	15.7	mg
Magnesium	280.0	mg
Phosphorus	704.0	mg
Potassium	1797.0	mg
Sodium	2.0	mg
Zinc	4.9	mg
Copper	1.7	mg
Manganese	2.5	mg
Selenium	17.8	mcg
Vitamin C	6.0	mg
Thiamin	0.9	mg
Riboflavin	0.9	mg
Niacin	1.6	mg
Pantothenic acid	0.8	mg
Vitamin B-6	0.4	mg
Folate	375.1	mcg
Vitamin B-12	0.0	mcg
Vitamin A	24.0	IU
Vitamin E	2.0	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Soybeans, mature seeds

3. SPECIFICATIONS

Class:	Yellow
Grade:	No. 2 or Better
Moisture (Max.):	14.0 %
Test weight (Min.):	54.0 lbs./bu.

(Source: USDA:FSA:PDD:EOB April, 1996.
Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/soybeans.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Soybean Meal

Soybean meal is used primarily for its high protein content. It can be used in all categories of programs.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	6.9	g
Energy		

2. COMPONENTS

100% Soybean Meal, defatted, raw.

3. SPECIFICATIONS

The soybean meal shall meet the standard specifications of the National Oilseeds Processing Association (NOPA) trading rules of August 1, 1989.

(See Table next page.)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Vitamin D	198.00	IU
Iodine	56.88	mcg

[1] 0.17 mg added as Pyridoxine HCL

CHEMICAL AND PHYSICAL REQUIREMENTS

	REQUIREMENT [1]	
ITEM	**Minimum**	**Maximum**
Moisture, %	--	11.0
Protein (Nx6.25), %	20.0	--
Crude Fat, %	6.0	--
Ash, %	--	6.6
Crude Fiber, %	--	2.5
Lysine, %	0.9	--
Total Bacteria Count per gram	--	50,000
Material that will pass through a U.S. Standard No. 8 woven-wire-cloth sieve, %	97.0	--
Salmonella, E. Coli and Coagulase Positive Staphylococci will be negative		

[1] Unless otherwise specified, all analyses except moisture are expressed on a moisture-free basis.
(Source: USDA:FSA:PDD:EOB, December, 1997. Contact 202-690-3565
http://www.fas.usda.gov/excredits/wheatsoy.html

4. PACKAGING

25 kg (55 lb.) multi-wall paper bags. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength and must have a plastic liner facing the product of 3 mil (minimum) low density polyethylene.

5. SHELF LIFE

At least one year.

SECTION II
Food Commodity Fact Sheets

The Food Commodity Fact Sheets present useful information to providers and users of U.S. food aid under P.L. 480. The Sheets contain general information on use of the commodity in the P.L. 480 Program, data on the average nutritional values of commodities and formulae used in the P.L. 480 food aid programs, information on components, ingredients and specifications, and packaging and shelf life information from USDA. The information contained in these Fact Sheets is updated as new data becomes available and therefore represents the most current information available.

The following Food Commodity Fact Sheets are available:

- Beans, Black
- Beans, Blackeye (Cowpeas)
- Beans, Great Northern
- Beans, Kidney (Light Red, Dark Red, All types)
- Beans, Navy (Pea Beans)
- Beans, Pink
- Beans, Pinto
- Beans, Small Red
- Bulgur (BW)
- Bulgur, Soy Fortified (SFBW)
- Corn (bagged, bulk)
- Cornmeal
- Cornmeal, Soy Fortified (CMSF)
- Corn Soy Blend [1] (CSB)
- Corn Masa Flour
- Corn Soy Masa Flour, Instant
- Lentils
- Peas
- Rice (milled, non-parboiled, bagged, bulk)
- Rice (milled, parboiled, bagged, bulk)
- Sorghum (bagged, bulk)
- Sorghum, Soy Fortified Grits[1] (SFSG)
- Soybeans (bulk)
- Soybean Meal (bulk)
- Fortified Refined Vegetable Oil (Edible Vegoil)
- Wheat (bagged, bulk)
- Wheat Flour (all purpose flour [AP] and bread flour)
- Wheat Soy Blend (WSB)

[1] Commodity may require nutrient analysis in order to be complete; USDA nutrient data may not be appropriate for the commodity type used in the P.L. 480 Program.

The Food Commodity Fact Sheets are organized as follows:

1. NUTRITIONAL VALUES (per 100 g of Raw Commodity)

Commodity proportions presented in the Nutritional Value tables are all for 100 g amounts of raw, non-cooked commodity. They were obtained from USDA Purchase Announcements dating from October 1997 through December 1, 1998. The USDA Nutrient Database for Standard Reference (Release 12: http://www.nal.usda.gov/fnic/foodcomp) was used to obtain nutritional data on each of the ingredient commodities except Small Red Beans, which was obtained from the National Dry Bean Council (NDBC), because there was no data in the USDA reference. Vitamin and mineral fortification amounts were obtained from the Purchase Announcements. Except for Corn Soy Blend (CSB) and Wheat Soy Blend (WSB), the commodities are enriched to restore vitamins and minerals lost in processing. Note that the definition of enrichment is the restoration of nutrients lost in food processing while fortification refers to the addition of nutrients. For CSB and WSB, the figures in the tables represent the total of the naturally occurring nutrients plus the fortification ingredients added. For all other commodities, the nutrient levels given in the tables approximate the naturally occurring nutrient levels in the food or formulation of foods making up the commodity. Where nutrient values were not available in the USDA Nutrient Database, "n/a" is listed in the nutrient tables.

2. COMPONENTS

All Commodity Fact Sheets contain information on the components of the commodities and/or formulae. Descriptions of the commodities that were not considered to be a specification were included in this section. For example, bulgur is described as "cracked, debranned and partially precooked to lower final cooking time, reduce toughness and some of the crude fiber."

3. SPECIFICATIONS

Specifications included in this section were mostly obtained from USDA:FSA:PDD:EOB. (http://www.fas.usda.gov/excredits/pl480/commodities/commlist.html.) In cases where specifications from the Foreign Agriculture Service (FAS) web site were not available, specification information was obtained directly from the purchase announcements. It is important to note however, that the actual nutrient values in particular lots of food may vary from the exact values specified in the purchase announcements. Specifications in export purchase announcements are also subject to change periodically. The nutrient values given in the commodity fact sheets will be updated when these changes occur. Each commodity fact sheet also provides the source of the nutritional value information.

The section on specifications includes information, as appropriate, on the commodity class or grade, filth, fumigation, physical and chemical requirements of the finished product, and enrichment ingredients.

4. PACKAGING

The information on packaging was obtained from the Export Operations Branch at the Procurement Donations Division of the Farm Services Agency of USDA during November 1998.

5. SHELF LIFE

Shelf life data were obtained from the 1988 Commodity Fact Sheets and confirmed by USDA Export Operations Branch at the Procurement Donations Division of the Farm Services Agency (of USDA

USDA/FSA/EOD/PPD) during November 1998. Refer to "Section III: Storage/Shelf Life Specifications" for more information.

Beans, Black

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Black Bean and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	11.02	g
Energy	341.0	Kcal
Protein	21.6	g
Total Lipid	1.42	g
Carbohydrate	62.37	g
Fiber, total dietary	15.2	g
Ash	3.6	g
Calcium	123.0	mg
Iron	5.02	mg
Magnesium	171	mg
Phosphorus	352	mg
Potassium	1483	mg
Sodium	5.0	mg
Zinc	3.6	mg
Copper	0.841	mg
Manganese	1.06	mg
Selenium	3.2	mcg
Vitamin C	0.0	mg
Thiamin	0.8	mg
Riboflavin	0.193	mg
Niacin	1.955	mg
Pantothenic acid	0.899	mg
Vitamin B-6	0.286	mg
Folate	444.3	mcg
Vitamin B-12	0.0	mcg
Vitamin A	17.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Black Beans

3. SPECIFICATIONS

Black Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."
(Source: USDA :FSA:PDD:EOB December, 1997.
Contact 202-690-3565.
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50-kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Beans, Blackeye

(Cowpeas)

These unprocessed commodities are used as protein sources in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. Please specify Blackeye Bean and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	11.95	g
Energy	336.0	Kcal
Protein	23.52	g
Total Lipid	1.26	g
Carbohydrate	60.03	g
Fiber, total dietary	10.6	g
Ash	3.24	g
Calcium	110.0	mg
Iron	8.27	mg
Magnesium	184.0	mg
Phosphorus	424.0	mg
Potassium	1112.0	mg
Sodium	16.0	mg
Zinc	3.37	mg
Copper	0.845	mg
Manganese	1.528	mg
Selenium	9.0	mcg
Vitamin C	1.5	mg
Thiamin	0.853	mg
Riboflavin	0.226	mg
Niacin	2.075	mg
Pantothenic acid	1.496	mg
Vitamin B-6	0.357	mg
Folate	632.6	mcg
Vitamin B-12	0.0	mcg
Vitamin A	50.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Pea Beans (Blackeye Beans, Cowpeas)

3. SPECIFICATIONS

Blackeye Beans (Cowpeas) shall be grade U.S. No. 2 or better but shall contain no more than 5 percent of beans with surface dirt which is readily removed during processing and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."
(Source: USDA :FSA:PDD:EOB December, 1997.
Contact 202-690-3565)
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Beans, Great Northern

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Great Northern Bean and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	10.7	g
Energy	339.0	Kcal
Protein	21.86	g
Total Lipid	1.14	g
Carbohydrate	62.37	g
Fiber, total dietary	20.2	g
Ash	3.93	g
Calcium	175.0	mg
Iron	5.47	mg
Magnesium	189.0	mg
Phosphorus	447.0	mg
Potassium	1387.0	mg
Sodium	14.0	mg
Zinc	2.31	mg
Copper	0.837	mg
Manganese	1.423	mg
Selenium	12.9	mcg
Vitamin C	5.3	mg
Thiamin	0.653	mg
Riboflavin	0.237	mg
Niacin	1.955	mg
Pantothenic acid	1.098	mg
Vitamin B-6	0.447	mg
Folate	482.0	mcg
Vitamin B-12	0.0	mcg
Vitamin A	3.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Great Northern Beans

3. SPECIFICATIONS

Great Northern Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing; and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."
(Source: USDA :FSA:PDD:EOB December, 1997.
Contact 202-690-3565)
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50-kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Beans, Kidney

(Light, Dark, All types)

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Kidney Bean (including color and size) and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	11.75	g
Energy	333.0	Kcal
Protein	23.58	g
Total Lipid	0.83	g
Carbohydrate	60.01	g
Fiber, total dietary	24.9	g
Ash	3.83	g
Calcium	143.0	mg
Iron	8.2	mg
Magnesium	140.0	mg
Phosphorus	407.0	mg
Potassium	1406.0	mg
Sodium	24.0	mg
Zinc	2.79	mg
Copper	0.958	mg
Manganese	1.021	mg
Selenium	3.2	mcg
Vitamin C	4.5	mg
Thiamin	0.529	mg
Riboflavin	0.219	mg
Niacin	2.06	mg
Pantothenic acid	0.78	mg
Vitamin B-6	0.397	mg
Folate	394.1	mcg
Vitamin B-12	0.0	mcg
Vitamin A	8.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Kidney Beans (All types)

3. SPECIFICATIONS

Kidney Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."
(Source: USDA :FSA:PDD:EOB December, 1997.
Contact 202-690-3565)
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Beans, Navy

(Pea Beans)

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Navy Bean and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	12.36	g
Energy	335.0	Kcal
Protein	22.33	g
Total Lipid	1.28	g
Carbohydrate	60.65	g
Fiber, total dietary	24.4	g
Ash	3.37	g
Calcium	155.0	mg
Iron	6.44	mg
Magnesium	173.0	mg
Phosphorus	443.0	mg
Potassium	1140.0	mg
Sodium	14.0	mg
Zinc	2.54	mg
Copper	0.879	mg
Manganese	1.309	mg
Selenium	11	mcg
Vitamin C	3.0	mg
Thiamin	0.645	mg
Riboflavin	0.232	mg
Niacin	2.063	mg
Pantothenic acid	0.68	mg
Vitamin B-6	0.437	mg
Folate	369.7	mcg
Vitamin B-12	0.0	mcg
Vitamin A	4.0	IU
Vitamin E	0.44	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Navy Beans

3. SPECIFICATIONS

Navy Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA:FSA:PDD:EOB December, 1997.
Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Beans, Pink

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Pink Bean and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	10.06	g
Energy	343.0	Kcal
Protein	20.96	g
Total Lipid	1.13	g
Carbohydrate	64.19	g
Fiber, total dietary	12.7	g
Ash	3.66	g
Calcium	130.0	mg
Iron	6.77	mg
Magnesium	182.0	mg
Phosphorus	415.0	mg
Potassium	1464.0	mg
Sodium	8.0	mg
Zinc	2.55	mg
Copper	0.81	mg
Manganese	1.376	mg
Selenium	13.0	mcg
Vitamin C	0.0	mg
Thiamin	0.772	mg
Riboflavin	0.192	mg
Niacin	1.892	mg
Pantothenic acid	0.997	mg
Vitamin B-6	0.527	mg
Folate	463.2	mcg
Vitamin B-12	0.0	mcg
Vitamin A	0.0	IU
Vitamin E	0.1	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Pink Beans

3. SPECIFICATIONS

Pink Beans shall grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."
(Source: USDA :FSA:PDD:EOB December, 1997.
Contact 202-690-3565)
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm)

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Beans, Pinto

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Pinto Bean and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should realize food aid shipments may vary from these exact nutrient values.

Nutrient	Amount	Unit
Water	10.95	g
Energy	340.0	Kcal
Protein	20.88	g
Total Lipid	1.13	g
Carbohydrate	63.41	g
Fiber, total dietary	24.4	g
Ash	3.63	g
Calcium	121.0	mg
Iron	5.88	mg
Magnesium	159.0	mg
Phosphorus	418.0	mg
Potassium	1328.0	mg
Sodium	10.0	mg
Zinc	2.54	mg
Copper	0.774	mg
Manganese	1.13	mg
Selenium	18.5	mcg
Vitamin C	7.3	mg
Thiamin	0.555	mg
Riboflavin	0.238	mg
Niacin	1.446	mg
Pantothenic acid	0.763	mg
Vitamin B-6	0.443	mg
Folate	506.3	mcg
Vitamin B-12	0.0	mcg
Vitamin A	5.0	IU
Vitamin E	0.21	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Pinto Beans

3. SPECIFICATIONS

Pinto Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."
(Source: USDA :FSA:PDD:EOB December, 1997.
Contact 202-690-3565)
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Beans, Small Red

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Small Red Bean and any alternates that are culturally acceptable.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	Max 18%	g
Energy	350.0	Kcal
Protein	22.0	g
Total Lipid	1.0	g
Carbohydrate	62.0	g
Fiber, total dietary	9.0	g
Ash	n/a	g
Calcium	150.0	mg
Iron	7.0	mg
Magnesium	200.0	mg
Phosphorus	450.0	mg
Potassium	1450.0	mg
Sodium	18.0	mg
Zinc	3.0	mg
Copper	7.0	mg
Manganese	0.8	mg
Selenium	n/a	mcg
Vitamin C	n/a	mg
Thiamin	0.7	mg
Riboflavin	0.2	mg
Niacin	2.2	mg
Pantothenic acid	0.750	mg
Vitamin B-6	0.250	mg
Folate	0.250	mcg
Vitamin B-12	n/a	mcg
Vitamin A	n/a	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Small Red Beans

3. SPECIFICATIONS

Small Red Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."
(Source: USDA :FSA:PDD:EOB December, 1997.
Contact 202-690-3565)
http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm

4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Bulgur

This processed commodity is generally used as a staple food for all categories of programs. Bulgur is cracked, debranned, and partially precooked to lower final cooking time, reduce toughness and some of the crude fiber.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12, (http://www.nal.usda.gov/fnic/foodcomp These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

Nutrient	Amount	Unit
Water	9.0	g
Energy	342.0	Kcal
Protein	12.3	g
Total Lipid	1.3	g
Carbohydrate	75.9	g
Fiber, total dietary	18.3	g
Ash	1.5	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	164	mg
Phosphorus	300	mg
Potassium	410	mg
Sodium	17.0	mg
Zinc	1.9	mg
Copper	0.3	mg
Manganese	3.0	mg
Selenium	2	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	1.0	mg
Vitamin B-6	0.3	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205	IU
Vitamin E	0.2	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Whole Wheat

3. SPECIFICATIONS

The bulgur shall be milled from wheat of any of the classes defined in the "Official Grain Standards of the United States," for wheat except red durum wheat or mixtures of wheat of contrasting classes.

CHEMICAL AND PHYSICAL REQUIREMENTS

	REQUIREMENT [1]	
ITEM	**Minimum**	**Maximum**
Moisture	--	11.5
Protein (Nx5.7), % [2]	9.3	--
Crude Fiber, % [2]	--	2.3
Ash, % [2]	--	[3]
Foreign Material:		
Other grains except wheat, %	--	0.10
Material except other grains, % [4]	--	0.10
Scorched particles (whole or pieces of kernels), %	--	0.20
Ungelatinized particles (whole or pieces of kernels), %	--	1.0
Whole processed kernels remaining on woven-wire-cloth sieve, %	--	4.0
Material that will pass through U.S. Standard No. 8 woven-wire-cloth sieve, %	80	--
Material that will pass through U.S. Standard No. 14 woven-wire-cloth sieve, %	--	18
Material that will pass through U.S. Standard No. 30 woven-wire-cloth sieve, %	--	0.9

[1] All percentages are on the basis of weight.
[2] These limiting factors are on a moisture-free basis.
[3] Prior to calcium enrichment, Bulgur may not have an ash content exceeding 2.0% on a moisture free basis.
[4] Including grain hulls either attached or detached. However, any hulls attached to product should be detached before inclusion in the hull fraction.

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb.	16.0	24.0
Vitamin A Palmitate, IU/lb.	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	750
Iron (reduced iron, 325 mesh, to be used as the iron source), mg/lb.	13.0	26.0

(Source: USDA :FSA:PDD:EOB April, 1996. Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/bulgar.htm)

4. PACKAGING

50 kg (110.23 lb.) bags made of woven polypropylene. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

Bulgur, Soy-Fortified

This processed commodity is generally used as a staple food for all categories of programs. Bulgur is cracked, debranned, and partially precooked to lower final cooking time, reduce toughness and some of the crude fiber.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

Nutrient	Amount	Unit
Water	8.7	g
Energy	339.8	Kcal
Protein	18.2	g
Total Lipid	1.3	g
Carbohydrate	69.6	g
Fiber, total dietary	18.18	g
Ash	2.2	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	182.90	mg
Phosphorus	356	mg
Potassium	706	mg
Sodium	17.5	mg
Zinc	2.0	mg
Copper	0.9	mg
Manganese	3.0	mg
Selenium	2	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	1.2	mg
Vitamin B-6	0.4	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205.00	IU
Vitamin E	0.1	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

85% Bulgur	Milled from any classes of wheat defined in the "official grain standard of the United States." Cracked, debranned.
15% Soy grits	Defatted, toasted, or expeller processed.

3. SPECIFICATIONS

(See Table next page.)

CHEMICAL AND PHYSICAL REQUIREMENTS (FINISHED PRODUCT)

	REQUIREMENT[1]	
ITEM	**Minimum**	**Maximum**
Moisture, %	--	11.5
Protein (Nx6.25), % [2]	17.3	--
Crude Fat [2]	--	2.6
Ash, % [2]	--	[3]
Crude Fiber, % [2]	--	2.6
Total Bacteria Count per gram	--	50,000
Foreign Material: Other grains except wheat and soy grits, %	--	0.10
Materials other than cereal grains or soy grits, % [4]	--	0.10
Scorched particles (whole kernels and/or pieces of kernels of wheat or soy), %	--	0.20
Ungelatinized wheat particles (whole kernels and/or pieces of kernels), %	--	0.9
Whole processed kernels remaining on U.S. Standard No. 8 woven-wire-cloth sieve, %	--	3.5
Material that will pass through U.S. Standard No. 8 woven-wire-cloth sieve, %	81	--
Material that will pass through U.S. Standard No. 14 woven-wire-cloth sieve, %	--	23
Material that will pass through U.S. Standard No. 30 woven-wire-cloth sieve, %	--	1.2

[1] All percentages are on the basis of weight.
[2] These limiting factors are on a moisture-free basis.
[3] For maximum ash see table on "Maximum Ash Allowable Without Discount at Specified Calcium Levels" in USDA Specifications
[4] Including grain hulls either attached or detached. However, any hulls attached to product should be detached before inclusion in the hull fraction.
(Source: USDA :FSA:PDD:EOB February 12, 1998. Contact 202-690-3565;
BWSF7: PURCHASE OF BULGUR/SOY-FORTIFIED BULGUR FOR USE IN EXPORT PROGRAMS – SPECIFICATIONS)

4. PACKAGING

50 kg (110.23 lb.) bags of woven polypropylene. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Corn

This unprocessed whole grain is used primarily for distribution in emergency situations and to a lesser extent in Food for Work (FFW) and Maternal and Child Health (MCH) programs.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	10.3	g
Energy	365.0	Kcal
Protein	9.4	g
Total Lipid	4.7	g
Carbohydrate	74.3	g
Fiber, total dietary	n/a	g
Ash	1.2	g
Calcium	7	mg
Iron	2.71	mg
Magnesium	127	mg
Phosphorus	210	mg
Potassium	287	mg
Sodium	35.0	mg
Zinc	2.2	mg
Copper	0.3	mg
Manganese	0.5	mg
Selenium	16	mcg
Vitamin C	0	mg
Thiamin	0.39	mg
Riboflavin	0.20	mg
Niacin	3.63	mg
Pantothenic acid	0.4	mg
Vitamin B-6	0.6	mg
Folate	19	mcg
Vitamin B-12	0	mcg
Vitamin A	469	IU
Vitamin E	0.8	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

100% Yellow Corn

3. SPECIFICATIONS

Class:	Yellow
Grade:	No. 2 or better
Moisture (Max.):	14.5%
Test weight (Min.):	54.0 lbs./bu.

(Source: USDA:FSA:PDD:EOB April, 1996.
Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/corn.htm)

4. PACKAGING

50 kg (110.23 lb.) bags of woven polypropylene. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Cornmeal

This processed commodity is generally used as a staple food in all categories of programs.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

Nutrient	Amount	Unit
Water	11.6	g
Energy	366.0	Kcal
Protein	8.5	g
Total Lipid	1.7	g
Carbohydrate	77.7	g
Fiber, total dietary	7.4	g
Ash	0.6	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	40	mg
Phosphorus	84	mg
Potassium	162	mg
Sodium	3.0	mg
Zinc	0.7	mg
Copper	0.1	mg
Manganese	0.1	mg
Selenium	8	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.3	mg
Vitamin B-6	0.3	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205	IU
Vitamin E	0.3	mg-ATE
Vitamin D	N/a	IU
Iodine	N/a	mcg

2. COMPONENTS

100% Yellow Corn, shelled, dehulled and degermed to reduce susceptibility to rancidity.

3. SPECIFICATIONS

Per Federal Specification NC-521E (March 3, 1970), Cornmeal will be enriched to contain: 2.0 to 3.0 mg/lb thiamin; 1.2 to 1.8 mg/lb riboflavin;16.0 to 24.0 mg/lb niacin or niacinamide; 13.0 to 26.0 mg/lb iron; and 750 mg/lb calcium.

(See Table next page)

4. PACKAGING

25 kg (55 lbs.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

CHEMICAL AND PHYSICAL REQUIREMENTS

	REQUIREMENT [1]	
ITEM	**Minimum**	**Maximum**
Moisture	--	13.0
Fat, %	--	1.5
Ash, % [2]	--	[3]
Material that will pass through U.S. Standard No. 20 woven-wire-cloth sieve, %	99	--
Material that will pass through U.S. Standard No. 25 woven-wire-cloth sieve, %	90	--
Material that will pass through U.S. Standard No. 45 woven-wire-cloth sieve, %	30	--
Material that will pass through U.S. Standard No. 80 woven-wire-cloth sieve, %		
Vitamin A Palmitate, IU/lb. [4]	10,000	12,000
Calcium, mg/lb. [2]	500	750

[1] All values are on the basis of weight.
[2] These limiting values are on a moisture-free basis.
[3] For maximum ash see Table on "Maximum Ash Allowable Without Discount at Specified Calcium Levels" (paragraph 9.D) in USDA Specifications.
[4] Vitamin A Palmitate (stabilized) must be added in encapsulated form containing 250,000 IU Vitamin A Palmitate/g.
(Source: USDA:FSA:PDD:EOB November, 1997. Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/cornmeal.html)

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb.	16.0	24.0
Vitamin A-Palmitate, IU/lb. [1]	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	750
Iron (reduced iron, 325 mesh, to be used as the iron source), mg/lb. [2]	13.0	26.0

[1] Vitamin A Palmitate (stabilized) must be added in encapsulated form containing 250,000 IU Vitamin A Palmitate/g.
[2] Ferrous sulfate is not to be used as the iron source in any processed cereal products purchased for export assistance programs.

(Source: USDA:FSA:PDD:EOB November, 1997. Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/sfcornmeal.html)

Cornmeal, Soy-Fortified

This processed commodity is most used in emergency programs and to a lesser extent in other categories.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

Nutrient	Amount	Unit
Water	10.9	g
Energy	360.2	Kcal
Protein	14.9	g
Total Lipid	1.6	g
Carbohydrate	71.1	g
Fiber, total dietary	8.92	g
Ash	1.4	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	77.50	mg
Phosphorus	173	mg
Potassium	495	mg
Sodium	5.6	mg
Zinc	1.0	mg
Copper	0.7	mg
Manganese	0.5	mg
Selenium	7	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.6	mg
Vitamin B-6	0.3	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205.00	IU
Vitamin E	0.3	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

85% Cornmeal	Degermed to reduce susceptibility to rancidity.
15% Soy Flour	Defatted and toasted.
Vitamins & Minerals	Added to help meet nutritional requirements.

3. SPECIFICATIONS

(See Table next page)

4. PACKAGING

25 kg (55 lb.) bags of multi-wall Paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information.

CHEMICAL AND PHYSICAL REQUIREMENTS

ITEM	REQUIREMENT [1] Minimum	Maximum
Moisture	--	13.0
Protein (Nx6.25), % [2]	13.0	--
Fat, % [2]	--	1.5
Crude Fiber, % [2]	--	2.0
Ash, % [2]	--	[3]
Material that will pass through U.S. Standard No. 20 woven-wire-cloth sieve, %	99	--
Material that will pass through U.S. Standard No. 25 woven-wire-cloth sieve, %	91	--
Material that will pass through U.S. Standard No. 45 woven-wire-cloth sieve, %	40	--
Material that will pass through U.S. Standard No. 80 woven-wire-cloth sieve, %		

[1] All values are on the basis of weight.
[2] These limiting values are on a moisture-free basis.
[3] For maximum ash see Table on "Maximum Ash Allowable Without Discount at Specified Calcium Levels" (paragraph 9.D) in USDA Specifications.

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb.	16.0	24.0
Vitamin A-Palmitate, IU/lb. [1]	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	750
Iron (reduced iron, 325 mesh, to be used as the iron source), mg/lb. [2]	13.0	26.0

[1] Vitamin A Palmitate (stabilized) must be added in encapsulated form containing 250,000 IU Vitamin A Palmitate/g.
[2] Ferrous sulfate is not to be used as the iron source in any processed cereal products purchased for export assistance programs.

(Source: USDA:FSA:PDD:EOB November, 1997. Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/sfcornmeal.html)

Corn Soy Blend

This processed commodity is used mainly as a weaning food in Maternal Child Health Programs (MCH), and to a lesser extent in emergency and other types of programs.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

Nutrient	Amount	Unit
Water	9.7	g
Energy	375.7	Kcal
Protein	17.2	g
Total Lipid	6.9	g
Carbohydrate	61.7	g
Fiber, total dietary	9.0	g
Ash	1.8	g
Calcium	831	mg
Iron	17.49	mg
Magnesium	173.8	mg
Phosphorus	206	mg
Potassium	634	mg
Sodium	7.3	mg
Zinc	5.0	mg
Copper	0.9	mg
Manganese	0.7	mg
Selenium	6	mcg
Vitamin C	40	mg
Thiamin	0.53	mg
Riboflavin	0.48	mg
Niacin	6.23	mg
Pantothenic acid	3.4	mg
Vitamin B-6	0.5[1]	mg
Folate	300	mcg
Vitamin B-12	1	mcg
Vitamin A	2612.2	IU
Vitamin E	8.7	mg-ATE
Vitamin D	198.0	IU
Iodine	56.9	mcg

[1] 0.2 mg added as Pyridoxine HCL

2. COMPONENTS

69.5% Cornmeal: Processed, gelatinized
21.8% Soy flour: defatted, toasted
5.5% Soybean oil: refined, deodorized, stabilized
3.0% Minerals and Vitamin Antioxidant premix

3. SPECIFICATIONS

Salmonella, E. Coli and Coagulase Positive. Staphylococci will be negative.
Dispersability - will be essentially free from lumping or balling when mixed with water.
For micronutrient addition level standards, refer to Section I, p. 7

(See Table next page.)

4. PACKAGING

25 kg (55 lb.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

CHEMICAL AND PHYSICAL REQUIREMENTS

	REQUIREMENT[1]	
ITEM	**Minimum**	**Maximum**
Moisture, %	--	10.0
Protein (Nx6.25), %	16.7	--
Fat, %	6.0	--
Crude Fiber, %	--	2.0
Material Through a U.S. Standard No. 6 Woven-Wire-Cloth Sieve, %	99.0	--
Material Through a U.S. Standard No. 30 Woven-Wire Cloth Sieve, %	--	92.0
Material Through a U.S. Standard No. 60 Woven-Wire-Cloth Sieve, %	--	57.0
Consistency (Bostwick value) uncooked	--	20.0
Consistency (Bostwick value)		
Cooked, 11.75 % gruel	9.0	21.0
Total bacteria count per gram	--	50,000

[1] Unless otherwise specified analyses are expressed on a moisture-free basis.

(Source: USDA:FSA:PDD:EOB April, 1996. Contact 202-690-3565
http://www.fas.usda.gov/excredits/pl480/commodities/cornsoy.htm)

Corn Masa Flour

This blended, protein-fortified, processed commodity is designed for use in the preparation of tortillas and similar products or gruels to be consumed by both children and adults.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

Nutrient	Amount	Unit
Water	9.0	g
Energy	365.0	Kcal
Protein	9.3	g
Total Lipid	3.8	g
Carbohydrate	76.3	g
Fiber, total dietary	n/a	g
Ash	1.6	g
Calcium	110	mg
Iron	3	mg
Magnesium	110.0	mg
Phosphorus	223.0	mg
Potassium	298.0	mg
Sodium	5.0	mg
Zinc	1.8	mg
Copper	0.2	mg
Manganese	0.5	mg
Selenium	n/a	mcg
Vitamin C	0.0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.7	mg
Vitamin B-6	0.4	mg
Folate	150	mcg
Vitamin B-12	0.0	mcg
Vitamin A	2205	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

95% Corn Masa Flour:

Whole ground white or yellow corn, partially precooked in lime water, followed by washing, rinsing, grinding, and drying to produce the traditional flavor and performance characteristics suitable for preparation of a wide range of food staples in the form of arepas, corn cakes, corn chips, tortillas, enchiladas, or gruel.

5% Soy Flour: Defatted and toasted.

Vitamin and Mineral Enrichment

3. SPECIFICATIONS

(See Table next page.)

4. PACKAGING

25 kg (55lb.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

CHEMICAL AND PHYSICAL REQUIREMENTS

	REQUIREMENT[1]	
ITEM	**Minimum**	**Maximum**
Moisture, %	--	11.5
Protein, % [1]	11.0	--
Fat, % [1]	3.0	--
Ash, % [1]	--	2.5
Ph	6.7	8.0
Material through a U.S. Standard No. 30 woven-wire-cloth sieve, %	100	--
Material through a U.S. Standard No. 50 woven-wire-cloth sieve, %	85	--
Material through a U.S. Standard No. 100 woven-wire-cloth sieve, %	52	--
Dough Handling	Typical, Cohesive, Pliable	
Baked tortilla	Typical, No cracks	
Flavor	Typical, Lime-corn	
Total bacteria count, per gram	--	50,000

[1] Analyses are expressed on a moisture-free basis.

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb	16.0	24.0
Iron (reduced iron, 325 mesh to be used as the iron source), mg/lb.	13.0	26.0
Vitamin A Palmitate, IU/lb.	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	1,000

(Source: USDA :FSA:PDD:EOB January 16, 1998. Contact 202-690-3565;
MF7: PURCHASE OF INSTANT CORN-SOY MASA FLOUR FOR USE IN EXPORT PROGRAMS – SPECIFICATIONS)

Corn Soy Masa Flour, Instant

This blended, protein-fortified, processed commodity is designed for use in the preparation of tortillas and similar products or gruels to be consumed by both children and adults.

1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (http://www.nal.usda.gov/fnic/foodcomp). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

Nutrient	Amount	Unit
Water	8.9	g
Energy	363.1	Kcal
Protein	11.4	g
Total Lipid	3.7	g
Carbohydrate	74.2	g
Fiber, total dietary	n/a	g
Ash	1.8	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	119.0	mg
Phosphorus	246	mg
Potassium	402	mg
Sodium	5.8	mg
Zinc	1.8	mg
Copper	0.4	mg
Manganese	0.6	mg
Selenium	n/a	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.7	mg
Vitamin B-6	0.4	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

2. COMPONENTS

95% Corn Masa Flour:

Whole ground white or yellow corn, partially precooked in lime water, followed by washing, rinsing, grinding, and drying to produce the traditional flavor and performance characteristics suitable for preparation of a wide range of food staples in the form of arepas, corn cakes, corn chips, tortillas, enchiladas, or gruel.

5% Soy Flour: Defatted and toasted.

Vitamin and Mineral Enrichment

3. SPECIFICATIONS

(See Table next page.)

4. PACKAGING

25 kg (55lb.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information

CHEMICAL AND PHYSICAL REQUIREMENTS

	REQUIREMENT[1]	
ITEM	**Minimum**	**Maximum**
Moisture, %	--	11.5
Protein, % [1]	11.0	--
Fat, % [1]	3.0	--
Ash, % [1]	--	2.5
Ph	6.7	8.0
Material through a U.S. Standard No. 30 woven-wire-cloth sieve, %	100	--
Material through a U.S. Standard No. 50 woven-wire-cloth sieve, %	85	--
Material through a U.S. Standard No. 100 woven-wire-cloth sieve, %	52	--
Dough Handling	Typical, Cohesive, Pliable	
Baked tortilla	Typical, No cracks	
Flavor	Typical, Lime-corn	
Total bacteria count, per gram	--	50,000

[1] Analyses are expressed on a moisture-free basis.

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb	16.0	24.0
Iron (reduced iron, 325 mesh to be used as the iron source), mg/lb.	13.0	26.0
Vitamin A Palmitate, IU/lb.	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	1,000

(Source: USDA :FSA:PDD:EOB January 16, 1998. Contact 202-690-3565;
MF7: PURCHASE OF INSTANT CORN-SOY MASA FLOUR FOR USE IN EXPORT PROGRAMS – SPECIFICATIONS)

SECTION III
Storage/Shelf Life Specifications

I STORAGE SPECIFICATIONS

Storage space requirements should be given careful attention. The amount of space necessary in a warehouse depends upon the total volume of food to be stored and on the number of different commodities. Each commodity should be stacked separately. Separate stacks require more usable volume than one large stack (i.e., a warehouse large enough to hold 50 MT of wheat will hold less than 50 MT of wheat and sorghum stacked separately).

The difference between gross dimensions of a warehouse and usable volume for storage must be taken into consideration. The following illustrations show gross dimensions of warehouses and usable volume when stacks of food are stored.

Space Utilization - Usable Stacking Volume in Cubic Meters

Figure 1:Warehouse with one stack of grain.

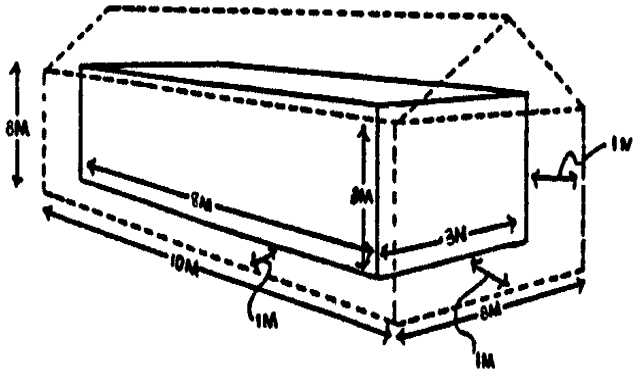
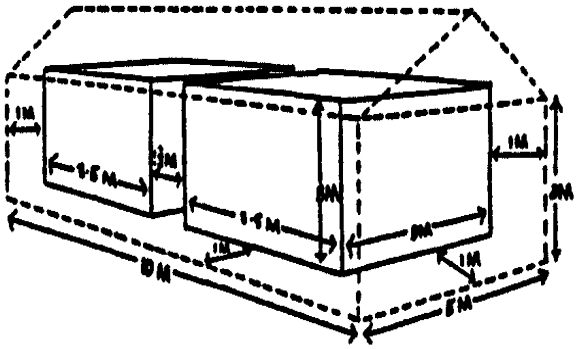


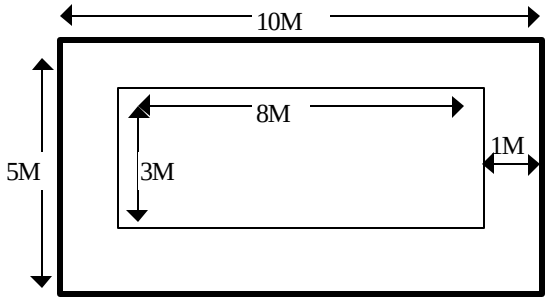
Figure 2:Warehouse with two stack of grain



(Source: *CARE Food Resource Manual*, November 1995).

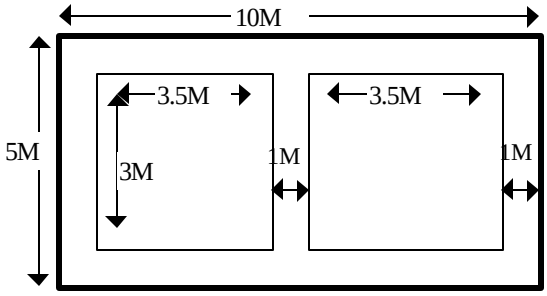
Small Warehouse (Height = 3M)

One stack



Gross Volume
= 10M x 5M = $50M^2$ x 3M = **$150M^3$**
Usable Volume
= 8M x 3M = $24M^2$ x 2M = **$48M^3$**
Storage Capacity (50 kg bags)
= 48 M^3/ 2 = 24 MT (480 bags)

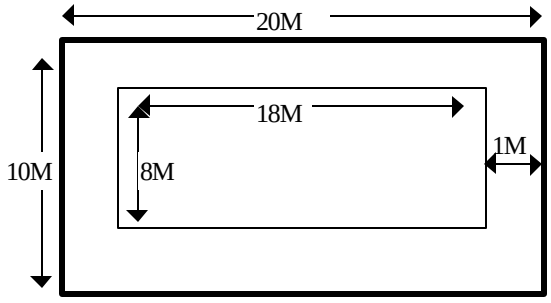
Two stacks



Gross volume
= 10M x 5M = $50M^2$ x 3M = **$150M^3$**
Usable volume
= (10M - 3M) x (5M - 2M)
= 7M x 3M = $21M^2$ x 2M = 42**M^3**
Storage Capacity (50 kg bags)
= 42 M^3 / 2 = 21 MT (420 bags)

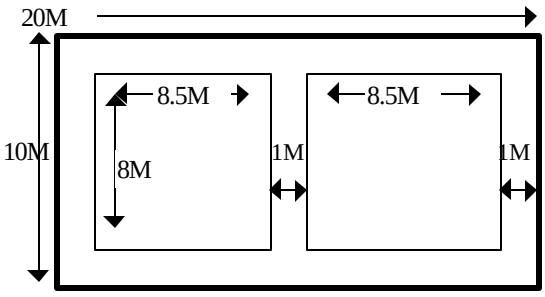
Medium Warehouse (Height = 4M)

One stack



Gross Volume
= 10M x 20M = $200M^2$ x 4M = **$800M^3$**
Usable Volume
= 18M x 8M = $144M^2$ x 3M = 432**M^3**
Storage Capacity (50 kg bags)
= 432 M^3 / 2 = 216MT (4320 bags)

Two stacks

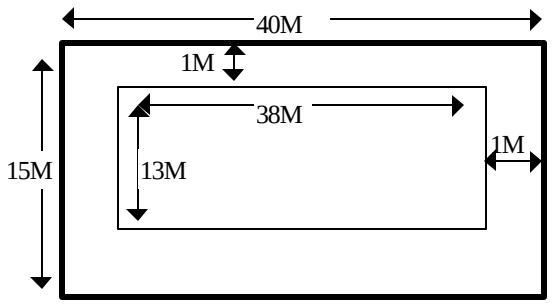


Gross volume
= 10M x 20M
= $200M^2$ x 4M = **$800M^3$**
Usable volume
= (20M - 3M) x (10M - 2M)
= 17M x 8M = $136M^2$ x 3M = 408**M^3**
Storage Capacity (50 kg bags)
= $408M^3$ / 2 = 204 MT (4080 bags)

(Source: *CARE Food Resource Manual*, November 1995).

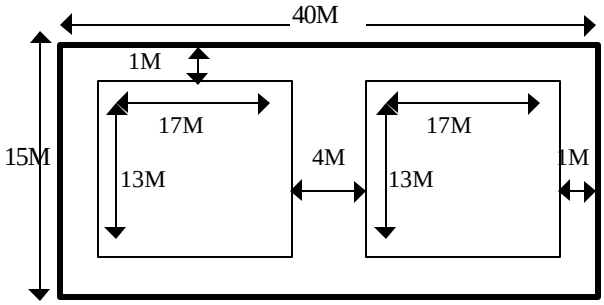
Large Warehouse (Height = 5M)

One stack



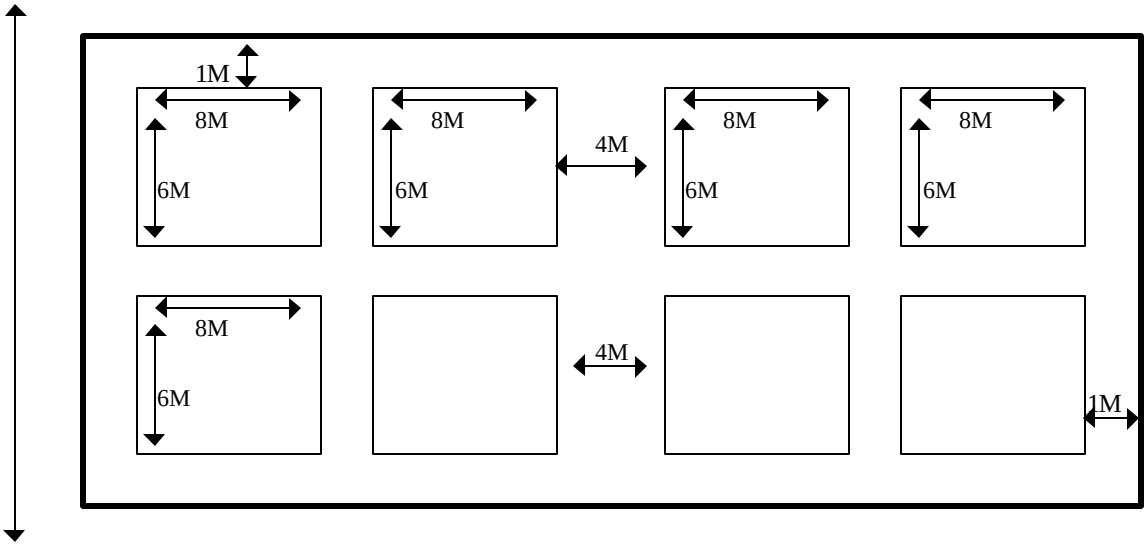
Gross Volume
= 40M x 15M = 600M^2 x 5M = **3,000M^3**
Usable Volume
= 38M x 13M
= 494M^2 x 4M = ,1976M^3
Storage Capacity
= 1,976M^3 / 2 = 988M^3 (19,760 bags)

Two stacks; four meter central gangway



Gross volume
= 40M x 15M = 600M^2 x 5M = **3,000M^3**
Usable volume
= (40M - 4M - 2M) x (15M - 2M)
= 34M x 13M = 442M^2 x 4M = 1**,768M^3**
Storage Capacity
= 1,768M^3 / 2 = 884M^3 (17,680 bags)

Eight stacks; four meter central gangway



Gross volume = 40M x 15M = 600M^2 x 5M = **3,000M^3**
Usable volume = (40M - 4M - 4M) x (15M - 3M)
= 32M x 12M = 442M^2 x 4M = 1,768**M^3**
Storage Capacity **= 1,768M^3 / 2 = 884M^3 (17,680 bags)**

(Source: *CARE Food Resource Manual*, November 1995).

In estimating how much usable space is needed per commodity, the following rules of thumb may help. (These are **estimated** figures)

- One MT of a bagged commodity (50 lb. bags) requires approximately 2 cubic meters of usable storage space.
- One MT of edible Vegoil in tins requires approximately 1.4 cubic meters of usable storage space.
- In using the stacking suggestions below, do not stack fiberboard cases of oil tins higher than 8 layers. Do not stack flour and meals higher than 20 layers. Do not stack grits or whole grains higher than 30-40 layers.

II STORAGE INSPECTION CHECKLIST

Date: _____
Inspected by: _____
Warehouse: _____

A. Yard Area Surrounding Warehouse

___ 1. Inspect the yard for signs of rodents (i.e., pellets, tracks, burrows, holes, sings of feeding).
___ 2. Check to see that conditions do not attract insects (i.e., spilled commodities or other edible materials, empty containers, bird nests, weeds, trash, piled or damaged packing materials).
___ 3. Remove trash and unnecessary equipment and supplies regularly.
___ 4. Check the general security of the yard area surrounding the warehouse.

B. Warehouse

___ 1. Screen openings with wire netting with mesh not larger than 6.35 mm.
___ 2. Make doors of tightly fitting metal.
___ 3. Check for roof leaks.
___ 4. Check for holes in the walls.
___ 5. Ensure that the floor is sufficiently hard-packed to prevent burrowing by rodents.
___ 6. Check to see that the warehouse is well lit.
___ 7. Clean and service the anticoagulant and rodent bait stations regularly, and keep them filled with fresh bait (exterior use only)
___ 8. Use rodent tracking powders (exterior use only)
___ 9. Use multiple-catch mouse traps, snap traps, and glue boards in the interior of the warehouse and check them weekly.
___ 10. Position commodity stacks at least one meter from walls and other stacks.
___ 11. Keep passageways clean.
___ 12. (For large and very large warehouses) Provide three to four meters wide central gangways.
___ 13. Stack at a reasonable height for ease of handling and to prevent damage to containers by crushing or falling from stacks.
___ 14. Lift bags by the body instead of corners (to prevent tearing or weakening of the bag).
___ 15. Place bags on stacks, do not throw.
___ 16. Make sides of stack flush.
___ 17. Provide air spaces between the individual stacks.
___ 18. Clean empty bags thoroughly before reuse and stack neatly.
___ 19. Use packing materials (e.g. cardboard, wood crates) that is clean.
___ 20. Stack clean unused packing materials neatly.
___ 21. Remove broken packing materials.
___ 22. Cover the top of packing materials to prevent spillage of food from damaged containers to ground or floor below.

C. Commodities

___ 1. Stack individual commodities separately.
___ 2. Separate food stacks from non-food stocks.
___ 3. Reconstitute/re-bag commodities from damaged container into good containers, stitch the opening and weigh for correct quantity before stacking.
___ 4. Store any spoiled/infested food commodity away from good commodity.
___ 4. Observe damaged containers carefully, and fumigate them if insects appear.
___ 5. Examine the exterior of stacked food containers to assure that they are clean and free of mold, insects, rodents and birds.
___ 6. Set up a program to remove damaged commodities properly.
___ 7. Use insecticides or fogs.
___ 8. Use fumigants.
___ 9. Keep adequate records for a program of stock rotation (i.e. what is first in, is first out, or FIFO).
___10. Check to see that commodities are stacked on pallets to keep off the floor in both small and large warehouses.

III SHELF LIFE OF AGRICULTURAL COMMODITIES

A. GENERAL REVIEW

Shelf life refers to the average amount of time a product may be store without nutritional or organoleptic (sensory) deterioration. A food product can deteriorate for several reasons: aging, microbiological decay, chemical and physical degradation, texture changes, etc. These modes of deterioration are affected by many factors, both intrinsic (*of* or *within* the product) and extrinsic (*environmental* or *outside* the product). Controlling processing, packaging, handling and storing of the product can slow deterioration of food products. Depending on the product, this date may be a food safety date; however, it primarily refers to the length of time the product can be expected to last without significant deterioration.

Intrinsic Factors	**Extrinsic Factors**
moisture or water activity (Aw)	storage temperature
salt and mineral content	atmosphere (e.g., oxygen, nitrogen
pH	and carbon dioxide levels)
physical state	type of packaging
degree of microbiological contamination	light exposure
presence or absence of antimicrobial agents	water moisture/ air permeability
	handling
	relative humidity

B. BEST IF USED BY DATE

Shelf life is different from the "Best if Used by Date", which is intended to tell you how long the product will retain best flavor or quality. This is not a food safety date and "Best if Used by Dates" are intended as useful guidelines. Some food may deteriorate more quickly and other foods may last longer than the times suggested. A number of factors can shorten the useful life of a food product, such as improper handling and inadequate storage temperatures. As the expiration date is not always noted on the container/bag, the inventory control methods of "first-in, first-out" (FIFO) should be practiced by those responsible for managing commodity inventories and distribution at all levels. Products kept past the "Best if Used by Date" are not necessarily "out of condition". Food products may be eaten after the "Best if Used by Date" if the product has been properly stored, handled, and the primary container is in good condition.

In either case, the dates assigned to products are based on intrinsic and extrinsic factors, and determined by systematic study or empirical data. Systematic studies are designed to simulate actual or potential storage and handling practices of a given product and estimate shelf life through the course of chemical and analytical testing at specific intervals throughout the expected shelf life. Systematic studies may also rely on accelerated testing when dealing with products with expected long shelf lives. In some cases, shelf life evaluations can be made based on existing information, or empirical data. By gathering information from actual field use, an estimated shelf life can be determined; however, this should be confirmed through systematic studies where the mode of deterioration is a food safety hazard.

Often there is a conflict between quality and the logistic requirements of manufacturing and shipping. Compromises which have to be made should never sacrifice quality (or safety) and statutory quality standards and regulations of the product.

(Source: All Shelf Life material provided by *Contract Management Branch, USDA*)

C. TEMPERATURE AND HUMIDITY

Universal guidelines for controlling temperature and humidity conditions are impossible because these conditions and the operating environment vary from place to place. The basic instructions for field staff are:

- Keep all food commodities in dry condition.
- Do not keep wet food with dry food.
- De-bag wet commodities and dry them under the sun. Re-bag them and weigh them.
- Cross-ventilate the warehouse if possible.
- A sunroof in the warehouse is preferable.
- Covering food commodities with tarpaulin during transportation is mandatory.

IV References

CARE. Food Resources Manual. 1998. Food Aid Management Website: http://www.foodaid.org Commodity Management Page.

Monetization Field Manual P.L. 480 Title II Programs. USAID/BHR/FFP/Development Programs. October 16, 1998. http://www.info.usaid.gov/hum_response/ffp/monetiz.htm

Proceedings Commodity Storage and Loss Reduction Project Dissemination Workshops. Port-au-Prince, Haiti, June 29-July 2, 1998, and Johannesburg, South Africa, July 27-29, 1998. Workshops hosted by: CARE, Catholic Relief Services, Food Aid Management, World Vision Relief and Development, and USDA/OFDA. http://www.foodaid.org Commodity Management Page.

Save the Children Monetization Manual: Market Analysis, 2.2 Commodity Selection, pp. 2-5

Selected Bibliography of FSRC Resources on Commodity Storage, Commodity Loss, and Commodity Management. Prepared by Jessica Graef for the Commodity Storage and Loss Reduction Project Workshop July 27-29, 1998, Johannesburg, South Africa (see above). Attachment J, pp. 1-10. Food Aid Management, http://www.foodaid.org Commodity Management Page.

SECTION IV
Controlling Damage to Food Commodities

I CLEANING AND INSPECTING

If sound storage procedures for commodities, as addressed in the following chapter, are followed, insect and rodent problems will be minimal. The problems can be further controlled with a program of cleaning and inspecting.

The program should include (1) closing or removing open food containers, (2) repairing damaged packages, (3) removing and disposing food unfit for human consumption, and (4) inspecting and cleaning the storage area regularly according to a planned, scheduled program.

Table IV, 1 Guidelines for Warehouse Inspections

Area to be inspected:	Inspect for:
Outside the warehouse	Cleanliness Condition of roof, walls and windows Security--fences, guards, locked doors and windows
Inside the warehouse	Condition and cleanliness of ceilings, floors and walls Adequate ventilation Placement of rodent baits / traps Presence of hazardous substances such as chemicals and pesticides Presence of fire extinguishing equipment, dates not expired
Food storage area	Distance between stacks, and between stacks and walls Interlaced or bonded stacks Use of pallets free of exposed nails or wooden splinters which may tear bag Segregation of damaged food Insect infestations -visual and sounds Rodent or bird infestations Stale food which has been stored too long Leaking, stained or discolored containers, bulging or rusting cans and caking of food within bags Germination of grain in sacks Short-weight containers
Warehouse office area	Cleanliness Adequate shelving Adequate lighting Condition of office equipment

II INSECT CONTROL

A. FUMIGATION

In all cases, READ THE MANUFACTURER'S LABEL BEFORE USING FUMIGANTS. *Due to the extreme toxicity of fumigants, the utmost caution must be taken during their handling and administration.*

Fumigation is the use of a gas to kill insects and rodents. The purpose of fumigation is to destroy all stages of insects present in the material to be treated. An atmosphere that is toxic to insects will also kill rodents or other forms of animal life. Fumigation, will not eliminate mold or bacteria. Because there is no residual kill, insects or rodents may recontaminate the commodity immediately after fumigation. In order to protect stored foods a great emphasis must be placed on cleaning when sprays and fogs are used to eliminate insects.

To conduct an effective and safe fumigation, certain conditions must be met, including, but not limited to the following:

- appropriate temperature
- proper use of tarpaulins and sealing technique
- proper dosage and time exposure
- monitoring for presence of fumigants
- safety precautions
- inspection and follow-up.

B. INSECTICIDES (Other than Fumigants)

Again, READ THE MANUFACTURER'S LABEL BEFORB USING INSECTICIDES. Insecticides are useful tools when used with stack rotation and thorough cleaning. Nothing takes the place of cleanliness.

Sprays.
Insecticide sprays are applied to surfaces and will leave a residue that continues to kill insects that contact it. Be careful not to spray on product. Effective life of the residue depends on many things, including type of insecticide, surface to which it is applied, temperature, and humidity.

Fogs and Mists**.**
Insecticide fogs and mists move through the air to reach insects that may not be reached by contact sprays. They are especially effective against flying insects and insects that cannot be reached with contact sprays (for example, on surfaces of bags containing food). Close all doors and openings in the warehouse to prevent escape of the fog or mist. Read and follow manufacturer's label instructions.

III RODENT CONTROL

The primary method of rodent control is cleaning to eliminate harborage and food in the warehouse and around the storage area. Remove debris, weeds, trash, and food outside. Keep the inside of the warehouse clean of all food, especially containers of food unfit for human consumption and awaiting disposal. Remove or repair torn and broken packages. Openings into storage buildings should be protected against rodents with screen having openings not larger than 6.35 mm. Doors must fit tightly and they must be kept closed when not in use.

Bait Stations

To help control rodents, exterior bait stations containing fresh anti-coagulant poison should be maintained around the periphery of the grounds, 100 feet apart and around the exterior of the building, 50 feet apart. Bait stations must be checked frequently, (at least twice monthly) so that the bait does not become wet, moldy, or infested with insects.

Tracking Powder

Tracking powder can be used in limited areas (not where it could contaminate food) where a mouse problem is suspected.

Snap Traps

Snap Traps can be used; however, they must be given daily attention to be effective.

Glue Boards

These are useful against mice. They can be distributed among the stacks of food where mice become entangled with the glue and cannot escape. Glue boards must be inspected frequently, to be certain that they are fresh and effective. To increase effectiveness, place under a box with openings at each end (to create a tunnel), to protect from dust and to offer shelter to rodents.

Multiple-Catch Traps

These traps are for interior use and can hold up to 30 mice. Some require winding; all require weekly inspection.

IV REFERENCE CHART FOR CONTROLLING DAMAGE TO FOOD COMMODITIES

Table IV, 2 Controlling Damage to Food

Type of damage	Evidence of damage	Methods of control	Action necessary
Short-weight containers	Bags appear slack. Containers are not as heavy as normal when lifted. Weighing a random sample of bags and containers indicates short-weight.	If bulk shipments, increase vigilance of bagging operation at port. Increase security in storage areas and during transport.	**Repackage** or assign a new weight to the containers. **Prepare** Loss and Adjustment Reports and enter transactions on stack cards and in warehouse inventory ledgers.
Leaking, broken or torn bags or containers	Spilled food in transport vehicle. Food spills from containers during unloading. Bags are torn and containers are dented or crumpled.	Handle properly--do not throw, stack too high or use hooks Contact donor if packaging material/container appears inadequate.	**Repackage food** fit for human consumption. Inspect sweepings and either **reconstitute** or **dispose** of sweepings declared unfit for human consumption**.** **Prepare** Loss and Adjustment Reports and enter transactions on stack cards and in warehouse inventory ledgers.
Wet, stained or moldy bags or containers	Containers are wet to the touch or dripping. Containers are discolored Unusual smell (moldy or chemical) Caking of food.	Ship in waterproof holds or in adequately sealed cargo containers. Keep under cover when stored outside. Transport using tarpaulins. Insure adequate air circulation. Do not store past expiration date on container.	Inspect and **reconstitute food** fit for human consumption; **dispose** of food declared unfit for human consumption. Food dampened by rain may be dried and reconstituted. **Prepare** Loss and Adjustment Reports and enter transactions on stack cards and in warehouse inventory ledgers.
Bulging or rusted tins	Rust on outside of container, especially near seams and lids. Shape of container is bulging and distorted.	Do not store in direct sunlight Do not store past expiration date on container or longer than four months.	Inspect and **reconstitute food** fit for human consumption; **dispose** of food declared unfit for human consumption. **Prepare** Loss and Adjustment Reports and enter transactions on stack cards and in warehouse inventory ledgers.

Type of damage	Evidence of damage	Methods of control	Action necessary
Rodent or bird infestation	Rodents or birds in the warehouse Excrement on the floor or stacks Gnawed bags or containers Footprints in dust Nests	**Cleanliness** and **maintenance** are critical to preventing infestations. Keep both the outside and the inside of the storage facility clean and free of debris. Close holes or openings in walls, floors and ceilings. If possible place screens over windows and ventilation openings. **Cats** are effective in controlling rodents. **Traps** can be set along the interior walls of the warehouse, at each side of every outside door, and in rafters. Insure that no poisons or traps are accessible to the cats.	Inspect and **reconstitute food** fit for human consumption; **dispose** of food declared unfit for human consumption. **Prepare** Loss and Adjustment Reports and enter transactions on stack cards and in warehouse inventory ledgers.
Insect or moth infestation	Flying insects Live or dead insects or larvae on the floor Traces of insects or larva in dust Grain bags have small holes and excessive dust Noise heard inside the bag Irregular holes in the grain or beans Strong odor	**Cleanliness** is critical to prevent insect infestations. Keep both the outside and the inside of the storage facility clean and free of dust and debris.	Inspect and **fumigate**; **dispose** of food declared unfit for human consumption. **Prepare** Loss and Adjustment Reports and enter transactions on stack cards and in warehouse inventory ledgers.
Seepings	Loose food from slack or torn bags on warehouse floors Loose food on warehouse floors after reconstitution	Keep bags of food from being handled roughly or moved too many times. Instruct laborers to avoid as much spillage as possible during the reconstitution of food.	Frequently sweep floors to keep them clean. Reconstitute all food that may be fit for human consumption. Determine if sweepings are unfit. Prepare Loss and Adjustment Reports and enter transactions on stack cards and in warehouse inventory ledgers.

V REFERENCES

CARE. Food Resources Manual. 1998. Food Aid Management Website: http://www.foodaid.org Commodity Management Page.

Bibliography available at FAM.

USAID. Environmental Documentation Manual – For P.L. 480 Title II Cooperation Sponsors Implementing Food-Aided Development Programs (Final Draft). Reprinted April 1998.

USAID. A Field Guide to USAID Environmental Compliance Procedures, based on the USAID Environmental Manual for P.L. 480 Title II Food for Development Programs. March 5, 1998.

Part Two

GUIDELINES FOR SELECTING FOOD AID COMMODITIES

AN OVERVIEW

I. INTRODUCTION

The Commodities Reference Guide (CRG) provides relevant information about food commodities that are used in PL 480 Title II programs. Part One of the CRG contains Sections I through IV, which contain descriptions of food commodities available through PL480, Title II and their nutritional values and physical properties. Part One also includes important general information regarding the safe and effective storage and use of rations for use in Title II programs. Part One may be found online at www.usaid.gov/hum_response/crg.

Part Two provides programming information and considerations for selecting food aid rations for different program scenarios, including an overview and five program modules. The overview consists of a description of USAID's Office of Food for Peace (FFP) mandate,the types of programs it has approved and outlines the general approach to selection of food commodities used in the modules. The five program modules are the following: Module 1: Maternal Child Health and Nutrition; Module 2: Food for Work; Module 3: Food for Education; Module 4: Non-Emergency Humanitarian Assistance , and Module 5: Emergency. . Part III consists of five annexes, which include USAID and select food security definitions, a resource list of indicators, and tables for use in calculating food aid ration packages.

The information presented in Part Two is not intended to substitute for the detailed guidance provided annually by the Office of Food for Peace, the monetization manual, or the USAID food aid and food security policy paper. For guidance on the development of proposals see FFP's Title II Guidelines for Development Programs available online at www.usaid.gov/hum_response/ffp/dappaa.htm or PVO Guidelines for Title II Emergency Food Proposals and Reporting (Draft) also online at www.usaid.gov/hum_response/ffp/emerg.htm. Additional information can be found at the Food Aid Management website www.foodaid.org. Examples provided in this section are meant to be illustrative and do not attempt to cover all the ways in which rations may be used in programs. Part Two provides links to relevant program and policy documents as well as key web sites useful to cooperating sponsors (CSs) implementing Title II food aid programs.

II. OFFICE OF FOOD FOR PEACE'S MANDATE AND PROGRAMS

The overarching goal of the PL 480, Title II resource is to improve the food security of vulnerable populations around the world, either by the direct distribution of food aid commodities or the use of local currencies generated by the sale of these commodities. Food for Peace has the responsibility for administering PL 480, Title II food aid programs. This responsibility includes the review and approval of CS food aid program submissions, monitoring of program implementation and reporting to the U.S. Congress on progress made against established performance indicators. The CSs are generally U.S. and local PVOs and international organizations, such as the World Food Program (WFP).

Development and emergency food aid activities complement one another in achieving USAID's strategic goal of long-term food security. In crisis prone regions, for example, emergency food aid is used to rapidly respond to reduce human suffering caused by natural and man-made disasters while simultaneously laying a broader foundation for longer-term food security. Similarly, in development activities food aid helps to mitigate emergencies. An intermediate program supported by Food for Peace is the Short Term Development Program or Transition Activity, which takes a program from an emergency function to a more long-term development activity. A brief explanation of development and emergency food aid programs are as follows:

A. DEVELOPMENT FOOD AID PROGRAMS

PL 480, Title II development food aid constitutes the single largest source of USAID funding for food security programs. As a development tool, food aid is a flexible resource that can be used for direct feeding or monetized (sold) to generate local currency for development activities. Food aid is usually one component of a multifaceted development program and is used to help achieve program objectives. The majority of Title II development programs support the following major areas: (1) household nutrition and health; (2) agricultural productivity and natural resources management; (3) education; and (4) non-emergency humanitarian assistance for vulnerable groups.

1. HOUSEHOLD NUTRITION AND HEALTH

Household nutrition depends not only on sufficient quantity and quality in the household diet and food, but also on health, child care, and the environment of care (e.g., water and sanitation). Activities to improve household nutrition can aim to do so in various ways, for example an objective could be: to reduce malnutrition, increase micronutrient consumption, promote breast-feeding, improve ante-natal care, and ensure immunization against preventable diseases. Title II food assistance directly supports interventions that aim to improve nutritional status and mother and child survival worldwide. Guidance for food aid components for activities that support Maternal Child Health and Nutrition (MCHN) can be found in *Module 1-MCHN Programs*.

2. AGRICULTURAL PRODUCTIVITY AND NATURAL RESOURCES MANAGEMENT

Agricultural productivity and natural resources management efforts promote sustainable farming practices, more productive and diversified farming techniques, and improved post-harvest management and marketing. Under this sector, Food-for-Work (FFW) and Cash-for-Work (CFW) programs may be used to generate employment and construct infrastructure that has the potential to improve agricultural

productivity or income, and, in turn, household nutrition. FFW is typically targeted seasonally as well as geographically, focusing on areas and seasons that are most food deficit. For example, food assisted community infrastructure projects can provide short term employment to keep farmers near their fields and families, forestalling migration in search of wage work elsewhere. Food for Work programs are largely used to support development efforts, but are also used to support reconstruction after emergencies . A part of the Title II development portfolio includes support to microenterprise credit activities often managed by women and women's groups. *Module 2-Food for Work Programs* provides principles and examples of how rations are selected for FFW activities.

3. EDUCATION

USAID uses food aid to help improve educational opportunities by providing school snacks and meals and take-home incentive rations. These Food-for-Education (FFE) programs are used to encourage school enrollment and attendance, and to improve students' attentiveness—especially for those who receive no breakfast at home. Food insecure communities with poor school attendance and low-test scores are usually selected as the primary target for this type of assistance. Some programs specifically target girls. Principles and examples of ration selection in FFE programs are provided in *Module 3-Food for Education Programs.*

4. NON-EMERGENCY HUMANITARIAN ASSISTANCE

NEHA is designed to respond to crises as well as to feed those who are not able to take advantage of development activities in their communities. It exemplifies a longer-term effort to provide safety nets to vulnerable populations while providing a rapid response to rapid onset disaster. Beneficiaries include orphans, the elderly, patients in hospitals and families affected with HIV/AIDS. NEHA is generally provided through direct feeding programs and, frequently, in conjunction with other assistance activities. Principles and ration selection guidelines for NEHA programs are described in *Module 4-Non-Emergency Humanitarian Assistance Programs.*

B. EMERGENCY FOOD AID PROGRAMS

Typically, emergency relief activities are a combination of general and targeted food distribution. General food distribution provides food rations for the whole population most affected by a disaster, including refugees and internally displaced populations (IDPs). Targeted food distribution provides food only to a selected group who is the most vulnerable within the larger emergency-affected population. Common groups for targeting include: young children, especially those under five; orphans or unaccompanied children; pregnant and lactating women; the elderly, sick, or handicapped; and those identified as malnourished. Targeted food distribution activities can be implemented in one or more of several ways : supplementary feeding, therapeutic feeding, and food-for-work.

Emergency food aid programs may use a combination of components and should evolve over time based on information from continuous needs assessments. For example, an emergency activity that begins as a general feeding program serving all members of a population may evolve over time into a food-for-work or food-for-agriculture activity targeted to only a portion of the population. This evolution should correspond to recipients' growing self-reliance and facilitate the transition from relief to sustainable development.

While planning emergency activities, CSs and USAID endeavor to: (1) design relief interventions that do not promote aid dependency; (2) target food aid so that it reaches the most vulnerable populations in a timely manner; and (3) incorporate activities that ease the transition from crisis to recovery by linking relief to development. Examples of the use and selection of food aid commodities for emergency situations may be found in *Module 5-Emergency Programs*.

C. MONETIZATION

Monetization involves the sale of donated commodities overseas followed by the use of the funds to support some humanitarian or development activity. For a detailed treatment of monetization activities, see the USAID Monetization manual, which is posted on the USAID webpage www.usaid.gov/hum_response/ffp/monetiz.htm.

III. WHEN TO USE FOOD AID

There are many factors that determine if food aid is appropriate. While each CS has developed its own set of programming documents, several USAID-supported technical assistance projects have worked with CSs and USAID to harmonize their practices. Any new PVO entering the field today has the benefit of the collective experience of counterparts who have been implementing food assistance programs for decades.[1]

A primary concern in all Title II food aid programs is that the food aid not be a disincentive to local food production or markets and that it not disrupt a country's usual marketing requirements (UMR). To determine if food aid will be a production disincentive for local farmers, PL 480 legislation requires that a Bellmon analysis and determination be conducted. It is also important to emphasize that food aid should not displace fundamentally sound dietary practices of the recipient population. The basics on the Bellmon analysis and determination are identified below.

BELLMON ANALYSIS AND DETERMINATION

Disincentive (Bellmon) analyses are presented with development (non-emergency) project proposals to the local USAID Mission Director. The analysis must show that:

- The commodity is suitable for monetization or distribution in that country;
- There are adequate storage facilities in the recipient country;
- Commodity distribution or monetization will not act as a substantial disincentive or interfere with domestic production or commercial marketing of the commodity.

Guidance on how to carry out the Bellmon analysis may be found online at www.usaid.gov/hum_response/ffp/bellmon.htm.

IV. GUIDELINES FOR COMMODITY SELECTION

FFP recognizes that there is no such thing as "one size fits all" in program design and that no one ration can be appropriate for every context. For this reason, Part Two provides general guidelines, allowing for flexibility in different situations. Specific documents on how to design, manage, monitor and/or evaluate Title II programs can be found in the Resource List at the end of this chapter. The guidelines below pertain to all five program modules set forth in this CRG, which are as follows:

Module 1: Maternal Child Health and Nutrition Programs
Module 2: Food for Work Programs
Module 3: Food for Education Programs
Module 4: Non-Emergency Humanitarian Assistance Programs
Module 5: Emergency Programs

With the exception of *Module 5-Emergency Programs*, the modules correspond to the beneficiary categories of the annual estimate of requirements (AER) of food commodities for development activity proposals (DAP) or previously approved activities (PAA) used by CSs.[2]

The principles for selecting the most appropriate and cost-effective commodity rations to accomplish program objectives are organized in five general steps as follows:

1. Program Design
2. Suitability of Food Commodities
3. Ration Specifications
4. Ration Calculation
5. Ration Ranking and Selection

STEP 1: PROGRAM DESIGN

The five key program design considerations when using food aid are usually: (1) carrying out a needs assessment; (2) determining the appropriate use of food aid; (3) identifying characteristics of the target population; (4) developing program activity objectives; and (5) determining the distribution mode and frequency. For the most recent and detailed guidelines on proposal development see FFP's *Title II Guidelines for Development Programs* (www.usaid.gov/hum_response/ffp/dappaa.htm) or, for emergency programs, *PVO Guidelines for Title II Emergency Food Proposals and Reporting-Draft* (www.usaid.gov/hum_response/ffp/emerg.htm). An explanation of each design component follows:

1. Carrying Out a Needs Assessment

As the food aid component of a program is designed, it is important to articulate why food aid is

[1] *Several sources of information and assistance are available from USAID-supported Food Aid Management (FAM). They can be reached at:* www.foodaid.org

[2] *USAID/BHR: Check for the most recent guidance also: Title II Guidelines for Development Programs. January 2000.* www.usaid.gov/hum_response/ffp/dappaa.htm

needed and how it will be used to meet program goals. A needs assessment or problem analysis will help to identify the nature, extent, severity, and distribution of the food needs, and, in turn, help determine which type of food aid intervention would be most appropriate. Needs assessment should include analyses of food availability and the main causes of malnutrition, and summarize resources and capacities for action. Attention should be given to how problems in the priority technical and geographic areas are already being addressed.

Information about the target population's demographic profile, nutritional status, food consumption patterns, breast-feeding practices, health statistics, socio-economic statistics, and other basic information needs for program design can be attained through primary data collection, using methods such as qualitative research, food consumption surveys, and nutritional status surveys. A useful publication on how to use these methods is USAID/CDIE's *Performance Monitoring and Evaluation Tips*, which is available online at www.dec.org/usaid_eval. Useful information can also be obtained from secondary sources, but should be verified with local key informant interviews. Other information about the collection of primary data and secondary data resources may be found in the Resource List. Project design, data collection, and analysis for all methods should be conducted under the supervision of experienced professionals. Please refer to USAID/BHR's Title II Guidelines for Development Programs 2000 for further guidance on developing a needs assessment (www.usaid.gov/hum_response/ffp/dappaa.htm).

2. Determining the Appropriate Use for Food Aid

Experience shows that food aid is most appropriate for achieving the following objectives: (a) meeting the nutritional requirements of vulnerable target groups; (b) rehabilitating malnourished individuals; (c) improving school enrollment or attendance rates; (d) improving attendance at health clinics or community centers; and (e) increasing agricultural income and productivity. To these ends, food aid can be used as a nutritional supplement, a wage for service rendered, an incentive to participation, etc. Naturally, each of these different activities will involve different targeting, rations, and graduation criteria.

3. Identifying Characteristics of Target Population

Results of the needs assessment will drive targeting decisions. Food aid can be used differently to address the needs of different target groups. Typical characteristics by which members of a target population or group are identified include age, nutritional status, gender, physiological status (e.g. pregnant, lactating, chronically ill), geographical location, etc. For example, the target beneficiaries might be children under 2 years of age, malnourished children under 5 years of age, pregnant and lactating women, people over 60 years of age, refugees, households of farmers living in a drought affected area, residents of a TB sanatorium, etc.

4. DevelopingProgram Activity Objectives

Food commodities and rations should be selected in a manner consistent with program objectives and the target group. For example, an intervention to improve nutritional status of a population might target underweight children while, in another case, food aid may be used as an incentive to motivate pregnant women to attend prenatal clinics. Provision of food aid is one input in such program designs.

No matter how the food is used, the desired result of the food assistance intervention should be stated in terms of objectives. Then, food commodities and rations can be selected to be consistent with these objectives. Each CS has its way of expressing objectives. However, using USAID's Managing for Results Terminology will facilitate reporting to USAID, (See Annex 1 in Part Three) HYPERLINKObjectives for USAID-funded programs should be result statements, that is, they should clearly describe the desired end results of the intervention) For example, a results-oriented objective would be "*Improved nutritional status of children under two years of age*".

USAID recommends that there be at least one indicator to track progress toward the achievement of each objective/result. These indicators, referred to as performance indicators, are variables with a particular characteristic or dimension that can measure progress. Resources for sample food security and nutrition indicators can be found in Annex II (HYPERLINK). USAID/CDIE's *Performance Monitoring and Evaluation Tips* (www.dec.org/usaid_eval) provides guidance on how to develop objectives and choose performance indicators. Whenever possible, programs should include input as well as impact indicators for measuring progress of food aid programs. Each CS's resources to monitor and evaluate programs are different, and this will be taken into consideration during USAID's food aid proposal review and approval process.

CSs should also provide baseline data for selected indicators or a plan for collecting these data. Baseline studies should be conducted as part of the needs assessment, but may be accomplished immediately after activity approval. CSs should also articulate an evaluation and monitoring plan that outlines how indicators will be tracked.

5. Determining the Distribution Mode and Frequency

The mode and frequency of distribution should depend on program objectives, costs to both the distributors and beneficiaries, the local context, characteristics of the target group, and the type and quantity of the rations. It is best to choose the distribution method or methods that will cause minimal disruption to the recipient's daily activities while best achieving program objectives. The types of response mechanisms range from serving meals of prepared foods (on-site feeding), to distribution of uncooked food to carry home (take-home rations) to the sale of food to get cash that is used to support program activities (monetization).

On-site (wet) feeding involves preparing and serving ready-to-eat (wet) rations at designated sites outside the home. Most commonly on-site feeding is provided at institutions where beneficiaries reside or at designated feeding centers. The frequency of on-site feeding is one or more times daily, every day or several days per week. The advantage of on-site feeding is that food rations are eaten under supervision, which helps to ensure that the food supplement is actually consumed by the target beneficiaries. Disadvantages of on-site feeding are that it is costly and labor intensive and the food may substitute rather than add to recipients' diets when the family does not provide a meal at home because the recipient has received meals at the feeding center (substitution).

Take-home dry rations are uncooked food rations carried home where it is prepared and consumed. The frequency of distribution will depend on program objectives and practical logistics, both on the side of the distributors and the recipients. The advantage of take-home rations is that they are easier to administer, more cost-effective, less time consuming for recipients, and can reach larger numbers of recipients. However, dry rations intended for one family member may be shared with other family

members (leakage) or might be sold/exchanged in the market place, thereby reducing nutritional impact on the intended beneficiary.

SUBSTITUTION: A World Food Program study found that substitution with on-site feeding programs ranged from 37-53% of energy compared to a leakage of 46-82% if the ration was taken home.
Source: Supplementary Feeding for Mothers and Children: Operational Guidelines, FAO, 1998, p.44

LEAKAGES: Self-targeting May Not Always Work: A study by SUSTAIN on the micronutrient content of food aid commodities found that corn soy blend food rations in Haiti, which were assumed to be self-targeted to weaning age children, was in fact being used to make soup dumplings for the entire family.
Source: Micronutrient Assessment Project Final Report, SUSTAIN, 1999

Food-for-Work (FFW) activities generally involve distribution of take-home rations as payment for work done or services provided, or as an incentive for participation in training activities. In these activities, food takes on importance to families both for it income transfer (monetary) value as well as its nutritional value. The frequency of distribution will depend on local circumstances and the nature and size of work accomplished. Recipients might receive food only once, when the work is completed. In cases where the project is large and continues for an extended time period, there might be distribution at regular intervals as the work progresses, e.g., weekly or monthly. The food distributed is primarily intended as compensation for work performed, although nutritional support may be a secondary objective. In situations where food insecurity and unemployment is a significant problem, and improvements in public infrastructure, remuneration of participant's time for training, and/or compensation for decreases in food production while improved technologies are being implemented may be necessary, FFW may be the most appropriate intervention. In these situations, FFW would provide targeted families with employment and food while avoiding any dependency that might be associated with direct free food distribution activities.

Monetization involves the sale of donated commodities in the target country to get cash to support various humanitarian and development activities. Monetization allows CSs to design and implement more flexible and responsive food security programs. Detailed guidance on the monetization of Title II commodities is available online at www.usaid.gov/hum_response/ffp/monetiz.htm.

All food aid activities should be designed to increase the recipient's self-reliance and self-esteem. This may be accomplished by encouraging the affected population to provide their comments on the mix and size of the ration, food payment ratios, the distribution system (daily, weekly, monthly, etc.), and the performance monitoring system. Use of this type of programming approach helps preserve the dignity of the recipients and contributes to program effectiveness.

STEP 2: SUITABILITY OF FOOD COMMODITIES

The suitability of a ration should be assessed with regard to the needs and preferences of the targeted individuals, households, and community. A ration is suitable if it can be utilized effectively to achieve

intended objectives. Aspects of suitability of food rations to consider, include beneficiaries' nutritional needs and physiological capacities, food consumption preferences and patterns, locally available foods, community and household food processing and storage capacities and local market prices. Below are key factors that should be taken into consideration when developing a list of appropriate commodities for ration packages:

Cultural suitability includes factors such as traditional diet patterns, taste preferences, and foods avoided for cultural or religious reasons that will affect food use and consumption. For example, Brazilians prefer black beans while Nicaraguans prefer small red beans. Another important consideration is whether the commodities are culturally suitable for the particular role they are to play in the project. For example, in a take-home MCHN program with a nutritional objective, blended foods, perceived as "baby foods", may be less acceptable to other family members and, thus, more likely to be consumed by the young child.

- **Nutritional content** is the nutritive content of the food commodity. Major nutrient considerations should include energy (calories), protein, fat, and micronutrients (vitamins and minerals). Characteristics of the target population, especially in terms of their age, body size, activity levels, health, nutritional status, reproductive status, and environmental factors, such as ambient temperature, are the primary determinants of nutritional needs.

Physiological appropriateness relates to physical characteristics of the food commodities, such as the bulk, ease of chewing, viscosity, or digestibility, that affect their consumption and use in the body. Choices should consider the capabilities and limits of the target group. For example, children less then 24 months have smaller stomach size and are less able to consume enough high bulk foods, such as grains, to meet their caloric needs. Physical characteristics of a food ration are also important for children or adults who are severely malnourished, the sick and the elderly. People with HIV/AIDS infections while needing extra energy and protein also find it difficult to eat certain types of foods. Availability of processing and/or storage facilities at both the community and household or institutional levels, fuel demands and availability, time and labor for preparation and cooking time, and availability/absence of cooling equipment need to be considered.

Relationship to locally produced food should be examined because it may complement the imported Title II food aid. The timing of harvests, seasonal shortages of staple foods and affordability of local foods should also be considered. Ideally, the most cost-effective food aid commodities to achieve the desired result should be selected.

Cost: The value of a commodity on the local market will affect the demand for the food by the recipients. Foods with high prices on the local markets may be good for income transfer, but may be more likely to be sold rather than eaten by recipients.

STEP 3: RATION SPECIFICATIONS

Program objectives and characteristics of the target groups(s) should drive the decisions about ration specifications. Below is guidance for developing ration specifications for nutritional as well as income transfer considerations:

1. Determining Nutritional Values

Filling the nutrient gap in a beneficiary's diet is one objective of food aid programs. For programs with this type of objective, the definition of that nutrient gap is the basis for determining how much and what kind of food is to be provided. Additional food may be needed to recuperate the malnourished, overcome substitution effects (when home diets are reduced because of on-site feeding), or account for take-home rations shared within the household (leakage). Taking all these factors into account, the nutritional value of the ration package should be established in terms of the minimum energy, fat, protein, and micronutrient content needed per person per day to meet project requirements. A ration package will generally consist of two to three commodities.

The use of specific donated food aid should be consistent with appropriate feeding guidelines including exclusive breast feeding for infants under 6 months of age and continued, frequent on-demand breast feeding to 24 months and beyond. For children 6 to 24 months, it is important to gradually increase food thickness and add variety as the child ages. For more information on young child and adolescent feeding, refer to the LINKAGES Project series titled *Facts for Feeding* at: www.linkagesproject.org/pubs.html).

People with HIV/AIDS suffer from appetite loss (anorexia), eat less food and have difficulty eating and therefore failing to meet their dietary requirements. HIV/AIDS also affects how the body uses the foods that are consumed and these results in nutrient malabsorption. Fevers and the infections that accompany an HIV infection also lead to greater nutrient requirements and poor use of the nutrients by the body. In designing rations for HIV affected families, increase energy needs for adults by 10 to 15 percent and increase protein levels by 1.5 to 2 times normal requirements. Refer to the FANTA publication on "*Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members*" at: www.fantaproject.org.

In some countries, local organizations and/or national health authorities may have already established the nutritional allowance levels for supplementary feeding, and CSs will be required to conform.

Micronutrients. In the CRG, calculations for rations focus on energy, fat, and protein content. However, among target groups receiving Title II food aid, micronutrient deficiencies are likely to be a problem. In these cases, micronutrient fortified commodities should be considered. All processed food cereals under Title II programs, with the exception of rice, are fortified with B vitamins (thiamin, riboflavin, folic acid, and niacin), vitamin A, calcium, and iron. Blended cereals (corn-soy blend and wheat-soy blend) are further fortified with zinc, B12, pantothenic acid, iodine, magnesium, vitamin C, vitamin D, and vitamin E. Vegetable oil is fortified with vitamin A. If micronutrient deficiencies are known, the micronutrient contribution from blended cereals and fortified vegetable oil can be estimated from the values provided in the Commodity Fact Sheets found in Part One, Section II of the CRG. (HYPERLINK)

2. Income Transfer Value

If a program uses food mainly for its income transfer (monetary) value, the ration package's income transfer value is as important or more important than its nutritional content. Income transfer is the food's monetary value to the household. The income value of a ration is the market price for an equivalent quantity of the locally-available commodity that is most similar to the Title II commodity

plus the recipients' participation costs, such as lost wages and transportation. To determine the income transfer value needed for incentive programs, the following factors should be considered:

- What is the cost to the target population for participation in the program, i.e., transportation, daily lost wages, daily wage rate?
- What is the value of other incentives that are offered, i.e., training, health services?
- What is the value of the commodities to the participants?

Higher priced foods in the diet should also be examined, such as imported foods, high cost locally produced items, seasonally unavailable staples and important foods that cannot be obtained in adequate quantities because of income constraints. Commodities that replace highly valued and expensive food items, such as oil, may have a substantial income mediating effect, freeing up income typically used for purchasing these expensive items.

STEP 4: RATION CALCULATION

After calculating the nutritional value of a proposed ration package, the following should be determined: (1) the food commodities to be provided; (2) the total tonnage of commodities needed; and (3) the cost-effectiveness of the ration package selected. It is generally prudent to consider alternative rations in the initial planning stages in the event the desired commodities are not available or are delayed in transport, or when packaging requirements significantly alters the relative cost-effectiveness of ration package.

Calculating the ration package

For logistical and management reasons, programmers should try to limit ration packages to **no more than three commodities per ration** unless strong reasons exit. Because vegetable oil is an excellent source of energy, it should almost always be included in a ration. Other value-added commodity, such as all-purpose wheat flour, may be selected since local bakeries often prefer the higher quality imported American flour.[3] Bulk commodities are usually preferred for monetization, such as non-refined, bulk vegetable oil and wheat grain. Suggestions for how to select appropriate rations and calculate ration packages are provided in each module.

1. Calculating the Total Amount of Food Commodities Needed

Once the food commodities are chosen for the ration package the total amount of each commodity needed for the project can be calculated (usually in metric tons). To calculate the number of metric tons (MT) needed for each commodity use the following steps:

- Multiply the number of grams of the commodity per person per day times the total number of persons to receive the commodity.

[3] Value-added commodities include fortified blended foods like Wheat Soy Blend (WSB), Corn Soy Blend (CSB), Vitamin A-fortified edible vegetable oil, and soy-fortified bulgur, wheat flour and sorghum grits. The PL 480 legislation requires that 75% of the commodities used be value-added, bagged and or processed commodities.

- Multiply the total number of grams of the commodity needed to feed the target group times the number of days the program will provide the ration package.

- Determine the number of metric tons of commodity needed by dividing the total number of grams per program period by 1,000,000 (number of grams in a metric ton).

- Complete the same calculation for each commodity (vegetable oil, cereal, cereal blend, or legume) that comprises the ration.

An examples provided in each program module.

3. Determining cost-effectiveness of the ration package

Cost is often not the primary factor for selecting the commodities. Food preferences, availability, potential disincentive effects, and urgent emergency requirements often outweigh cost considerations. However, the cost-effectiveness of the commodity, i.e., the ratio of its cost to its nutritive or income value, may help in determining whether it is appropriate for the food aid component of a development or emergency program. CSs should try to conduct the appropriate cost-effectiveness analysis.[4]

Calculating the cost-effectiveness of desired commodities in terms of cost per unit of nutritional value (one kilocalorie or one gram of protein) or income transfer value (in USD to the recipient) provides information about which commodities provide the most nutritional benefits or highest income at the lowest cost to the project. It is important to note that cost per calorie of fortified foods will always be higher than bulk grains, but in that fortified food are rich in micronutrients, they add key nutritional value to many program situations.

Cost Effectiveness per Nutritional Value: To determine the cost effectiveness value of a commodity per its nutritive value, calculate the cost in cents per one kilocalorie and one gram of protein of commodity using the following steps. The illustrative list of prices in Annex V and the nutritional values of commodities from the Commodity Fact Sheets are two helpful sources of information for use in making these calculations. The cost-effectiveness of a ration package per its nutritional value can be calculated in the following way.

a) <u>Per Energy value</u>:

- To calculate the cost of the commodity per 100 grams, divide the cost per metric ton (from Annex V) by 10,000 (a MT is equal to 10,000 units of 100 grams.)

Divide the cost per 100 grams of commodity by the number of kilocalories per 100 grams of commodity. This will give the dollar cost per one kilocalorie of commodity.

b) <u>Per protein value</u>:

[4] Cost also refers to costs to the project associated with a commodity (such as CCC dollar values found in Annex V). In some projects, in-country transportation and storage costs and special handling costs may be critical, however, these costs may be similar for most commodities. For each project, first decide which of these cost elements are most relevant.

- To calculate the cost of a commodity per 100 grams, divide the cost per metric ton by 10,000. (10,000 x 100 g = 1 MT).

- Divide the cost per 100 grams of commodity by the number of grams of protein per 100 grams of commodity. This will give the dollar cost per one gram of protein provided by the commodity.

Box 1 below gives an example of how to calculate the cost effectiveness of both the caloric and protein nutritive values for CSB.

BOX 1: EXAMPLE OF COST PER NUTRITIVE VALUE OF CORN-SOY BLEND (CSB)

Per caloric content of CSB:

$260 per MT ÷ 10,000 = $\frac{\$0.026 \text{ (per 100 g)}}{375.7 \text{ kcal (per 100 g)}}$ = $0.0000692 or 0.00692 cents per one kilocalorie

Thus, the cost one kilocalorie of CSB is 0.007 cents (rounded)

Per protein content of CSB:

$260 per MT ÷ 10,000 = $\frac{\$0.026 \text{ (per 100 g)}}{17.2 \text{ grams (per 100 g)}}$ = $0.0015 or 0.15 cents

Thus, the cost of one gram of protein provided by CSB is 0.15 cents

This type of analysis would be used to compare different commodities that are suitable for meeting the same nutritional objectives in order to determine which ration package is most cost-effective. For example, the cost of one kilocalorie of corn-soy blend is 0.007 cents and one gram of protein costs 0.15 cents while the cost per one kilocalorie and one gram of protein of cornmeal is 0.005 cents and 0.23 cents, respectively. Cornmeal is a less expensive source of energy but not a cost-effective source of protein compared to the corn-soy blend, and CSB contains more micronutrients than the cornmeal. Decisions about cost-effectiveness of a commodity should be made in tandem with the objectives of the program. If the objective of the program is to improve nutritional status of a target group the corn-soy blend has a higher protein and micronutrient value than cornmeal. However, if the main objective is to provide energy to maintain nutritional status, the cornmeal may be the most cost-effective commodity in this case.[5] In all instances, it is desirable to consider not only how food aid commodities compare with one another, but also how their nutrition and income values compare with food that is locally available. This type of analysis is provided here for comparing the income value of food aid to the cost of providing it.

Cost Effectiveness per Income Value: A different type of analysis provides an indication of the efficiency of providing food aid, especially when CSs use food aid commodities to provide a given incentive or wage. The cost effectiveness per income value is determined by the value to the recipient compared to the cost of the program. For example, if a recipient receives a commodity that replaces one that would cost them $0.30 at the local market price, this is considered a $0.30 value to the family.

[5] The alternative package was calculated using the formula in Box 1 with the cost of cornmeal at $194 per MT.

If providing the same commodity only costs the program $0.23, the program would be considered cost effective. The more the local market value exceeds the cost to the program, the more cost effective the program. See Box 2 for an illustrative example of how to calculate the cost-effectiveness of income value.

BOX 2 – EXAMPLE OF A COST EFFECTIVENESS CALCULATION

1) First, calculate the cost of one kg of flour to the household if purchased in the local market. Example uses the following (made up) figures:
   1 kg flour = $0.40 cost to household for local market purchase.

2) Calculate the total program costs to provide one metric ton of flour. This includes the cost of the commodity plus transportation costs.
   $228 (per MT) + $100 (transportation)* = $328

3) Then, divide the total program costs to provide one metric ton of flour by 1,000 (there are 1,000 kilograms in a MT).
   $328 ÷ 1,000 = $0.328 or 0.33 cents (rounded) cost to program to provide 1 kilo flour

Thus, for every $0.33 in program costs, the program is providing $0.40 value to the family. The ratio of local cost to program cost is $0.40 ÷ $0.33 = 1.2. The larger the ratio, the more cost effective the program.

**Transportation costs vary from situation to situation; a rule of thumb for development programs is to add 30-50% of the commodity for transportation costs.*

As indicated earlier, alternative rations should be developed during the initial planning stages so that if a specific commodity is not available or will be delayed in transport, the alternative commodity can be used. Also, changes in commodity availability, prices, and packaging can alter the relative cost effectiveness of ration packages. The large variety of Title II commodities available makes it possible to design a range of ration packages. The following should be taken into consideration when designing an alternative ration package:

- Select culturally acceptable and physiologically suitable foods for food aid recipients.
- Based on the cost per unit of nutritional and/or income transfer value, design rations that meet specifications using no more than three commodities per ration package. Also, use commodities that provide the maximum gain to recipients at lowest cost to the project.
- Compare the nutritional and/or income transfer values of currently used rations with specifications and key suitability criteria.
- Alter the ration packages according to how they will meet the above objectives.

STEP 5: RANKING AND SELECTION

Naturally, cost plays a key role in the size and effectiveness of programs and cost calculations involve decisions about what cost elements to consider. At a minimum, the illustrative list of commodity prices in Annex V and current in-country transportation and storage costs can be used. Other factors to consider are:

- **Market disruptions**: The Bellmon determination must ensure that the local market is not disrupted. Market considerations in local areas where programs are targeted might also come into play. For example, it may be less disruptive to provide certain foods in the lean season rather than the harvest season. Guidance on conducting the Bellmon analysis may be found online at www.usaid.gov/hum_response/ffp/bellmon.htm.

- **Logistics and management**: Some commodities may impose undue management or cost burdens due to unusual local conditions (e.g. transportation, storage, handling, pilferage) or unsuitable packaging, for the limited shelf life of the commodity.

The usual sources of data for considering potential market disruptions and logistical problems include past evaluations of similar programs, interviews with host governments and local and international PVO, as well as discussions with international organizations (such as the World Bank and the United Nations), USAID, USDA Agricultural Attaches and Economic/Commercial Officers at U.S. Embassies.

Proposed and alternative, ration packages can now be ranked by nutritional value, income transfer value, total cost, and other factors, such as potential market disruptions and logistical problems. They might also be ranked by cost. Decisions to change ration packages can be made less arbitrarily when alternative rations and their main attributes have been examined in advance.

VI RESOURCE LIST

1. Food and Nutrition Technical Assistance (FANTA) Project, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax 202-884-8432. E-mail: fanta@aed.org; Web site www.fantaproject.org. FANTA has the following guides:

- *Agricultural Productivity Indicators Measurement Guide.* Patrick Diskin
- *Anthropometry Indicators Measurement Guide (Draft*). Bruce Cogill
- *Food For Education Indicator Guide (Draft).* Joy Miller del Rosso and Gilles Bergeron
- *Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs.* Frank Riely, Nancy Mock, Bruce Cogill, Laura Bailey, and Eric Kenefick
- *Improving the Use of Food Rations In Title II Maternal/Child Health and Nutrition Programs (Draft).* Serena Rajabiun, Beatrice Rogers, Margarita Safdie, Anne Swindale
- *Infant and Child Feeding Indicators Measurement Guid*e. Mary Lung'aho
- *Measuring Household Food Consumption: A Technical Guide.* Anne Swindale and Punam Ohri-Vachaspati
- *Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members. (forthcoming)*
- *Potential Uses of Food Aid to Support HIV/AIDS Mitigation Activities in Sub-Saharan Africa.*
- *Sampling guide.* Robert Magnani
- *Water and Sanitation Indicators Measurement Guide. Patricia Billig, Diane Benahmane and Anne Swindale*

2. Food Aid Management (FAM). 1625 K Street, NW, 5th Floor Washington, DC 20006. Tel: (202) 223-4860, Fax: (202) 223-4862; Web site www.foodaid.org. FAM provides USAID documents (FY 1990-ongoing).

3. Linkages Project. *Recommended Feeding and Dietary Practices to Improve Infant and Maternal Nutrition* also see *Facts for Feeding* (English, Spanish, French). Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax: 202-884-8977; E-mail: linkages@aed.org; Website: www.linkagesproject.org.

4. National Research Council. *Recommended Dietary Allowances*. National Academy Press, Washington, D.C., 1989.

5. USAID/BHR. *U.S. International Food Assistance Report 1999*. January 2000. Web site: www.usaid.gov/hum_response/farpt1999.

6. USAID/BHR. *Commodities Reference Guide (CRG*): *Section 1-4*. April 1999. Web site: www.usaid.gov/hum_response/crg.

7. USAID/BHR/FFP. *Monetization Field Manual P.L. 480 Title II Programs*. October 1998. Web site: www.usaid.gov/hum_response/ffp/monetiz.htm.

8. USAID/BHR/FFP. *Title II Guidelines for Development Programs*. January 2000. Web site: www.usaid.gov/hum_response/ffp/dappaa.htm.

9. USAID/BHR/FFP. *PVO Guidelines for Title II Emergency Food Proposals and Reporting (Draft)*. 1998 www.usaid.gov/hum_response/ffp/emerg.htm.

10. USAID/CDIE. *Performance Monitoring and Evaluation Tips*. 1996. Web site: www.usaid.gov/pubs/usaid_eval/#02.

11. WHO. *The Management of Nutrition in Major Emergencies*. Geneva, 2000.

MODULE 1: MATERNAL CHILD HEALTH AND NUTRITION

I. INTRODUCTION

An overarching objective of USAID's mandate is to improve food security of vulnerable populations in the developing world. Food security exists when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. Programming of food aid through Maternal Child Health and Nutrition (MCHN) activities can help achieve the goal of improving household food security. Specifically, MCHN programs are intended to improve the nutritional status of young children and women. These programs can also address the intergenerational effects of malnutrition. For example, providing food supplements to pregnant and lactating women can improve birth outcomes and reduce low birthweight, and improve nutritional status of young children.

MCHN interventions differ from other food aid programming in two ways. First, the primary objective of MCHN programs is the reduction of malnutrition in the target population. Second, the target population consists of the most nutritionally vulnerable groups, namely young children (two years and under) and pregnant and lactating women.

Food aid to young children helps to bolster energy, protein, fat, and micronutrient intake needed for growth and development, especially for food insecure children with poor nutritional status. Providing food aid to pregnant and lactating women helps to ensure the health of the mothers who are not otherwise able to consume sufficient energy, protein, and micronutrients in their diets. Further, good maternal health during nutritionally vulnerable periods contributes to improved birth outcomes and overall health of children. Assuring food security and a healthy nutritional status of young children and women, therefore, becomes paramount in MCHN programs.

Food aid is considered only one component of an MCHN program. Food assistance within MCHN programs generally focuses on meeting the nutritional gap of young children and pregnant and lactating mothers through a cooked (wet) ration, consumed at a monitored location (on-site feeding) or through a dry ration of food commodities that are taken home (take-home rations). These meals provide extra energy, protein, and crucial micronutrients.

While food can help meet the nutritional gap for vulnerable children and women, it alone cannot improve the nutrition and health status of women and children. Food aid should be combined with components that improve the quality of health and nutrition services as well as behavior change components that improve maternal child health, feeding and care practices.

II. GUIDELINES FOR COMMODITY SELECTION FOR MCHN PROGRAMMING

The introductory chapter for Part Two entitled *Guidelines for Selecting Food Aid Commodities: An Overview* provides information on how to develop the most appropriate and cost-effective ration packages to accomplish program objectives. These guidelines are organized into five general steps. This module summarizes the five steps and includes key points of consideration for MCHN programming under each step. This guidance is meant to be flexible enough to permit the selection of the most appropriate food ration in each situation. Box 1 below lists the five steps for commodity selection:

Box 1: Five Steps for Selecting Commodity Rations:

Step 1. Program Design
Step 2. Suitability of Food Commodities
Step 3. Ration Specifications
Step 4. Ration Calculation
Step 5. Ration Ranking and Selection

STEP 1: PROGRAM DESIGN

The five key program design components are usually: (1) carrying out a needs assessment; (2) determining the appropriate use of food aid; (3) identifying characteristics of the target population, including dietary and other preferences; (4) developing program activity objectives; and (5) determining the distribution mode and frequency. Together with a monitoring and evaluation plan and an exit or graduation strategy, these components are key elements for the development of Title II food aid proposals. For detailed guidelines on proposal development see the most recent FFP's *Title II Guidelines for Development Programs* www.usaid.gov/hum_response/ffp/dappaa.htm. Also refer to Food Aid Management's website for guidelines and useful links www.foodaid.org. An explanation of each design component follows:

1. Carrying out a Needs Assessment

As the food aid component of a program is designed, it is important to articulate why food aid is needed and how it will be used to meet program goals. A needs assessment should determine the nature, extent, severity, and distribution of the food needs. If relevant to the program's objectives, the needs assessment should include identification of the degree of malnutrition in the target population. The results of the assessment should describe the criteria for selecting the beneficiaries and the geographic areas to be targeted. Factors that could impede effective use of food aid, and the possibility of using local foods to supplement the food aid ration package should also be investigated. Also include an assessment of current maternal child feeding and care practices and the quality of health services including delivery of immunizations, micronutrients and human resource capacity.

Primary Data Collection: Primary data may be collected in a variety of ways, including food consumption surveys, nutritional status surveys, or qualitative assessment. Useful qualitative techniques include in-depth interviews, focus group discussions, participatory rural appraisal, and observation. Some methods for collecting primary sources of data are described in USAID/CDIE's

Performance Monitoring and Evaluation Tips www.dec.org/usaid_eval. See also the Resource List at the end of this module.

Secondary Data Collection: Secondary data collected and reported by other organizations, including the host government can also be useful. These data should be verified with local key informant interviews. Secondary sources of information include USAID documents; Demographic Health Surveys (DHS); documents from local institutions, donor agencies, other PVOs; and UN agencies, especially UNICEF, WHO, and the World Bank.

More detailed guidance on how to conduct needs assessments and develop MCHN proposals may be found at www.usaid.gov/hum_response/ffp/dappaa.htm as well as www.fantaproject.org.

2. Determining the Appropriate Use of Food Aid

MCHN food aid can achieve several different humanitarian response objectives, such as (a) prevention of malnutrition in vulnerable target groups; (b) rehabilitation of malnourished individuals; or (c) improved participation in health and nutrition activities. To these ends, food aid serves either as a nutritional supplement or an income transfer. Naturally, different programs will require different targeting, rations, and graduation criteria.

3. Identifying Characteristics of the Target Population

MCHN programs focus on the women and children who use MCHN services, i.e., young children and pregnant and lactating women. The results of the needs assessment and the desired end results will drive further targeting within this group and should identify the specific feeding and care practices that need to be focused on for improving nutritional status. For example, if the objective is nutritional recuperation, the target group will be children who are malnourished. If the objective is to increase women's use of prenatal services and trained birth attendants, then the target group would be pregnant women. If the objective is to promote optimal growth, the recommended target group would be children aged 6-24 months. A key added characteristic could be the estimated HIV/AIDS prevalence.

4. Developing Program Activity Objectives

The most common objectives of food aid components of MCHN programs are to provide nutrients to improve or maintain the nutritional status in the target group or to provide incentive to use health or nutrition services or to participate in health and nutrition education programs.

It is critical that the design of the program does not compromise the adoption of appropriate and recommended feeding and dietary practices including exclusive breast feeding for infants under six months of age. The eligibility criteria for recipients, quantities, commodity mix, and recommendations for use of the rations should be consistent with official government policies and with standard practices used by USAID and the United Nations. Detailed recommendations for appropriate feeding practices are available from USAID's LINKAGES Project series, *Facts for Feeding* www.linkagesproject.org/pubs.html.

Although each cooperating sponsor (CS) will approach the achievement of its program objectives in a different way, following USAID's Managing for Results terminology (see Annex I of Part Three) when stating objectives, will facilitate reporting to USAID. Objectives for USAID-funded programs

should be should be result statements, that is, they should clearly describe the desired end result of the intervention. For example, "*Improved nutritional status of children under two*" is a results-oriented objective. A useful reference in this regard is the Food and Nutrition Technical Assistance (FANTA) project's guide on the use of food rations in MCHN programs www.fantaproject.org.

USAID recommends that there should be at least one performance indicator to track progress toward each objective or result. Performance indicators are variables with a particular characteristic or dimension that can measure progress toward the stated result. An example of an indicator for the result statement mentioned above (Improved nutritional status of children under two) could be "average weight-for-age z-score of children under two". When possible, impact and output indicators should also be developed and monitored. The benefits of having both types of indicators are self-evident. For example, it is not only important to know the percent of the population reached with food aid (output), but to also determine whether nutritional status of the target population improved as a result of the food aid (impact). USAID/CDIE's *Performance Monitoring and Evaluation Tips, (*www.dec.org/usaid_eval*)* provides guidance on how to develop results statements and performance indicators. Other resources for developing nutrition and food security related indicators can be found in Annex II of Part Three.

CSs should also include a description of the baseline data or spell out a plan to collect it. It would be ideal to include as part of the needs assessment baseline studies that identify values for the selected indicators. However, if this is not possible then the indicators can be submitted for FFP review after the program proposal is approved. Naturally, each CSs resources to monitor and evaluate programs are different. This will be taken into consideration during USAID's food aid proposal review and approval process.

5. Distribution Mode and Frequency

There are two primary ways to distribute MCHN food aid rations: on-site feeding and take-home rations. Below is a description of these two distribution methods. Box 2 summarizes the advantages and disadvantages of each mode.

- **On-site (wet) feeding** is where the food aid recipient is fed prepared wet rations at a designated site outside the home. MCHN on-site feeding is usually targeted to mild to moderately malnourished children at MCHN or community feeding centers, and the food provided is intended to supplement, not replace, what the children eat at home. During periods of severe food insecurity all children in a selected age range might be eligible for on-site feeding at community centers. To obtain maximum nutritional improvement, feeding would be daily, 365 days per year. Depending on program objectives and local conditions, some feeding programs operate only 5 or 6 days per week, and many operate only during "lean" seasons of the year. The advantage of on-site feeding is that food rations are eaten under supervision, which helps to ensure that the food supplement is actually consumed by the target population. However, on-site feeding is labor intensive for a community to organize and prepare. A potential disadvantage of on-site feeding is that food may be withheld at home because the recipient is fed at the feeding center.

- **Take-home rations** are dry, uncooked food rations that are prepared and eaten at home. Take-home packages can provide the entire day's requirements of energy and protein, or only a part of these requirements, filling a gap between the recipients' typical diet and what they need. The

advantage of take-home rations is that they are easier to administer, more cost effective, less time consuming for recipients, and can reach larger numbers of recipients. However, dry rations may be shared with other family members (leakage or dilution) or sold/exchanged in the market, thereby reducing nutritional impact on the intended beneficiary.

As take-home ration feeding activities are being designed, it would be helpful to determine to what extent the take-home food rations will be shared by other family members. Several ways to address intra-household sharing of food rations include education, increasing the amount of the ration package, and selecting rations that promote self-selection. For example, self-targeting "baby food" (or weaning food), such as blended cereals may be less acceptable to other family members, thus more likely to be consumed only by target children.

The mode and frequency of distribution should be based on project objectives, the costs, local conditions, including human resource capacity to help with distribution, the nutritional deficiency profile of the target group, and the type and quantity of rations. It is important, also, to consider the demands on caregivers to pick up the food or attend the feeding center. A program should also consider whether it will be clinic (or center based) or community-based. The advantages and disadvantages of on-site or take-home feeding distribution modes should be weighed to optimize the nutritional impact on women and children. Box 2 below summarizes the key points of both distribution modes:

Box 2- Advantages and Disadvantages of Feeding Modes	
On-site feeding	**Take-home rations**
Advantages: ➢ Rations eaten under supervision. ➢ Help can be given to ill or anorexic children. ➢ Feeding problems can be identified and dealt with. ➢ Ensures that food ration is consumed by target population. ➢ Opportunity to inform caregiver.	Advantages: ➢ Large numbers of recipients can be reached. ➢ Fewer resources required to administer the program. ➢ Fewer costs for preparation and distribution. ➢ Caregiver spends less time and effort attending feeding site. ➢ Families take responsibility for feeding recipient.
Disadvantages: ➢ Recipients may be given less food at home (substitution). ➢ Requires that caregivers travel to feeding center on a daily basis. ➢ Resource intensive requiring equipment, fuel, a feeding facility, and well-trained staff.	Disadvantages: ➢ No guarantee that recipient consumes the food ration as it may be shared with other family members (dilution or sold and traded, leakage). ➢ Less time for behavior change and communication.

STEP 2: SUITABILITY OF FOOD COMMODITIES

The suitability of a ration should be assessed with regard to the needs and preferences of the targeted individuals, households, and community. A ration is suitable if it can be used effectively to achieve intended objectives. Aspects of food commodities that should be considered include women's and

children's nutritional needs and physiological capacities, food consumption preferences and patterns, locally available foods, household and community food processing and storage capacities, and local market value.

Appropriateness to good feeding practices: The use of specific donated foods should be consistent with good scientific feeding guidelines, including exclusive breast feeding for infants under 6 months of age and continued, frequent on-demand breast feeding to 24 months and beyond. For children 6 to 24 months, it is important to gradually introduce thicker and more various foods that can complement but not replace breast milk. The following recommendations come from LINKAGES *Facts for Feeding: Guidelines for Appropriate Complementary Feeding of Breastfed Children 6-24 months of age*:

- Provide 6 to 8 month old infants *approximately* 280 kcal per day from complementary foods.
- Provide 9 to 11 month old infants *approximately* 450 kcal per day from complementary foods.
- Provide 12 to 24 month old children *approximately* 750 kcal per day from complementary foods.

Feeding frequency is another important consideration. By combining meals and snacks, children should be fed complementary foods with the following frequency:

- Feed complementary foods for 6 to 8 month old infants 2-3 times per day.
- Feed complementary foods for 9 to 11 month old infants 3-4 times per day.
- Feed complementary foods for 12 to 24 month old children 4-5 times per day.

Complementary foods can include the food aid commodity and should be programmed to ensure the young child has a diversified and nutritious diet. During illness, the child should continue to receive breast milk and receive frequent and active feeding. Any feeding activity should be designed so that the young child is fed directly, slowly and patiently. Children should not be forced to eat.

More detailed information can be found in the LINKAGES Project series titled *Facts for Feeding* www.linkagesproject.org/pubs.html

Below are key suitability factors to consider as food aid rations for MCHN programs are being developed. Field tests and monitoring to confirm that MCHN rations are well accepted and used appropriately are recommended.

Cultural suitability: It is important to consider women's and children's traditional diets, taste preferences, food taboos, and feeding practices. Unfamiliar food may be made more acceptable through nutrition education, food processing, packaging, and/or by combining it with familiar foods in recipes.

Nutritional content: This refers to the energy, fat, protein, and micronutrient content of the rations. There are certain nutritional considerations for women and children that should be examined when designing food rations. Young children, especially those up to 24 months of age, suffer linear growth faltering (stunting) and delayed development that leaves permanent damage when they are not adequately nourished. Underweight children are also at much higher risk of death due to illness than are their well-nourished counterparts. Although energy (kilocalories) is the main predictor of height and growth, adequate micronutrients and protein for this age group are also important, particularly

vitamin A.[1]

Pregnant and lactating women need extra energy, protein, and micronutrients to support the growth of their fetus or infant and maintain their own health. Pregnant women need the extra nutrients for the growing fetus and to ensure a healthy and safe birth outcome without depleting her own reserves and putting herself and her child at greater risk. While frequent, on-demand breastfeeding helps maintain the quantity of breast milk, lactating mothers need extra energy and nutrients to produce optimal quality breast milk, to protect their own health, and to assure that their nutritional stores are preserved or restored to support subsequent pregnancies.

Physiological appropriateness: Because of small stomachs, infants from 6-24 months of age are unable to meet their energy needs through high-bulk foods, such as cereals and legumes. (See Box 3 below for gastric capacity of this age group.) For example, infants between 9-11 months have a stomach capacity of 285 grams. To meet their daily energy needs (850 kcal) they would need to consume 226 grams of CSB a day, which when cooked, yields about 1,883 grams of gruel (assuming the gruel is 12% CSB).[2] If an infant were fed six times a day it would need to consume 314 grams of gruel during each meal to meet its energy needs with only CSB. Clearly, infants in this age range do not have the stomach capacity to consume this amount of food. Therefore, nutrient-dense, low bulk sources of energy such as edible vegetable oil should be added when these cereals are the primary source of nourishment.

Children who are undernourished have an even smaller stomach capacity. For this reason, nutrient rich blended food commodities and fortified vegetable oil are important commodities to provide for these children.

Box 3- Stomach Capacity of Children 6 to 23 months

Well nourished:	
6-8 months	249 g
9-11months	285 g
12-23 months	345 g
Growth retarded	
6-8 months	192 g
9-11 months	228 g
12-23 months	273 g

Source: WHO, Complementary Feeding of Young Children in Developing Countries: a review of current scientific knowledge, p. 61.

The viscosity of prepared foods for young children should also be considered. Cereal gruels can vary considerably in viscosity, and as they cool or are repeatedly reheated, they can become thicker and more difficult to eat. If when reheating, mothers dilute the cereals to make them more edible for their young children, they significantly reduce the energy, protein, and micronutrient densities and may

[1] WHO, Complementary Feeding of Young Children in Developing Country: a review of current scientific knowledge,1998
[2] Refer to the Commodity Fact Sheets, CRG, Section I at

introduce harmful microorganisms. For this reason, quick-cooking, nutrient and energy dense - blended cereals, that can be prepared easily, several times daily, are good choices for rations for small children and their mothers.

Availability of processing and/or storage facilities: Consider factors that affect food preparation, such as access to mills and processing facilities and fuel, and women's or institution's preparation and cooking time. Household's or institution's capacity to store food aid commodities is another consideration.

Characteristics of locally/commercially available food: The timing of harvests, seasonal shortages, and the affordability of staple foods should be examined to determine if they can complement and eventually replace the donated Title II food commodities.

Cost: Ideally, the most cost-effective food ration is the one that achieves the desired results with the least cost. Step 5 below provides guidance on how to calculate the cost -effectiveness of a ration package.

STEP 3: RATION SPECIFICATIONS

The size of the ration should be based on the purpose of the food and its use in the MCHN program: the recipients' nutritional needs and/or the ration's income value. However, there are other factors that influence ration size. These include existing ration standards, e.g., government standards, those that other implementing agencies are using, or past program ration specifications. To determine the ration specifications, first articulate the minimum nutritional or income value a ration must have to achieve the project objectives. Below is an explanation of how to calculate nutritional and income transfer values and key considerations for MCHN programs.

1. Determining Nutritional Values

Determining the nutritional value of a ration package is important for selecting the commodities that will assure meeting program objectives. Targets for minimum nutritional values of rations should be based on estimates of deficits in existing diets of the target group, in terms of energy (calories), fat, protein and micronutrients. Generally, more food is added to rations to address substitution effects (when home diets are reduced because of on-site feeding) or to account for take-home rations shared with other family members (leakage). For pregnant and lactating women, a ration should supply, at a minimum, the extra energy and protein they need during these reproductive periods. Therapeutic feeding programs (TFP) are medical interventions that require food commodities not available through Title II. The specification of rations for this type of program is, therefore, beyond the scope of this guide.

When providing food aid supplements for children or women in circumstances where a household food shortage is the underlying cause of the malnutrition, it is recommended that rations fill as much as possible of the nutrient gap between available food and requirements. (For specific suggestions on the use of food rations, refer to the "*Use of Food Rations in Maternal and Child Health and Nutrition Title II Programs*" at www.fantaproject.org/publications/index.html.

Ideally, program managers would use the precise method in Box 4 below to determine the nutritional deficit of a ration package. However, the precise value of substitution and leakage are difficult to

estimate and the measurement of energy consumption is also difficult and costly to determine exactly. In such cases, program managers may wish to employ an estimation method. Therefore, both methods are presented.

Box 4 – Precise Method for Determining Nutritional Energy Deficit

Recommended energy allowance (REA)	+	Substitution/leakage factors	-	Estimated energy intake	=	Total energy deficit (kcals)

a) <u>Precise Method for Determining Energy Deficit</u>

Based on the formula in Box 4 above, detailed instructions on how to determine nutritional energy values of ration packages are as follows:

Recommended energy allowance (REA) – This is the amount of kilocalories (energy) recommended for children and adults to maintain health and a good level of mental and physical performance[3]. For the purposes of demonstrating how to calculate the energy deficit, the National Research Council's (NRC) *Recommended Dietary Allowances*, 10th Edition (1989) is used as the reference for recommended energy allowance requirements. NRC's values for REA are a sum of resting energy expenditure (REE) from WHO equations and energy required for light to moderate levels of activity. Steps for calculating the REA for a target group follow:

Determine the REA per person per day for different target groups using Table 1 in Annex III. REA values are expressed in kilocalories (kcal) and are based on median weights for the U.S. population. For median weights of target groups from specific countries, refer to FANTA's publication " *Measuring Household Food Consumption: a Technical Guide*" (February, 2000) www.fantaproject.org/publications/index.html.

1) REA for children differentiates the energy allowances between sexes to take into account the onset of puberty and activity.

2) For children less than two years of age who are breastfed, use Table 2 in Annex III to calculate the energy allowances needed from complementary foods to meet daily energy requirements.
3) For adults with heavy activity level, REA will need to be adjusted. Use Table 3 in Annex III to obtain resting energy expenditure (REE) per age category and multiply this number times 1.82 for women and 2.10 for men.[4] If needed, a list of heavy activities can be found in FANTA's publication, *Measuring Household Food Consumption: a Technical Guide*" (February, 2000) www.fantaproject.org/publications/index.html.

4) For pregnant and lactating women, factor in additional energy requirements needed during this period. If a woman is pregnant, add 350 kilocalories to her recommended energy allowance. If

[3] National Research Council, Recommended Dietary Allowances , National Academy Press, 1989
[4] Multiplier value from WHO, 1985, Energy and protein Requirements: Report of a Joint FAO/WHO/UNU Expert Consultation, p. 78

a mother is lactating, add 500 kilocalories.

Substitution/leakage factors: If they can be reliably estimated, the ration should include additional food to address substitution (cutting back intake at home because a food supplement is provided) or leakage (sharing the food ration with other family members), especially if household-level food deficits are large. Self-targeting foods (foods assumed to be eaten by the target beneficiary only and not shared) may be less prone to family-wide sharing, but their use will probably not be sufficient to eliminate leakage. Additional ways to reduce substitution or leakage problems include education, on-site feeding, or provision of a family package consisting of other commodities. There is no empirical data on how to calculate how much extra energy to add. Past experience with food aid programs or trial and error may be the best way to determine the quantity of energy to add to account for substitution and leakage.

Estimated energy Intake – This is often the most difficult and costly to assess. Methods of collecting these data include the following:

- **Aggregate household level surveys** - Data gleaned from household surveys generally include information on food expenditures, production and stocks, and food acquired as in-kind income. These surveys help determine whether there is a general food deficit and the severity of the deficit at the household level. Information from food gap assessments may be used for interim guidance if no other sources of information are available.

- **Individual food intakes** - This is a way to assess food deficits for specific age groups, such as women and children. Data collection approaches include dietary recall surveys, reviews of food records, and observation studies. These approaches can be built into sample household surveys. For children under 2 years of age, an estimate of the extent to which breastfeeding is contributing to the diet is useful. It is often difficult and costly to gather individual intake. Therefore, availability or expenditure surveys may provide substitute data that will enable Program Managers to estimate individual intake.

- **Availability or expenditure surveys** - These surveys are ways to gather information on the availability of food in a household and estimates of energy expenditures of individuals. Data from these surveys can help to estimate intake of certain groups.

- **24-hour recall surveys**- This is a method for collecting information on the food consumption of individual household members over the previous 24 hour period. A respondent is asked to recall all the foods consumed, sometimes including the exact amounts of each food. A respondent is asked to recall all foods consumed and breast feeding patterns, sometimes including the exact amount of each food or quantity of breastmilk.

Publications describing different methods for measuring consumption can be found in the Resource List. While it is ideal to know the exact actual intake of the target group, estimates or data from secondary sources may be more practical.

Total energy deficit per ration : This is the difference between the REA + substitution/leakage factors and the estimated energy intake. The resulting value represents the caloric deficit in a person's

diet. A ration package is usually designed to fill the caloric and protein deficit of the target group's diet.

Once the nutritional energy of rations are defined, the ration package can be adjusted to meet the fat, protein, and micronutrient needs. Detail on how to calculate the protein and fat composition of the package is presented in step 4 of this module.

b) Estimation Method for Determining Ration Size

In the absence of sufficient data to accurately quantify requrirements and food shortages, recommendations for optimally closing major nutrient gaps are:[5]

- **Energy:**

Women: Rations should supply about one third of the energy needs of pregnant and lactating women (750-850 kcals/day). At the very least, the rations for these women should provide the extra energy and protein demands of pregnancy or lactation, i.e., 350 kcals, including 10-13 g protein, for pregnant women, and 500 kcals, including 14-19 g protein, for lactating women.

Children: Rations should supply about one half of the energy needs of young children (about 150-350 kcals/d for breast fed children aged 6-24 mos, and 400-600 kcals/d for those that are not).

- **Fat:** For breastfed children 6-24 months, older children and women, the fat content should be about 20% of the total energy. For children under two who are not breastfed, the fat content of the ration should be higher, 30-40% of the total.

- **Protein:** As long as the fat in the ration is held to the above guidelines, the fulfillment of the remaining energy with a combination of pulse and cereal or a blended food (which contains both), will inevitably provide women or children enough protein to meet their needs.

Box 5 below shows an example of how to calculate the ration size for children 1-3 years of age who are moderately malnourished, based on the precise and estimated methods.

Box 5: Example of Calculating Energy Deficit of Moderately Malnourished Children 1-3 years of age

Precise Method

REA for children 1-3 years of age is 1,300 kcal per day (from Table 1 Annex III).

For this example, calculate 20% of the REA for the leakage factor: 1,300 x 0.20 = 260 kcal.

Add the kcal from the REA and leakage factor: 1,300 kcal + 260 kcal = 1,560 kcal.

Subtract Estimated energy intake, which for this example is 1,000 kcal: 1,560 kcal –1,000

[5] Derived from WFP, *Supplementary Feeding for Mothers and Children: Operational Guidelines* and WHO, *Complementary Feeding of Young Children in Developing Countries.*

kcal = 560 kcal.

Thus, the caloric deficit for this target group would be 560 kcal per person per day

Estimation Method

Assuming the target child is from 6-24 months of age and is **not** breastfeeding, the ration size would be in the range of 400-600 kcal/day, or 500 kcal/day on average would supply roughly half of the child's daily nutritional energy requirement.

c) HIV/AIDS Affected Individuals: People with HIV/AIDS suffer from appetite loss (anorexia), eat less food and have difficulty eating and therefore fail to meet their dietary requirements. HIV/AIDS also affects how the body uses the foods that are consumed and this results in nutrient malabsorption. Fevers and the infections that accompany an HIV infection also lead to greater nutrient requirements and poor use of the nutrients by the body. There are several illnesses that are common with people living with HIV/AIDS and that cause malnutrition. These include poor appetite or anorexia, losing weight, fever, diarrhea, frequent vomiting, oral thrush and other infections. Good nutrition for HIV affected people requires the consumption of an adequate amount of macronutrients such as proteins, carbohydrates and fats, and micronutrients, which include vitamins and minerals. A deficiency in macronutrients, also known as protein energy malnutrition manifests itself in the weight loss and wasting that is typical of AIDS patients. This weight loss and wasting occurs as a result of reduced food intake, nutrient malabsorption and changes in metabolism. Vitamin A for HIV affected people is important for growth, immune function and maintenance of the lining of the respiratory, gastrointestinal, and gastro-urinal tracts. Consuming micronutrients especially vitamin A, B6, B12, iron, and zinc are important for building a strong immune system and fighting infections. Consuming fortified foods like the cereal blends and vegetable oil fortified with vitamin A as well as taking micronutrient supplements at early stages of HIV infection can slow weight loss and disease progression. In the case of vitamin A there is the likelihood of reduced transmission between mother and child and slowing the progression of the disease in infected people. Refer to the FANTA publication on "*Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members*" at www.fantaproject.org.

d) Micronutrients.

Young children's and pregnant and lactating women's micronutrient requirements are high; therefore, micronutrient fortified commodities should be included in the rations.

All oil provided through Title II is fortified with vitamin A nutrient essential for the protection of the health of any population, but particularly young children. Forty grams (40g) of refined vegetable oil potentially satisfies children's full daily requirements and about 70% of adult requirements.

Whereas whole grain cereal, such as wheat and corn are not fortified, all processed food cereals under Title II programs, with the exception of rice, are fortified with B vitamins (thiamin, riboflavin, folic acid, and niacin), vitamin A, calcium, and iron. Blended cereals (corn-soy blend and wheat-soy blend)

are further fortified with zinc, B12, pantothenic acid, iodine, magnesium, vitamin C, vitamin D, and vitamin E.

The micronutrient content of blended cereals (see the Commodity Fact Sheets found in Section I of the CRG) are estimates.[6] Because some of these vitamins are lost during storage and cooking, they do not accurately reflect the quantities available to the body after consumption. For example, up to 40 percent of vitamin A is lost from fortified cereals that is exposed for several months to heat, light and air. Minerals are not subject to deterioration by environmental factors, however, their bioavailability in cereal can be greatly reduced by absorption inhibitors present in food aid commodities and other foods commonly consumed, such as tea, and coffee.

Since micronutrient deficiencies, particularly vitamin A and iron are common in most food insecure areas, food aid programs, to the extent possible, should try to provide vitamin A and iron supplements to young children and pregnant and lactating women. Cooperating Sponsors should try to link with government services or donors such as UNICEF to obtain a regular supply of supplements.

2. Income Transfer Value

Rations are sometimes used as an incentive for mothers to attend health facilities, and it is the income transfer value of the ration package that is important. Income transfer value is the monetary value of the ration to the household. The estimated income transfer of Title II rations is the market price of equivalent quantities of the local commodities that are most similar to the food aid commodities in the ration. If an MCHN program uses food aid for its income transfer (monetary) value, the ration package's minimum level of acceptable income transfer value will need to be determined. The minimum level of income transfer value should include the recipients' participation costs, such as lost wages and transportation.

When used as an incentive, past program experience, conversations with local authorities and community leaders, and discussions with agencies implementing MCHN programs may be useful sources of data and information before agreeing upon a minimum level. To determine the income transfer value needed for incentive-type programs, the following factors should be considered:

- What is the cost to the target population for participation in the program, i.e., transportation, daily lost wages, daily wage rate?
- What other incentives are offered, i.e., health services?
- What is the value of the commodities to the participants?

Foods in the current diet should be determined, such as:

- imported foods
- high cost items, i.e., oil, milk and other commercial processed foods
- seasonally unavailable staples
- important foods that cannot be obtained in adequate quantities because of income constraints

Commodities that replace highly valued and expensive food items, such as oil, may have a substantial

[6] However, U.S. manufacturers of dry food aid commodities are now required to produce fortified food with average lot values of not less than 80 percent of the vitamin values and 100 percent of mineral values as specified in Part One of the CRG. In refined vegetable oil, the vitamin A levels are mandated to be between 60 and 75 IU/gram.

income mediating effect, freeing up income typically used for purchasing expensive items to buy less expensive local foods or goods that can enhance and diversify the diet. See Module 2: FFW Programs for more information on income transfer value considerations. HYPERLINK.

STEP 4: RATION CALCULATION

After calculating the nutritional or income value of a proposed ration package, the following actions may be taken: (1) calculate the ration package; (2) calculate the total amount of commodities needed for the program; and (3) determine commodity cost-effectiveness. The large number of commodities on the Title II eligibility list makes it possible to design a variety of ration packages.

It is useful to develop several alternative ration packages so that they can be compared for cost and other trade-offs. Alternative rations should be considered in the initial planning stages in the event that a commodity is not available, may be delayed in transport or when changes in commodity availability, prices, and packaging significantly alter the relative cost effectiveness of a ration package. If a micronutrient deficiency is a problem, consideration of key micronutrient values of a food aid commodity should be factored into the selection process.

1. Calculating the ration package

For logistical and management reasons, a ration package that meets nutritional values **should use no more than three commodities per ration** unless strong reasons exist. Because vegetable oil is a dense source of energy for food deficient populations, it should almost always be included in a ration package. While there is an element of trial and error, the following checklist helps provide a systematic approach for designing food aid ration packages and selecting commodities and their quantities to meet nutritional values:

- Consider the energy and protein nutritional values of the proposed food ration, which have been calculated using Step 3.

- Calculate the oil ration. Around 20% of the food ration's energy should come from oil.[7] Multiply the total energy value of the ration package by 20%. Then divide this amount by 9 (number of kcal per one gram of vegetable oil).

- Subtract the energy contribution of oil from the total energy value of the proposed food package to obtain the balance of kilocalories needed.

- Select a cereal or cereal blend from the list of commodities in Section I of the CRG. Projects targeting a protein or micronutrient deficit target group should first consider blended cereals, such as corn-soy blend (CSB) or wheat-soy blend (WSB). While blended, fortified, or value added foods should be considered first, other factors such as cost, energy and protein content, acceptability, ease of storage, and processing requirements should also be considered.

[7] The total contribution of fat to the calories in the ration will be higher than 20 percent, especially if oil is combined with either CSB or WSB, which contain about 7 percent fat. About 16 percent of the nutritional energy of these foods is in the form of fat because oil is a part of the blend, while other processed cereals contain much less fat content. Also, the overall contribution of fat by the local food in the diet should be considered. With the exception of breast milk, in most poor households the amount of fat consumed by a child is likely to be low.

- Calculate the number of kilocalories per one gram of cereal/cereal blend by dividing the number of kilocalories per 100 grams of commodity by 100 (from Commodity Fact Sheets in Section II). These fact sheets are available at www.usaid.gov/hum_response/crg.

- Divide the balance of kilocalories needed by the number of kilocalories per one gram of cereal/cereal blend to obtain the total grams of cereal/cereal blend.

- Calculate the number of grams of protein per one gram of cereal/cereal blend by dividing the grams of protein per 100 grams of commodity by 100.

- Multiply the amount of protein per one gram of cereal/cereal blend times the total grams of cereal/cereal blend in the ration package to obtain the protein contribution of the cereal/cereal blend.

- Subtract the protein contribution of the cereal/cereal blend from total protein value target for the proposed ration package. If more protein is needed, either increase the amount of cereal/cereal blend, replace the cereal with a cereal blend, or use a third commodity.

- If a third commodity will be used, dry beans, peas, lentils, or soy should be used to increase the protein value of the package.

- Determine the number of grams of protein per one gram of the third commodity by dividing the grams of protein per 100 g of commodity by 100. Then, divide the balance of protein needed by the grams of protein per one gram of the third commodity. This will determine the amount of commodity needed to provide the remaining protein allowance.

- A ration calculated this way would contain up to 30 percent of its energy from fat (lipid) if a cereal blend is used along with the oil, because of the contribution of fat from the cereal commodity. If another cereal is used, the fat contribution will be closer to 20 percent. The fat contribution can be adjusted by lowering or raising the percentage of oil the first step of the calculation.

- Do not forget to take into account the energy value of the third commodity and, if necessary, reduce the cereal ration accordingly.

Box 6 below provides a detailed example of how to calculate a ration package for 1-3 year old children.

Box 6: Calculating a Ration Package For 1-3 Year Old Children

(This example uses the nutritional energy value from Box 5, "precise method".)

OIL

1) Multiply the total number of kcal times .20 (20%) to determine kcal from oil ration.
   560 kcal (from Box 5) x 0.20 = 112 kcal

2) Divide the number of kcal of oil by 9 (1 g oil = 9 kcal).
   112 kcal ÷ 9 kcal/gram = **12.44 g** or **12 g of fortified, vegetable oil per child per day**

3) Subtract the caloric contribution of oil from the total caloric value of the ration package.
   560 kcal – 112 kcal oil = 448 kcal

CORN SOY BLEND

4) CSB is selected to meet needs of young children. Calculate the number of kilocalories per gram of CSB by dividing the number of kilocalories per 100 grams of CSB by 100.
   375 kcal ÷ 100 g = 3.75 kcal per one g of corn-soy blend (CSB)

5) Divide the balance of kilocalories by the number of kilocalories per one gram of CSB.
   448 kcal ÷ 3.75 kcal/gram = **119.47 g** or **119 g of CSB per child per day**

6) Calculate the number of grams of protein per one gram of CSB by dividing the grams of protein in a 100 g amount by 100.
   17.2 g ÷ 100 g = 0.17 g

7) Then multiply the protein amount per one gram of CSB times the total grams of CSB.
   119 g x 0.17 g= **20.23 g or 20 g of protein per child per day**

Thus, a ration package of 12 g of fortified, vegetable oil and 119 g of CSB provides 560 kcal and 20 g protein. (Fat contributes 30 percent of the calories in this ration.)

The micronutrient content of the ration package should also be considered when designing ration packages for MCHN programs. The ration package containing 105 grams of CSB in Box 7 provides between 50% to over 100% of this target group's (children 1-3 years of age) recommended dietary allowances (RDAs) for vitamin A, vitamin C, the B vitamins, folate, calcium, magnesium, iron, zinc, and iodine. The micronutrients content of blended cereals (see Commodity Fact Sheets in Section II) are estimates. Because some of these vitamins are lost during storage and cooking, they do not accurately reflect the quantities available to the body at consumption. For example, up to 40 percent of vitamin A is lost from fortified cereals that is exposed for several months to heat, light, and air.[8] Minerals are not subject to deterioration by environmental factors, however, their bioavailability can be greatly reduced by absorption inhibitors, such as phytates, tea, and coffee.

[8] SUSTAIN. *Final Report of the Micronutrient Assessment Project*. Washington, D.C., 1999.

2. Calculating the Total Amount of Food Commodities Needed

Once the ration package is determined, the amount of commodities needed to feed the total number of persons/household for the program period (usually in metric tons) can be calculated. To determine the number of metric tons (MT) needed for each commodity use the following steps:

- Multiply the number of grams of the commodity per person per day times the total number of persons to receive the commodity.
- Multiply the total number of grams of the commodity needed to feed the target group times the number of days the program will provide the ration package.
- Determine the number of metric tons of commodity needed by dividing the total number of grams per program period by 1,000,000 (number of grams in a metric ton).
- Complete the same calculation for each commodity (vegetable oil, cereal, cereal blend, or legume) that comprises the ration.

Box 7 below provides an example of how to calculate the total amount of commodities.

Box 7: Calculating Amount of Commodities Needed For 2,500 Children 1-3 Years of Age for One Year

1) Multiply grams of vegetable oil per child per day times 2,500 times 365 days.
   12 g oil (from Box 7) x 2,500 persons = 30,000 g x 365 days = 10,950,000 g
2) Divide the total number of grams of oil per year by 1,000,000
   10,950,500 ÷ 1,000,000 = **10.9 MT of fortified vegetable oil per year**
3) Multiply grams of CSB per child per day times 2,500 persons times 365 days.
   119 g CSB (from Box 7) x 2500 persons = 295,500 g x 365 days = 108,587,500 grams
4) Divide the total number of grams of CSB by 1,000,000
   108,587,500 g ÷ 1,000,000 = **108.6 MT of CSB per year**

3. Determining the Cost Effectiveness of Ration Packages

For information on determining cost-effectiveness of the ration package and ranking commodities, refer to the beginning of Part Two of the CRG, *Guidelines for Development of Food Aid Programs: An Overview*.

STEP 5: RANKING AND SELECTION

Naturally, cost plays a key role in the size and effectiveness of programs and cost calculations involve decisions about what cost elements to consider. At a minimum, the illustrative list of commodity

prices in Annex V and current in-country transportation and storage costs can be used. Other factors to consider are:

- **Market disruptions**: The Bellmon determination must ensure that the local market is not disrupted. Market considerations in local areas where programs are targeted might also come into play. For example, it may be less disruptive to provide certain foods in the lean season rather than the harvest season. Guidance on conducting the Bellmon analysis may be found online at www.usaid.gov/hum_response/ffp/bellmon.htm.

- **Logistics and management**: Some commodities may impose undue management or cost burdens due to unusual local conditions (e.g. transportation, storage, handling, pilferage) or unsuitable packaging, for the limited shelf life of the commodity.

The usual sources of data for considering potential market disruptions and logistical problems include past evaluations of similar programs, interviews with host governments and local and international PVO, as well as discussions with international organizations (such as the World Bank and the United Nations), USAID, USDA Agricultural Attaches and Economic/Commercial Officers at U.S. Embassies.

Proposed and alternative, ration packages can now be ranked by nutritional value, income transfer value, total cost, and other factors, such as potential market disruptions and logistical problems. They might also be ranked by cost. Decisions to change ration packages can be made less arbitrarily when alternative rations and their main attributes have been examined in advance.

RESORUCE LIST

1. Food and Nutrition Technical Assistance (FANTA) Project, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax 202-884-8432. E-mail: fanta@aed.org; Web site www.fantaproject.org. FANTA has the following guides:

   - *Agricultural Productivity Indicators Measurement Guide.* Patrick Diskin
   - *Anthropometry Indicators Measurement Guide (Draft*). Bruce Cogill
   - *Food For Education Indicator Guide (Draft).* Joy Miller del Rosso and Gilles Bergeron
   - *Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs.* Frank Riely, Nancy Mock, Bruce Cogill, Laura Bailey, and Eric Kenefick
   - *Improving the Use of Food Rations In Title II Maternal/Child Health and Nutrition Programs (Draft).* Serena Rajabiun, Beatrice Rogers, Margarita Safdie, Anne Swindale
   - *Infant and Child Feeding Indicators Measurement Guide*. Mary Lung'aho
   - *Measuring Household Food Consumption: A Technical Guide.* Anne Swindale and Punam Ohri-Vachaspati
   - *Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members. (forthcoming)*
   - *Potential Uses of Food Aid to Support HIV/AIDS Mitigation Activities in Sub-Saharan Africa.*
   - *Sampling guide.* Robert Magnani
   - *Water and Sanitation Indicators Measurement Guide.* Patricia Billig, Diane Benahmane and Anne Swindale

2. Food Aid Management (FAM), 1625 K Street, NW, 5th Floor Washington, DC 20006. Tel: (202) 223-4860, Fax: (202) 223-4862; Web site www.foodaid.org. FAM provides USAID documents (FY 1990-ongoing).

3. Linkages Project. *Recommended Feeding and Dietary Practices to Improve Infant and Maternal Nutrition* also see *Facts for Feeding* (English, Spanish, French). Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax: 202-884-8977; E-mail: linkages@aed.org Web site www.linkagesproject.org.

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8. USAID/BHR. *Commodities Reference Guide (CRG*): *Section 1-4*. April 1999. Web site: www.usaid.gov/hum_response/crg.

9. USAID/BHR/FFP. *Monetization Field Manual P.L. 480 Title II Programs*. October 1998. Web site: www.usaid.gov/hum_response/ffp/monetiz.htm.

10. USAID/BHR/FFP. *Title II Guidelines for Development Programs*. January 2000. Web site: www.usaid.gov/hum_response/ffp/dappaa.htm.

11. USAID/CDIE. *Performance Monitoring and Evaluation Tips*. 1996. Web site: www.usaid.gov/pubs/usaid_eval/#02.

12. WHO. *Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers*. Geneva, 1999.

13. WHO. *The Management of Nutrition in Major Emergencies*. Geneva, 2000.

14. World Food Programme (WFP), *Supplementary Feeding for Mothers and Children: Operational Guidelines* also see UNHCR/WFP *Guidelines For Selective Feeding Programmes In Emergency Situations*, February 1999 at www.wfp.org/OP/guide/PolGuideSelect.html.

MODULE 2: FOOD FOR WORK

I. INTRODUCTION

The overarching objective of USAID's Office of Food for Peace (FFP) is to improve food security of vulnerable populations in developing countries around the world. Food security exists when people have access to sufficient food to meet their nutrition needs for a healthy and productive life.

The programming of food aid through Food-for-Work (FFW) activities can help improve food security by addressing temporary household food insecurity while supporting key construction and rehabilitation activities that lead to longer term, more sustainable food security results. Usually, the major consideration in FFW activities is the income transfer value of a food ration as a wage equivalent or incentive. However, depending on the problems being addressed, the nutritional value of the food provided may also be a major consideration. FFW can be used to support a range of objectives primarily in non-emergency, development contexts, but also in some emergency programs where both rehabilitation projects and nutritional support receive high priority.

FFW programs include the construction or repair of farm-to-market and urban roads, schools, health clinics, irrigation systems, public water and sanitation systems and other infrastructure and environmental protection and conservation activities. FFW's self targeting feature is useful in rehabilitation following disaster situations, where needy individuals will contribute their labor for food while helping to return the community's infrastructure to normal.. FFW interventions are particularly appropriate when faced with the combination of widespread and/or seasonal food deficits and high unemployment rates. FFW is also common when drought, dislocation or introduction of valuable new technologies in the local area temporarily disrupts productive activities of a farming community.

Good practice dictates that the community should participate in the FFW decision-making process and should view the activity as creating a valuable community asset, such as tree planting on common property.

II. GUIDELINES FOR COMMODITY SELECTION FOR FFW PROGRAMS

This module is intended to be flexible enough to permit the selection of food aid rations that are appropriate for each FFW situation. Box 1 below identifies five key steps in the development of a FFW ration:

Box 1: Five Steps for Selecting FFW Commodity Rations:

Step 1. Program Design
Step 2. Suitability of Commodities
Step 3. Ration Specifications
Step 4. Ration Calculations
Step 5. Ration Ranking and Selection

STEP 1: PROGRAM DESIGN

The five key components in the design of a FFW program proposal are: (1) carrying out a needs assessment; (2) determining whether FFW is appropriate; (3) identifying the target group; (4) developing the FFW objectives; and (5) determining the distribution mode and frequency. For detailed guidelines on proposal development see FFP's *Title II Guidelines for Development Programs* (www.usaid.gov/hum_response/ffp/dappaa.htm). Also refer to the Food Aid Management website at www.foodaig.org. An explanation of each design component follows:

1. Carrying Out A Needs Assessment

As the food aid component of the program is designed, it is important to articulate why food aid is needed and how it will be used to meet program goals. A needs assessment will provide information relevant to the design of the overall technical intervention (e.g. in agriculture or water and sanitation) and specific information necessary for designing the FFW component.

A needs assessment will help to determine the nature, extent, severity, and distribution of the food need. It should include an analysis of the degree of food accessibility and availability and other information that would inform to what foods might be useful in a FFW "payment" package. It should collect information on the local labor market, including seasonality in the supply and demand for labor, and local wage rates. The assessment should also consider who is most in need of food and during what seasons to have a basis for describing criteria for selection of beneficiaries, the geographic areas to be targeted, and the period of time during which FFW should be offered. The ideal timing for FFW activities is during periods of food scarcity when local labor opportunities are limited.

Primary Data Collection: Primary data may be collected using survey methods that gather information about food consumption, nutritional status, food availability, agricultural production patterns or migration. Qualitative data gathering techniques are also helpful. These may include techniques such as in-depth interviews, focus group discussions, participatory rural appraisal, or observation. Tips for collecting primary data are provided in USAID/CDIE's *Performance Monitoring and Evaluation Tips*, available online at www.dec.org/usaid_eval. Other informational resources may be found in the Resource List at the end of this module.

Secondary Data Collection: Secondary data may be collected from various sources including reports from the USAID/Africa Bureau-funded Famine Early Warning System (FEWS); UN

Food and Agriculture Organization (FAO) crop and food supply reports; UN World Food Program (WFP) food aid assessment reports; international and local PVO reports and other donor reports.

2. Determining whether a FFW component is appropriate

FFW may be an appropriate component of an emergency or non-emergency program where the assessment identifies the need for the following: 1) public infrastructure, such as roads, irrigation systems, public water supply systems, schools and health clinics and environmental protection or conservation activities; 2) remuneration of participant's time for training; 3) compensation for decreases in food production while improved technologies are being implemented; 4) support for household food need while rehabilitating agriculture or damaged infrastructure following a disaster or resettlement..

The assessment should document that food and labor opportunities are scarce in the program areas, and show that FFW activities (in-kind transfer of food resources) would not interfere with local labor markets, act as a disincentive to local enterprise, including farm production, and would reinforce forms of community initiative rather than simply replace community labor with FFW paid labor.

The assessment should also document the likelihood that in-kind transfer of food would result in preventing the following: 1) divestiture of productive assets by households (or other negative coping strategies), 2) out-migration, and/or 3) increased prevalence of malnutrition.

3. Identifying and Targeting a Group

Typically, FFW programs are implemented in communities facing seasonal food deficits that can benefit from improved infrastructure and to accelerate economic development. Population groups undergoing reconstruction following and emergency are also candidates. Whereas whole communities are often targeted, within these communities the focus is often on poor households with unemployed or underemployed adult men or women.

To the extent feasible, the FFW ration should be designed to be self-targeted to these groups. FFW rations can be self-targeted by developing a ration with a value slightly less than prevailing local wage, and including less preferred commodities. Selection of a food used in child feeding may also help in self-targeting women.

Clearly, a FFW ration set too high will attract a greater spectrum of the available workers, but will cut into local labor markets, and the food may not benefit the most needy individuals, women, and families. For instance, men may take the bulk of the work in situations where women heads of household are in greater need. However, rates set too low while targeting the poorest well, may be unjust and will not get the job done.

4. Developing Program Activity Objectives

USAID's Managing for Results terminology in Annex 1 of Section VI should be reviewed prior

to drafting a proposal for submission to FFP. Program objectives in the food aid program proposal should be result statements, that is, what is the end result to be achieved by the intervention? For example, one results-oriented objective might be "*improved access to food by households living in communities served by new or improved farm-to-market roads.*"

Each result statement should have at least one performance indicator to track progress. Performance indicators are variables designed to measure progress toward achievement of the stated result. Sample food security indicators may be found in Annex II. USAID/CDIE's

Performance Monitoring and Evaluation Tips, available online at www.dec.org/usaid_eval. These tips also include guidance for developing result statements and performance indicators.

When possible, both impact (performance) and output indicators should be developed and monitored, although many of the output level indicators may not be reported to USAID. The benefits of having both are self-evident. For example, it is important for the PVO to know the amount of infrastructure constructed (e.g. km of farm-to-market roads improved - an output). It is also important to determine how the economic situation and/or food access and/or utilization of the target group improved (impact).

5. Determining the Distribution Mode and Frequency

The mode and frequency of FFW payments should be based on recipients' needs, program objectives, the type and quantity of the ration and commodity transport and distribution costs. Generally, FFW rations are distributed as take-home rations (dry, uncooked rations.)

FFW activities should be designed to increase the recipient's self-reliance and self-esteem. This may be accomplished by encouraging the affected populations to provide their comments on the mix and size of the ration, food payment ratios, and the distribution and monitoring systems. The latter programming approach helps preserve the dignity of the recipients while contributing to increased program efficiency and effectiveness.

STEP 2: SUITABILITY OF FOOD COMMODITIES

The suitability of the food aid should be assessed with regard to the needs and preferences of the targeted individuals, households, and community. A ration is suitable if it can be used effectively to achieve intended objectives. Managers should judge the suitability of food rations to the local food consumption patterns, nutritional requirements, locally available foods, food processing and storage capacities, and local market prices. Below are key suitability factors to be taken into consideration in developing rations for FFW programs:

Cultural Suitability: It is important to consider food consumption patterns, taste preferences, and traditional taboos of the target population when designing the FFW ration package. For example, Brazilians prefer black beans while Nicaraguans prefer red beans. Clearly, food that is not eaten does not have any nutritional value to the beneficiary. Foods that are totally foreign to the local diet are not recommended, and they should not be introduced without sensitizing the recipients about the new food commodity.

Nutritional Values: Although FFW is intended primarily as an in-kind income-transfer, hunger and nutritional factors should also be considered. For example, one might consider the dietary needs of working women of childbearing age and those of their children by including fortified soy-blended cereals and fortified vegetable oil in their ration. The program should also insure that the amount of energy required to do the work is not greater than the amount of energy provided by the ration.

Availability of Processing and/or Storage Facilities: Consider factors that will affect food preparation, such as access to mills, processing and storage facilities, access to fuel for cooking and preparation time. For example, it would not be appropriate whole grains when milling facilities are not available, or to use beans (which require considerable energy to cook) in an area where there is a shortage of fuel. The means participants will transport rations to their homes and their facilities for storing them might also be considered. transport the commodities to their home.

Timing of Harvests and Seasonal Shortages: Methods for obtaining the required information on harvests and seasonal availability of food include market analyses, and focus group and key informant interviews. Other considerations include whether labor requirements will impact negatively on local agricultural production or the local labor market. If so, variations in the FFW work schedule and/or distribution schedule in response to these needs should be made accordingly.

STEP 3: RATION SPECIFICATIONS

Generally, income transfer (monetary) value is a primary consideration in determining the ration in FFW programs. The income transfer value of a commodity is equivalent to the price of a similar food in the local market. For example, if a household buys whole grain wheat and processes it at home, and the commodity under consideration is whole grain wheat, then the value of the commodity will be the market price of the whole grain wheat. If the commodity is wheat flour, the value is the market price of wheat flour or of whole grain wheat plus an allowance for costs of milling.

FFW food rations are given as a wage payment (based either on time worked or output produced) or as an incentive. Their nutritional value is usually a secondary consideration, depending on the situation. The recipients' participation costs, such as transportation, can also be considered in determining the quantity of FFW food to be provided. Past program experience and conversations with local authorities and community leaders may be used to factor in "participation costs" before agreeing upon a minimum FFW ration level.

Descriptions of each situation are presented below.

1. **Income Transfer Value as Wage Payment:** FFW projects use commodities as wage equivalent payments in activities where the workers are not the sole or direct beneficiaries of the infrastructure being created. In these situations, FFW is the wage they receive for their work. Wage equivalent payments may also be appropriate in situations where the workers do

benefit directly from the infrastructure, but providing the amount of labor required would not be feasible without some sort of remuneration.

Payments are made daily (rare), weekly or monthly if the workers are engaged for a significant period of time. The frequency of FFW payments is likely to be greater in emergency situations. If the FFW program involves a major construction activity with a high degree of technical input and performance standards (e.g., major roads, etc.), it may be necessary to provide a full wage payment using a high value commodity in order to attract qualified labor. However, many programs work with local governments to cover the skilled labor requirements with counterpart funding.

2. **Income Transfer Value as an Incentive**: FFW may be provided as an incentive when individuals benefit directly from a work project or training. The FFW payment under incentive type programs is meant to motivate beneficiaries to participate in the construction activity or attend education or training activities. Income transfer value should be based on the real and opportunity costs of participation, for example, to compensate the cost of public transportation or the time used to walk to/from the FFW site, or to provide an incentive to attend an educational activity. The opportunity cost of time is based on prevailing local wages. However, since the participant is also receiving direct benefits from the activity, the value of the food provided could be less than the equivalent of a full wage If the program is incentive-based, it is important to know the customs under which individuals would normally donate their labor to a project.

3. **Work Norm Approach**: FFW is provided as a specified task is completed. Despite the additional work required to define and measure tasks, introduction of task-based compensation can be more efficient than a daily wage approach. This approach requires more extensive negotiations on individual work assignments and close, skilled supervision. Further, with this approach, parts of a task must be valued in food terms and work apportioned according to an individual's capacity to contribute to the work group. For more detailed information on the latter subject, please see *Food for Work: A Review of the 1980s with Recommendations for the 1990s*, which may be found on in the Resource List at the end of this module.

4. **Nutritional Value**: Food needs and nutritional value should not be ignored in FFW projects, and in some instances they are of major importance to help fill gap in the target group's diets.. In this instance, the nutritional value of the ration must be more carefully considered along with the work objectives. In such cases, a low market value commodity might reach more people with appropriate food. A low value food commodity, such as sorghum, may self-target individuals who will be more likely to eat rather than sell the commodity. Some experience also shows that food provided for women's work is more likely to contribute to household nutrition than would food or cash provided to men. FFW with hunger and nutrition objectives are most common in emergency and transition situations. For details on how to determine the nutritional value of a general ration refer to *Module 1-MCHN Programs*, or for emergencies, see *Module 5- Emergency Programs.HYPERLINKS*

Additional information necessary to determine the value of the FFW ration includes:

Local Wage for Full Day's Work: Determine what a laborer would receive for a full day's work in local currency. This value should be based on the prevailing local wage. The official minimum wage may also be used, but in cases where the minimum wage is not well-enforced, this may lead to offering FFW rations with values well in excess of prevailing local wages. This will likely lead to negative effects on labor market.

Portion of Day Worked: Determine the portion of a day that a beneficiary will work. FFW beneficiaries may work an entire day or a portion of the day on a FFW activity. If the FFW ration is being offered as an incentive, the amount of time individuals will spend in the activity needs to be determined.

Person Hours Required for Output: If a norm-based approach will be used, the number of person/hours required to produce each output (e.g. person hours per meter of trench dug) will need to be determined.

Transportation Costs: If the program includes the cost of transportation (either by public transportation or by foot) as part of the payment, determine what the local costs for transportation are.

The formula in Box 3 below can be used to determine the wage payment or incentive equivalent.

Box 3- Formula for Determining FFW Wage/Incentive Payment Equivalent

Local wage for full day's work (may be calculated at 90-95% of local wage to self-target)	x	Portion of day Worked	+ Transportation/Incentive costs (if applicable)	=	Value of wage payment

Box 4 below provides an example of how to calculate a wage payment for use in determining the ration specification.

Box 4 – Calculating the Ration Equivalent for Men on Road Construction in Ghana.

1) The local wage for road construction in Ghana is 12,000 cedis per day (figure is made up).

2) FFW recipients will be employed to work on the road for ½ day.
   12,000 cedis ÷ ½ = 6,000 cedis.

3) Each laborer will receive 500 cedis a day for transportation costs.

Thus, the wage payment will be 6,500 cedis per recipient per day.

The wage (or incentive) payment will be the value of the commodity package provided to the FFW recipient. For example, if the wage payment for the FFW recipients is 6,500 cedis, the quantity of the food aid commodities they receive should be equivalent to the quantity of similar, locally available foods that one can buy for 6,500 cedis.

Some programs decide to combine food and cash payments (food-for-work and cash-for-work – FFW/CFW). In Title II-funded FFW programs, the cash element is generally no more than 50 to 60 percent of the wage. Discussions should be held with local government authorities on this subject, as some governments may have already established standardized FFW rations.

STEP 4: RATION CALCULATION

After determining the value of a proposed ration package, the following will need to be determined: (1) type of food commodities (ration package) to be provided; (2) total tonnage of commodities needed; and (3) the cost-effectiveness of the commodities selected. It is generally prudent to consider alternative rations in the event the desired commodities are not available in the quantities required.

1. Calculating the Ration Package

The food aid commodities that form the ration package should be selected. The following guidance may be used to develop ration packages that meet the FFW ration value established in Step 3 above.

- Select commodities that meet the suitability criteria described in Step 2.
- Determine the local retail market price for the commodity or commodities selected.
- Calculate the ration package amount by dividing the minimum wage payment by the local price of the commodities.
- If there are nutrition considerations as part of the FFW program, refer to *Module 1-MCHN Programs*, or for emergencies, *Module 5- Emergency Programs*.

Box 5 below provides an example of how to calculate the ration package for the target group in Box 3

BOX 5- CALCULATING A RATION PACKAGE FOR GHANAIAN FFW RECIPIENTS

1) The minimum wage payment is 6,500 cedis per person per day (from Box 3)

2) Rice and cow peas are the two food aid commodity selected for the ration package

3) Local cost of rice is 2,000 cedis per kilogram (kg); blackeye beans (cowpeas) are 1,750 cedis per kg. (the prices are hypothetical)

4) One and one-half kg of rice and 2 kg of cowpeas will provide the minimum wage payment per recipient per day. ((1½ kg rice x 2,000) + (2 kg cowpeas x 1,750) = 6,500 cedis)

Thus, for ½ day labor on a road construction activity, a FFW recipient will receive 1½ kg of rice and 2 kg of cowpeas per day as payment for the labor provided.

Clearly, there is no exact formula for selecting the commodities or the mix of commodities in each particular situation. Once foods that are economically viable to import in the given country are identified, then programmers must be well informed about the suitability of the commodities in the cultural, economic and dietary context. In the Ghana example for instance, the programmers could justify greater quantities of beans than rice in the ration because of cultural preference, or that the higher protein content of beans addresses deficiencies common in Ghana where low protein root crops make up a major part of the diet.

2. Calculate the Total Amount of Food Commodities Needed

Once the ration is calculated, determining the tonnage of commodities required for a wage payment or an incentive type FFW program is fairly straightforward:

- Multiply the number of kilograms of the commodity per recipient per day times the total number of persons to receive the commodity.

- Multiply the total number of commodity needed for the target group (all recipients working on the FFW activity) times the total number of days that the ration package will be provided.

- Determine the number of metric tons (MT) of commodity needed by dividing the total number of kilograms of commodity by 1,000 (number of kg in one MT).

- Complete the same calculation for each commodity in the ration package.

Box 6 below provides an example of how to calculate the total amount of commodities needed to provide the two-commodity ration package example in Box 4.

Box 6: Calculating the Amount of Commodities Needed for 1,500 FFW Recipients for a 60 Day Road Construction Activity

For rice:
1) 1½ kg rice x 1,500 recipients = 2,250 kg rice per day

2) 2,250 kg rice per day x 60 days = 135,000 kg rice per FFW activity

3) 135,000 kg rice ÷ 1,000 (number of kilograms in one MT)= **135 MT of rice**

For Cowpeas:
1) 2 kg cowpeas x 1,500 = 3,000 kg cowpeas per day

2) 3,000 kg cowpeas per day x 60 days = 180,00 kg

3) 180,000 kg ÷ 1,000 = **180 MT of cowpeas**

3. Determining Cost Effectiveness of Ration Package

Occasionally, cost may not be the primary consideration in selecting the commodities. Food preferences, availability and potential disincentive effects may outweigh cost considerations. In this regard, a reexamination of the primary objective of the proposed FFW program and a further examination of the cost of the commodity vis-a-vis its income transfer or nutritive value may help reach a decision whether the program is sufficiently cost-effective and responsive to the needs of the targeted population group.[1]

Cost effectiveness is determined by calculating the difference between the local value of the ration package and the cost of delivering the ration package under the proposed program. For example, if a recipient receives a commodity that replaces one that would cost $0.50 in the local market, the provision of this commodity is a $0.50 value to the family. If providing the same commodity via a Title II FFW program costs $0.25, then the program would be considered cost-effective as the value provided is higher than the actual cost of the commodity to the program. (See full example in the Part Two Overview section. HYPERLINK).

STEP 5: RANKING AND SELECTION

The various FFW ration packages proposed should be ranked in order to select the most cost-effective and appropriate combination to meet program objectives. In examining the primary cost elements, the illustrative price list of commodities in Annex IV and various in-country transportation and storage costs can be used. Other factors to consider are:

[1] Cost also refers to costs to the project associated with a commodity (such as CCC dollar values found in Annex VII). In some projects, in-country transportation and storage costs and special handling costs may be critical, however, these costs may be similar for most commodities. For each project, first decide which of these cost elements are most relevant.

- **Minimizing Market Disruptions**: The Bellmon determination should confirm that local markets would not be disrupted. For example, it may be less disruptive to provide certain foods in the lean season rather than during the harvest season. In fact, every effort should be made to use Title II food aid to increase the productivity and sustainability of the targeted groups. Guidance on conducting the Bellmon analysis may be found online at www.usaid.gov/hum_response/ffp/bellmon.htm.

- **Logistics, Packaging and Storage Considerations**: The Bellmon determination should also include an assessment of the country's transportation and storage capacity. Further, some commodities may impose undue management or cost burdens due to unusual local conditions -- such as storage, or pilferage problems -- or unsuitable packaging or a very limited shelf life (e.g., six-months or less).

The usual sources of data and information for examining potential market disruptions and logistical problems include past evaluations of similar programs, interviews with local government authorities, USAID missions, USDA Agricultural Attaches and Economic/Commercial Officers at U.S. Embassies.

The next is to rank the alternative packages by total FFW program cost, income transfer value, nutritional value, and any other factors identified in the program design process. Subsequently, decisions to change ration packages can be made easily and less arbitrarily when alternative rations and their main attributes have been worked out in advance.

III. RESOURCE LIST

1. Food and Nutrition Technical Assistance (FANTA) Project, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax 202-884-8432. E-mail: fanta@aed.org; Web site www.fantaproject.org. FANTA has the following guides:

   - *Agricultural Productivity Indicators Measurement Guide.* Patrick Diskin
   - *Anthropometry Indicators Measurement Guide (Draft*). Bruce Cogill
   - *Food For Education Indicator Guide (Draft).* Joy Miller del Rosso and Gilles Bergeron
   - *Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs.* Frank Riely, Nancy Mock, Bruce Cogill, Laura Bailey, and Eric Kenefick
   - *Improving the Use of Food Rations In Title II Maternal/Child Health and Nutrition Programs (Draft). Serena Rajabiun, Beatrice Rogers, Margarita Safdie, Anne Swindale*
   - *Infant and Child Feeding Indicators Measurement Guide.* Mary Lung'aho
   - *Measuring Household Food Consumption: A Technical Guide.* Anne Swindale and Punam Ohri-Vachaspati
   - *Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members. (forthcoming)*
   - *Potential Uses of Food Aid to Support HIV/AIDS Mitigation Activities in Sub-Saharan Africa.*
   - *Sampling guide.* Robert Magnani
   - *Water and Sanitation Indicators Measurement Guide*. Patricia Billig, Diane Benahmane and Anne Swindale

2. Food Aid Management (FAM), 1625 K Street, NW, 5th Floor Washington, DC 20006. Tel: (202) 223-4860, Fax: (202) 223-4862; Web site www.foodaid.org. Provides USAID documents (FY 1990-ongoing).

3. Linkages Project. *Recommended Feeding and Dietary Practices to Improve Infant and Maternal Nutrition* also see *Facts for Feeding* (English, Spanish, French). Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax: 202-884-8977; E-mail: linkages@aed.org; Website: www.linkagesproject.org.

4. National Research Council. *Recommended Dietary Allowances*. National Academy Press, Washington, D.C., 1989.

5. SUSTAIN. *Final Report of the Micronutrient Assessment Project*. 1999. Executive Summary available on Web site: www.sustaintech.org.

6. USAID/BHR/FFP. *Commodities Reference Guide (CRG): Section 1-4*. April 1999. Web site: www.usaid.gov/hum_response/crg.

7. USAID/BHR/FFP. *Food for Work: A Review of the 1980s with Recommendations for the 1990s.* Washington, DC, February 1991.

8. USAID/BHR/FFP. *U.S. International Food Assistance Report 1999*. January 2000. Web site: www.usaid.gov/hum_response/farpt1999.

9. USAID/BHR/FFP. *Monetization Field Manual P.L. 480 Title II Programs*. October 1998. Web site: www.usaid.gov/hum_response/ffp/monetiz.htm.

10. USAID/BHR/FFP. *Title II Guidelines for Development Programs*. January 2000. Web site: www.usaid.gov/hum_response/ffp/dappaa.htm.

11. USAID/CDIE. *Performance Monitoring and Evaluation Tips*. 1996. Web site: www.usaid.gov/pubs/usaid_eval/#02.

12. WHO. *Energy and Protein Requirements: Report of a Joint FAO Expert Consultation*, WHO; Geneva, 1985.

13. WHO. *The Management of Severe Malnutrition*. Geneva, 1999.

MODULE 3: FOOD FOR EDUCATION

I. INTRODUCTION

USAID's Office of Food for Peace (FFP) administers PL 480, Title II food aid commodities. FFP provides Title II resources to Cooperating Sponsors (CSs) to implement sustainable development programs targeted to improve the food security of needy people, either by the direct distribution of agricultural commodities or the use of local currencies generated by the sale of these commodities.

USAID supports education efforts and often uses food aid to help improve education opportunities and educational progress by providing school lunches and take-home incentive rations. School lunches are used to encourage school enrollment, attendance, and to improve students' attentiveness—especially for those without breakfast at home. Food to schools may be referred to as Food for Education program only if school feeding is integrated with other activities aimed at improving the quality of the education at the school, e.g., teacher training, curriculum development, development and provision of academic materials, infrastructural improvements, or provision of school supplies. The non-food resources for these activities cannot be included in an activity funded by Title II Food for Education resources. Some can be supported with Title II commodities, but the food must be requested in a separate proposal, e.g., a Food for Work proposal. Normally, the government, Cooperating Sponsor, or other agencies should provide the non-food resources. School feeding that is not integrated with other activities must be referred to simply as "school feeding", not as Food for Education. The USAID/FFP office has made it clear that the FFE is the preferred approach.

Food insecure communities with poor school attendance are usually selected as targets. Within communities, some programs specifically target girls. This Module provides principles and examples of ration selection for FFE programs.

II. GUIDELINES FOR COMMODITY SELECTION FOR EDUCATION PROGRAMS

This module, following the general five step framework of Part Two of the CRG (Box 1). It includes key points of consideration for FFE programming under each step. This guidance is meant to be flexible enough to allow FFE Program Managers to select food aid rations appropriate for the situation. Box 1 lists the five steps.

Box 1: Five Steps for Commodity Selection

1. Program Design
2. Suitability of commodities
3. Ration Size
4. Ration Calculation
5. Ration Ranking and Selection

STEP 1: PROGRAM DESIGN

Program design considerations are those program attributes that affect appropriate commodity selection. Key program design considerations discussed in this chapter include: (1) carrying out a needs assessment; (2) developing program activity objectives; (3) determining the appropriate use of food; (4) identifying the target population's characteristics; and (5) determining the distribution mode and frequency.

1. Needs Assessment

As programs with a food aid component are being designed, it is important to articulate why food aid is needed and how it will be used to meet program goals. A needs assessment or problem analysis will help to identify the nature, extent, severity, and distribution of the food needs. It should also include an assessment of food availability, an analysis of the main causes of malnutrition, identify the technical and geographical areas in which the program will work, and summarize the resources and institutional capacity for action. Attention should be given to the extent which problems in these priority technical and geographic areas are already being addressed.

Information about the target population's demographic profile, nutritional status, food consumption patterns, health statistics, socio-economic statistics, and other basic information needs for program design can be attained from primary sources, such as qualitative research, food consumption surveys, and nutritional status surveys. A useful publication on how to use these methods is USAID/CDIE's Performance Monitoring and Evaluation Tips, which is available online at www.dec.org/usaid_eval. Other resources are listed in the Reference List. Useful information can also be obtained through secondary data reviews followed up with local key informant interviews. Other sources of secondary information include:

- ✓ USAID reports and/or Demographic Health Surveys (DHS)
- ✓ Ministry of Health and other in-country institutional statistics
- ✓ National surveys or governmental action plans
- ✓ International and bilateral donor agency situation analyses and reports
- ✓ Other cooperating sponsors working in country
- ✓ Internet databanks (such as UNICEF, WHO, World Bank, WFP, etc.)

Please refer to the current USAID/BHR's *Title II Guidelines for Development Programs* for further guidance on developing a needs analysis (available online at www.usaid.gov/hum_response/ffp/dappaa.htm). Also refer to the Food Aid Management website for additional information: www.foodaid.org.

2. Program Activity Objectives

No matter how the food will be used, the desired result of the food assistance intervention should be stated in terms of objectives. Once these have been defined, then, food commodities and rations should be selected to be consistent with these objectives. Each CS has its way of expressing objectives. However, using USAID's Managing for Results terminology will facilitate reporting to USAID (for definitions of terms, see Annex 1 in Part Three of the CRG). Objectives for USAID-funded programs should be result statements, that is, they should clearly describe the desired end result of the intervention. For example, "*Improved attendance rates among school age children*" is a result-oriented objective.

USAID recommends that each objective/result statement have at least one indicator to track progress of its achievement. Performance indicators are variables with a particular characteristic or dimension that can measure progress toward achievement of the desired result. Performance indicators should be direct, measurable, and sensitive to capture small changes over short time intervals. For example, an indicator for the result statement mentioned *(Improved attendance rates among school age children*) could be "*attendance rates in target schools*". USAID/CDIE's *Performance Monitoring and Evaluation Tips,* available online at www.dec.org/usaid_eval, provides general guidance on how to develop objectives and indicators. FANTA project's "*Food for Education Indicator Guide"* proposes a set of indicators to measure the performance of FFE programs plus guidelines for computing these indicators and can be found at www.fantaproject.org. Whenever possible, programs should include input as well as impact indicators for measuring progress of food aid programs. CSs should also provide baseline data for selected indicators or a plan for collecting these data. Baseline studies of the target population, that incorporate the selected indicators should be part of the needs assessment, but may be accomplished immediately after activity approval. CSs should also articulate an evaluation and monitoring plan that outlines the how indicators will be tracked and progress evaluated.

3. Food Use

In the past, school feeding (SF) programs used food primarily as an incentive to children and their families to improve attendance. Based on new findings that show that short-term hunger has a negative effect on attentiveness and learning, the role of food in FFE programs has been extended and refined to additionally focus on improving learning, attention, and retention of material. The consumption of food early in the school day is important, but it is often logistically difficult to prepare a breakfast at school. Therefore, the trend is towards mid-morning meals or snacks. Provision of the food only near or at the end of the school day will reduce the effectiveness of the ration in achieving the learning objectives, but FFE programs does help students' families offset the costs of sending the child to school.

4. Target Population

The target group for FFE programs is school age children in food insecure communities. Generally, all children in selected schools benefit, although the girls may be selected for extra benefits or may be the only beneficiaries. Feeding may also be restricted to only certain grades within the school. Targeting of individual children is not done on the basis of nutritional criteria, but nutritional status at the community or population level could be a basis for selecting schools or districts. Examples of other criteria that may be used for school and district selection are: adequacy of food production, indicators

of socio-economic status, rates of student enrolment or attendance, or student achievement. To assure that educational benefits can be achieved, only schools that meet basic minimum standards of quality (to be determined in conjunction with the governing body and parents) should be targeted.

5. Distribution Mode and Frequency

The major mode of distribution for FFE programs is on-site feeding. However, take-home rations are sometimes provided. A description of both modes of distribution is provided below:

On-site school feeding: School feeding programs usually provide ready-to-eat meals or snacks on site. The food should be provided to the students early in the day to maximize the learning gains. Obviously, food is provided only the days that the child is actually in school (e.g. five or six days a week).

Take-home rations: Sometimes students are given a take-home ration in compensate the lost time they would normally have spent working at home during school hours. This is a common incentive to promote enrolment of girls.

STEP 2: SUITABILITY OF COMMODITIES

Suitability of the ration is defined by assessing those attributes of the individual ration recipient, target household, or community that will most affect utilization of the food aid commodities. Determining suitability must take into account nutritional needs, physiological appropriateness, food consumption preferences and patterns of the food aid recipient(s), locally available foods, food processing storage capacities, and local market prices. These factors all affect the selection and appropriate allocation of food aid rations. Below is a checklist for use in considering food aid rations for an intended target group(s). A detailed description of these factors can be found in Annex III.

Nutritional content is the nutritive content of the food commodity. Major nutrient considerations should include energy (calories), protein, and micronutrients (vitamins and minerals). Populations deficient in micronutrients would benefit from fortified food commodities. It is always important to consider the nutritional content of the commodities when designing ration packages. The age, sex, and activity level (e.g., depending on distance to walk to school), of the target school group are primary determinants of their nutritional needs. The ambient temperature during the school year must also be considered in cold climates. Special considerations of the disease burden affecting the school child may influence the amount of food provided. For example, HIV/AIDS affected people require additional energy and protein (refer to to the FANTA publication on "*Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members*" at www.fantaproject.org).

Physiological appropriateness relates to the physical characteristics of the food commodity that affect its use by the target group. Consult local nutrition experts wherever available. Anything that could decrease utilization of the ration, such as food allergies and lactose intolerance, should be identified and taken into consideration.

- **Cultural suitability:** Consider the cultural acceptability, including taste preferences, traditional taboos, and local practices of the target population or group that will affect food use and consumption. For example, most Brazilians prefer black beans while Nicaraguans prefer small red beans. Another important consideration is whether the commodities are culturally suitable for the particular role they

are to play in the project. It is key to identify major constraints to using particular commodities.

Availability of processing and/or storage facilities: Food preparation, processing, and storage facilities need to be considered when designing food supplements for FFE programs. Important questions to ask are: (1) are mills available to process whole grains; (2) are school facilities adequate for storing the food supplement; (3) what fuel, preparation equipment or cooling facilities are available; and (4) what other locally available foods are available to improve taste, acceptability and nutrient diversity.

Characteristics of local food production are factors that provide an understanding of which local foods are relatively available and affordable to the target group. Often parents are asked to contribute fresh foods or condiments to add to the food aid commodities to add micronutrients or increase the palatability of the school meals. If take-home rations are provided it would be wise to look at the production cycle helps to identify how food harvests correspond to the school year. Commodities for take-home could be selected to help fill those gaps. Also, care should be taken in the commodity selection to assure that there is no disincentive to local production.

Cost will, in part, determine which food ration will be used.

Using this list, exclude commodities which do not meet the physiological criteria, are not culturally acceptable, are difficult to store or process, and/or will compete with local food production from the list of potential commodities. Making these decisions will aid in creating a short list of commodities from which to chose. Annex III provides a detailed description of the factors mentioned above.

STEP 3: RATION SPECIFICATIONS

The size of the ration should be based on specified nutritional needs and/or income values, costs or ration standards that other agencies are currently using. Past program ration specifications for size and type of ration, the approval of the USAID mission, and commodities that have been already ordered and are in the pipeline (up to several months in advance of the start of a program) are also key considerations.

To determine ration size, first determine the nutritional or income value that a ration must have to achieve the project objectives and impact. Then list suitability criteria and key characteristics that are important to the full utilization and consumption of the ration as described in Step 2. Below are suggestions on how to best determine the nutritional or income value of FFE food rations.

1. Determining Nutritional Values

The nutritional value of the ration is described in terms of its energy (calories), protein, fat and micronutrient content. Establishing the beneficiaries' minimum energy and protein needs, which depend on the child's age and sex, provides a basis for defining a supplement package appropriate to meet project requirements. These requirements are described in terms of the average number of kilocalories and grams of protein needed per person per day before selecting the commodities. In addition, the fat in the rations should provide 10-20% of the total energy.

FFE programs generally provide only a snack or a meal, which would not be expected to fill the nutrition deficit completely. There are no fixed guidelines for calculating the nutritional value of

supplementary food rations for a FFE program, since the food supplement is not based on the nutrient deficit of the target group. Past experience with food aid programs may be the best way to determine the nutritional value of the food ration. However, it can be assumed that the meal provided will substitute for at least one meal normally provided at home. Thus, the following general steps could be used for calculating the nutritional value of the meal.

- Determine which meal the food supplement would replace—breakfast or lunch.

- Determine the percentage of energy that meal represents. For example, if the breakfast is usually light, it may represent 10-15% of a child's total intake per day. If the meal is served as a lunch, the percentage of energy may be higher given that lunch is usually the bigger meal in most countries.

- Multiply the percentage times the Recommended Energy and protein allowances. The CRG uses Annex V and VI, however, CSs may use their own dietary standards.

Box 2 provides an example of calculating the nutritional value of a FFE meal ration for 7 to 10 year old children based on percentage of recommended dietary allowances.

BOX 2- EXAMPLE OF HOW TO CALCULATE A MEAL RATION FOR 7-10 YEAR OLD CHILD

Assumptions:
The mid-day meal represents approximately 45% of the target group's diet.

1) Determine recommended energy allowance (REA) for 7-10 year olds = 2,000 kcal (from Annex V)
2) Multiply 2,000 (kcal) x .45 = 900 kcal per child per day
3) Determine recommended protein allowance (RPA) for 7-10 year olds = 28 grams (from Annex VI)
4) Multiply 28 grams x .45 = 12.6, rounded to 13 grams protein per child per day

Thus the nutritional value of the food supplement is 900 kilocalories and 13 grams protein.

General guidance provided by WFP/UNESCO/WHO[1] for full day primary schools is to provide a:

- mid-morning snack containing 400-600 kilocalories per child and a
- full lunch of 700-900 kilocalories,
- for a total of 1200-1500 kilocalories per child (or 60-75% of REA), with 28-36 g protein (70-90% of RPA) and 13-17g fat. (Refer to WFP/UNESCO/WHO. Rome 1999. *School Feeding Handbook*.)

For half day primary schools, depending on the frequency of feeding and whether or not the school feeding is intended to provide a full lunch, the guidance provided is:

- A mid-morning snack only: 500 kcal (or 25% of REA); about 13g protein (33% of RPA); about 6 g fat.

- Two snacks (before school and mid-morning): 600-900 kilocalories (or 30-45% of REA); 16-24 g protein (40-50% of RPA); 7-11g fat.

- A mid-morning snack and lunch: 1200-1500 kilocalories; 28-36 g protein; 13-17 g fat (i.e., like full day schools).

Micronutrient deficiencies are widespread in developing countries where Title II food aid is distributed. All processed food cereals under Title II programs, with the exception of parbroiled rice, are fortified with B vitamins (thiamin, riboflavin, folic acid, and niacin), vitamin A, calcium, and iron. Blended cereals (corn-soy blend and wheat-soy blend) are further fortified with zinc, B12, pantothenic acid, iodine, magnesium, vitamin C, vitamin D, and vitamin E. Vegetable oil is fortified with vitamin A. If micronutrient deficiencies are known, the contribution from fortified commodities can be estimated by from the Commodity Fact Sheets in Section II of the CRG, available on line at www.usaid.gov/hum_response/crg. Check with school authorities to ensure that children are not already been supplemented with multi-vitamins or specific vitamins such as vitamin A.

2. Income Transfer Value

Income transfer value is the value of the ration in monetary terms to the household receiving the food aid. If a FFE program uses food rations mainly for their income transfer (monetary) value, Program Managers will need to determine the ration package's target level and the minimum level of acceptable income transfer value. The cash value of rations is determined by the price (market or selling) of the local commodity that is most similar to the food aid commodity in the household diet. When used as an incentive to families to offset the costs of sending their children to school, past program experience, conversations with community leaders, tests of different income transfer value levels, and discussions with the USAID mission may be necessary before agreeing upon a minimum level. Commodities that substitute for highly valued and expensive food items, such as oil, may have a substantial income mediating effect, freeing up income typically used for purchasing these expensive items to buy additional local foods or goods.

STEP 4: RATION CALCULATION

When designing ration packages program managers need to (1) choose the ration package based on the nutritive or income transfer values, (2) calculate the total amount of commodities needed for the program, and (3) determine commodity cost-effectiveness. The large number of commodities on the eligibility list makes it possible to design a variety of ration packages. It is useful to develop several alternative ration packages so that they can be compared for cost and other trade-offs. Programs may wish to consider alternative rations in the initial planning steps as contingency plans for when a commodity is not available, is delayed in transport, or when changes in commodity availability, prices, and packaging alter the relative cost effectiveness of ration packages.

1. Calculating the ration package

For logistical and management reasons, a ration package that meets nutritional values **should use no more than three commodities per ration** unless strong reasons exit. Because vegetable oil is a dense source of energy for food deficient populations, it should almost always be included in a ration package. While there is an element of trial and error, the following checklist helps provide a systematic approach for calculating the ration package and selecting the commodities to meet

nutritional values. For the sake of calculation, commodity 1 will be fortified vegetable oil, commodity 2 will be a cereal or cereal blend, and commodity 3 will be a legume.

- Consider the caloric and protein nutritional values of the proposed food ration, which have been calculated using Step 3.

- Calculate the oil ration. Around 10 to 20% of the food ration's energy should come from oil. Multiply the total caloric value of the ration package by 10 to 20%. Then divide this amount by 9 (number of kcal per 1 gram of vegetable oil).

- Subtract the caloric contribution of oil from the total caloric value of the proposed food package.

- Select a cereal or cereal blend from the list of commodities in Section I of the CRG to make up the balance of kilocalories. At present, Title II cereals include wheat, sorghum, bulgur, corn, and rice. Blended cereals include corn-soy blends (CSB) and wheat-soy blends (WSB). Projects targeting a protein deficit population utilizing a two-commodity ration should first consider soy-fortified cereals. While blended, fortified, or value added foods should be considered first, Program Managers should also consider cost, energy and protein content, acceptability, ease of storage and processing attributes of commodities.

- Calculate the number of kilocalories per 1 gram of cereal/cereal blend by dividing the number of kilocalories per 100 grams of commodity (from Commodity Fact Sheets in Section II of the CRG, available online at www.info.usaid.gov/hum_response/crg) by 100.

- Divide the balance of kilocalories by the number of kilocalories per 1 gram of cereal/cereal blend.

- Calculate the number of grams of protein per 1 gram of cereal/cereal blend by dividing the number of grams of protein per 100 grams of commodity (from Commodity Fact Sheets) by 100.

- Multiply the amount of protein per 1 gram of cereal/cereal blend times the total grams of cereal/cereal blend in the ration package.

- Subtract the protein contribution of the cereal/cereal blend from total protein value of the proposed ration package. If more protein is needed, either increase the amount of cereal/cereal blend or use a three-commodity ration.

- For a three-commodity ration package, the third commodity should be dry beans, peas, lentils, and soy to increase the protein value of the package.

- Determine the grams of protein needed to make up the difference between the protein contribution of the cereal (soy-cereal blends are generally not used in 3-commodity rations). See Box 6 for specific instructions. Do not forget to take into account the caloric value of the protein source and, if necessary, adjust your cereal ration accordingly.

- Assess suitability and physiological appropriateness of the commodities (see Step 2 and Annex IV).

Box 3 provides a detailed example of how to calculate ration package with two commodities.

BOX 3: EXAMPLE OF HOW TO CALCULATE A TWO-COMMODITY RATION

1) The caloric and protein values for this example are 900 kcal and 13 grams (g) of protein per person per day, respectively. (from Box 2).

2) Multiply the total number of kcal times 10-20% to determine kcal from oil ration.
   900 kcal x 0.20 = 180 kcal

3) Divide the number of kcal of oil by 9 (1 gram oil = 9 kcal).
   270 kcal ÷ 9 kcal = 30 **g of fortified vegetable oil per child per day**

4) Subtract the caloric contribution of oil from the total caloric value of the ration package.
   900 kcal – 180 kcal fat = 720 kcal balance

5) Select a cereal or cereal blend to make up the balance of kilocalories. Using the Commodity Fact Sheets (available online at www.info.usaid.gov/hum_response/crg) calculate the number of kilocalories per 1 gram of cereal/cereal blend by dividing the number of kilocalories of 100 grams of cereal/cereal blend by 100. This example uses cornmeal.
   366 kcal ÷100 g = 3.66 kcal per 1 gram of cornmeal.

6) Divide the balance of kilocalories by the number of kilocalories per 1 gram of cornmeal.
   720 kcal ÷ 3.66 kcal = **196 g of cornmeal per person per day**

7) Calculate whether 196 grams of cornmeal provides enough protein. To do this, first determine the amount of protein per 1 gram of corn-soy blend by dividing the grams of protein per 100 g commodity (from Commodity Fact Sheets) by 100.
   8.5 g ÷ 100 g = 0.085 g

8) Then multiply the protein amount per 1 gram of corn soy blend times the total grams of corn-soy blend.
   196 g x 0.085 g= **16.6 g of protein per child per day. This amount is slightly more than the 13 grams proposed.**

Thus, **a two-commodity ration package of 30 grams fortified vegetable oil and 196 grams cornmeal provides 900 kilocalories and 16.6 grams of protein per child per day.**

2. Calculate the Total Amount of Food Commodities Needed

Once the ration package is determined, Program Managers will need to calculate how much of the commodities (usually in metric tons) will be needed to feed the total number of students or household per year or project period. To calculate the number of metric tons needed for each commodity (vegetable oil, cereal, cereal blend, or legume) use the following steps.

- Multiply the number of grams of the commodity per person per day times the total number of persons to receive the commodity.
- Multiple the total number of grams of the commodity needed to feed the target group times the total number of days the program will provide the ration package.
- Determine the number of metric tons of commodity needed by dividing the total number of grams of commodity needed per program period by 1,000,000 (number of grams in a metric ton).
- Complete the same calculation for each commodity (vegetable oil, cereal, cereal blend, or legume) that comprises the ration.

Box 4 provides an example of how to calculate the total amount of commodities needed to provide the two-commodity ration package from Box 3 to 15,300 children for one school year of 180 school days.

BOX 4: CALCULATING AMOUNT OF COMMODITIES NEEDED FOR 15,300 STUDENTS FOR 180 SCHOOL DAYS.

1) Multiply grams of oil per person per day times 15,300 persons times 180 days.
   30 g oil (Box 3) x 15,300 persons = 459,000 g per day x 180 days = 82.620,000 g per year

2) Divide the total number of grams of vegetable oil per year by 1,000,000 (number of grams per metric ton)
   82,620,000 g ÷ 1,000,000 = **83 metric tons of fortified vegetable oil per school year**

3) Multiply grams of cornmeal per person per day times 15,300 persons times 180 days.
   195 g cornmeal (Box 3) x 15,300 persons = 2,983,000 g per day x 180 days = 537,030,000 g per school year.

4) Divide the total number of grams of cornmeal by 1,000,000
   537,030,000 g ÷ 1,000,000 = **437 metric tons of cornmeal per school year**

3. **Determine Cost Effectiveness of ration package**

Cost is often not the primary factor for selecting the commodities. Food preferences, availability and potential disincentive effects often outweigh cost considerations. The cost of the commodity per its nutritive or income value may help in determining whether it is cost-effective and/or appropriate for the food aid component of a development assistance or emergency program. CSs should determine the primary purpose of the food aid program (nutritional benefit or income transfer) and conduct the appropriate cost-effectiveness analysis.[2]

Calculating the cost-effectiveness of desired commodities in terms of cost per unit of nutritional value (100 calories or 10 grams of protein) or income transfer value (in U.S.$ to the recipient) provides information about which commodities provide the most nutritional benefits or highest income at the lowest cost to the project. It is important to note that cost per calorie of blended and fortified foods will always be higher than bulk grains.

Cost Effectiveness per Nutritional Value: To determine the cost effectiveness value of a commodity per its nutritive value, calculate the cost in cents per kilogram of commodity using the following steps. Commodity values in Annex VII and the nutritional values of commodities from the Food Commodity Fact Sheets (Section II of CRG available online at www.usaid.gov/hum_response/crg) are two sources of information Program Managers will need to make these calculations.

a) Per Caloric value:

- As the cost of a commodity listed in Annex VII is per metric ton, divide the cost per metric ton by 10,000 (100 g x 10,000 = 1 MT), which will give the cost per 100 grams of commodity.
- Divide that amount by the number of calories per 100 grams of commodity.
- Multiply the resulting figure by 100 to determine the cost in cents of one kilocalorie of the commodity.

b) Per protein value:

- Divide the cost per metric ton (from Annex VII) by 10,000, which will give the cost per 100 grams of commodity.
- Divide that amount by the number of grams of protein per 100 grams of commodity.
- Multiply the resulting figure by 100 to determine the cost in cents of one gram of protein from the commodity.

[2] Cost also refers to costs to the project associated with a commodity (such as CCC dollar values found in Annex IX). In some projects, in-country transportation and storage costs and special handling costs may be critical, however, these costs may be similar for most commodities. For each project, first decide which of these cost elements are most relevant.

Box 5 gives an example of how to calculate the cost effectiveness of both the caloric and protein nutritive values for cornmeal.

BOX 5: EXAMPLE OF COST PER NUTRITIVE VALUE OF CORNMEAL

Per caloric content of cornmeal:

$ 194 ÷ 10,000 = $0.0194 per 100 g / 366 kcal per 100 g = $.000053 or .053 cents per kilocalorie

Thus, the cost of one kilocalorie of cornmeal is 0.05 cents

Per protein content of CSB:

$ 194 ÷ 10,000 = $ 0.0194 (per 100 g) / 8.5 grams (per 100 g) = $.0023 or .23 cents per gram of protein

Thus, the cost of one gram of protein provided from cornmeal is .23 cents

This type of analysis would be used to assess different rations designed to meet nutritional objectives; and to determine which objective is most cost-effective. For example, the cost effectiveness of cornmeal can be compared the cost effectiveness of another commodity, such as CSB. CSB turns out to be a more expensive source of nutritional energy but a more expensive source of protein. (See the example in Part Two, *Overview* . Hyperlink. Based on the cost effectiveness values for different ration packages, Program managers are better able to select the ration, which meets program objectives at the lowest cost to the project.

Cost per Income Value: Another analysis that could be done for when CSs use food aid commodities to provide a given value or an incentive or wage. In this context, cost effectiveness is the cost of a commodity per $5.00 of income value. For each commodity under consideration, use Annex VII to calculate the income value of 1 kg of that commodity. Then calculate the amount of the ration that is required to yield $5.00 income value. Box 6 provides an example.

BOX 2 – EXAMPLE OF INCENTRIVE VALUE CALCULATION

1) First, calculate the cost of one kg of cornmeal to the household if purchased in the local market. Example uses the following (made up) figures:
   1 kg flour costs the household $.25 at their local market.

2) Dividing $0.25/kg into $5.00 yields 20 kg. Thus, to provide $5 worth of incentive requires distribution of 20 kilograms of cornmeal to the recipient.

*See Part I *Overview* for a cost effectiveness method comparing this cost to the cost to the program of delivering the cornmeal to the school.

Changes in commodity availability, prices, and packaging can alter the relative cost effectiveness of ration packages. It is useful to develop at least one alternative ration packages so that it can be compared for cost and other trade-offs.

Take into consideration the following when designing an alternative ration package:

- Design rations that meet specifications using no more than three commodities per ration.
- Use commodities, which provide the maximum gain to recipients at lowest cost to the project.
- Based on the cost per unit of nutritional and/or income transfer value provided to the recipient, use the most cost-effective commodities and design at least one alternative package if a new project is being planned.
- Compare the nutritional and/or income transfer values of currently used rations with specifications and key suitability criteria.
- Alter the ration packages according to how they will meet nutritional or income transfer objectives as well as their cost-effectiveness.

STEP 5: RANKING AND SELECTION

It is important to rank your ration packages and commodities in order to select the most cost-effective and appropriate rations to meet program objectives. Cost plays a vital role in the size and effectiveness of projects, and budgetary requirements can be affected by the inclusion of certain commodities, especially when ordered in large quantities. Costs of the individual commodities are vital in obtaining a total ration cost. Calculating the costs of commodities involves decisions about which cost elements to consider. At a minimum, Commodity Credit Corporation (CCC) values (see Annex VII) and various in-country transportation and storage costs can be used. Other factors to consider are:

- **Market disruptions**: The Bellmon determination must ensure that the local market is not disrupted. Market considerations in local areas where programs are targeted might also come into play. For example, it may be less disruptive to provide certain foods in the lean season rather than the harvest season. Guidance on conducting the Bellmon analysis may be found online at www.usaid.gov/hum_response/ffp/bellmon.htm

- **Logistics and management**: Some commodities may impose undue management or cost burdens due to unusual local conditions (transportation, storage, handling, pilferage, accounting costs, etc.) or unsuitable packaging for the shelf life of the commodity.

The usual sources of these data for considering secondary purposes, potential market disruptions, and logistical problems include past evaluations of the same or similar programs; interviews with local personnel, Ministries of Agriculture or Finance; USAID mission agricultural offices, and USDA representatives at U.S. Embassies.

Thus, ration packages can be ranked by nutritional value, income transfer value, total cost, and other factors, such as, secondary purposes of the ration, market disruptions, and logistical problems. Alternative rations should meet all the minimum standards of nutritional and/or income transfer value as well as other critical specifications. Decisions to change ration packages can be made easily and less arbitrarily when alternative rations and their main attributes have been worked out in advance.

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MODULE 4: NON-EMERGENCY HUMANITARIAN ASSISTANCE

I. INTRODUCTION

The overarching goal of USAID's PL480, Title II development program is to achieve sustainable food security in chronically food deficit countries. The Office of Food for Peace's (FFP) Strategic Objective (SO) #2 supports this goal and is stated as "Increased effectiveness of FFP's partners in carrying out Title II development activities with measurable results related to food security with a primary focus on household nutrition and agricultural productivity."

FFP Title II food resources may also be used for "safety nets" for vulnerable groups who are not able to take full advantage of food security activities available in their communities. Non-Emergency Humanitarian Assistance (NEHA) can improve the nutrition and food security of these vulnerable populations. For example, NEHA can provide critical food aid to orphans, the elderly, hospital patients, and families stricken with HIV/AIDS.

II. GUIDELINES FOR COMMODITY SELECTION FOR NEHA PROGRAMMING

The following provides general guidelines for selecting the most appropriate, cost-effective Title II commodity rations to accomplish program objectives. The guidelines are organized into five steps. This module summarizes the five steps and includes key points of consideration for NEHA programming under each step. This guidance is intended to be flexible enough to allow the selection of the most appropriate food aid ration for each specific situation. Box 1 below lists the five steps for commodity selection:

Box 1: Five Steps for Selecting Commodity Rations:

Step 1. Program Design
Step 2. Suitability of Food Commodities
Step 3. Ration Specifications
Step 4. Ration Calculations
Step 5. Ration Ranking and Selection

STEP 1: PROGRAM DESIGN

The five key program design components are: (1) carrying out a needs assessment; (2) determining the appropriate use of food aid; (3) identifying characteristics of the target population; (4) developing program activity objectives; and (5) determining the distribution mode and frequency. An explanation of each design component follows:

1. Carrying Out a Needs Assessment

A needs assessment should be carried out in a timely and participatory manner to determine the nature, extent and severity of the food need, to describe food accessibility and availability and to identify factors that may impede effective utilization of food aid. The findings from this assessment should help define the criteria for selecting the beneficiaries, institutions and/or geographic areas to be targeted. The assessment should also explore the possibility of using locally produced foods to supplement the food aid package. When appropriate to the program objectives, the degree of malnutrition in the target population should also be determined. Finally, the assessment report should briefly describe the assessment methodology used.

Primary Data Collection: Primary data may be collected using survey methods that gather information about such things as food consumption, nutritional status, food availability and networks of community support. Qualitative data gathering techniques are also helpful, including in-depth interviews, focus group discussions, participatory rural appraisal, and observation. Methods for collecting primary data are described in USAID/CDIE's *Performance Monitoring and Evaluation Tips*, which is available online at www.dec.org/usaid_eval. Other instructional resources can be found in the Resource List at the end of this module.

Secondary Data Collection:
Secondary data may already be available from various sources including reports from government agencies, USAID, UN agencies (especially, UNICEF, UNAIDS), international or local PVOs and other donors. These data should be verified with local key informants. More guidance on how to conduct needs assessments may be found on line at www.usaid.gov/hum_response/ffp/dappaa.htm.

2. Determining the Appropriate Use for Food Aid

NEHA food aid will typically have a safety net or nutritional objective, such as the maintenance of nutritional status, rehabilitation of malnourished individuals or the prevention of malnutrition. It might also be used as an incentive to motivate members of the target group to participate in health or education services. Naturally, different program activities will involve different targeting, rations, and graduation criteria.

3. Identifying Characteristics of the Target Population

The general purpose of NEHA programs is to provide a safety net for those who cannot adequately provide for themselves because of a long term or permanent disability of some kind. Many are housed in institutions, but others live in households disseminated through the community. Some groups that might be served by NEHA programs are:

- **Persons residing indefinitely in institutions**, such as orphans, the terminally ill, those who are severely disabled mentally or physically, or elderly pensioners who must be institutionalized. Food aid may provide a substantial portion of these individuals' nutritional needs.
- **Persons temporarily housed in institutions,** including children and adults who are hospitalized or participate in residential rehabilitative services or skills training. The ration package can alleviate the burden on the individuals' households' time and income.

- **Persons temporarily in need of assistance while living in the community**, including marginalized individuals or households that are unable to adequately care for themselves, for instance, because of mental or physical disability, illness, age, destitution, or low social status, and who are not under the care of an institution. Included in this category are chronically ill out-patients (e.g. TB cases, lepers), and street children, including orphans, those abandoned by their families and those inadvertently separated from their families (e.g., by disaster). It can also include children living with members of their extended family, e.g., those from HIV/AIDS affected households. Many of these recipients receive food aid as nutritional support for a relatively short period of time while they achieve or regain self-sufficiency. For others it serves as an incentive to participate or attend another program (e.g., health education).

- **Severely affected communities:** In some cases, where the targeted group represents a large part of the population, an entire community might be targeted (e.g., HIV-affected communities)

4. Developing NEHA Program Activity Objectives

The primary objective of the NEHA program is to maintain or improve the nutritional status of the target population and to create a foundation for more sustainable food security programs funded from non-NEHA resources. Although each cooperating sponsor (CS) will approach the achievement of its activity objectives in different ways, it is urged that CSs review USAID's Managing for Results Terminology (see Annex I of Part Three). The latter review will help CSs develop standardized performance reporting on progress made toward achieving established objectives. Activity objectives should be result statements, that is, they should clearly describe the desired end result of the intervention. For example, results-oriented objective would be "*The nutritional status of the target group maintained*".

USAID recommends having at least one performance indicator to track progress toward each objective/result. Performance indicators are variables that measure a particular dimension that can show progress toward the stated result. For example, an indicator for the result statement mentioned above (Maintenance of nutritional status of the target group) could be "average weight-for-age z-score within the target group". Resources for sample food security and nutrition indicators can be found in Annex II. USAID/CDIE's publication, *Performance Monitoring and Evaluation Tips (*www.dec.org/usaid.eval), which provides guidance on how to develop result statements and performance indicators. When possible, impact and output indicators should also be developed and monitored. The benefits of having both types of indicators are self-evident. For example, it is not only important to know the percent of the target population reached with food aid (output), but to also determine whether nutritional status of the target population improved as a result of the food aid (impact).

CSs should also provide baseline data for the selected indicators or spell out a plan to collect it. Ideally, baseline studies should be part of the needs assessment. If this is not possible then the indicators can be submitted to FFP for review after the program proposal is approved. Naturally, each CS's resources to monitor and evaluate programs are different. This will be taken into consideration during USAID's food aid proposal review and approval process. Also refer to the Food Aid Management's website for guidance and useful links www.foodaid.org.

5. Determining the Distribution Mode and Frequency

NEHA programs typically provide on-site (wet) feeding in institutions or at community feeding centers or take-home rations for individuals or households in the community. If monetization or FFW are considered as alternative program components, refer to the relevant guidance in other parts of the CRG.

Direct Feeding

- **On-site (wet) feeding** involves preparing and serving meals or snacks at a designated site outside the home. In NEHA programs on-site feeding is commonly provided at institutions where beneficiaries reside or at designated community feeding centers. Most NEHA on-site feeding will involve provision of one or more meals daily, 365 days per year. Exceptionally, feeding may be limited to 5-6 days per week or only to certain season, because there is food available from other sources for the rest of the time. The advantage of on-site feeding is that food rations are eaten under supervision, which helps to ensure that the food supplement is actually consumed by the target population.

- **Take-home rations** are dry, uncooked food rations carried home where it is prepared and consumed by the food aid recipient. Take-home packages can provide recipients' entire calories and protein requirements, or only a part of their requirements, if foods from other sources provide the rest. The advantage of take-home rations is that they are easier to administer, less costly than on-site feeding, demand less time from recipients, and can reach larger numbers of beneficiaries. However, dry rations may be shared with other family members (leakage) or sold/exchanged in the market place, thereby reducing their nutritional impact on the intended beneficiary.

STEP 2: SUITABILITY OF FOOD COMMODITIES

Suitability relates to the characteristics of the commodities that affect the utilization of the food aid commodities. Suitability of food rations should take into account nutritional needs, cultural and physiological appropriateness, locally available foods, food processing and storage capacities, and local market prices and food consumption preferences.

Cultural suitability: It is important to consider food preferences and consumption patterns, taste and traditional taboos when designing ration package. Clearly, a food commodity that is not eaten does not directly provide nutritional benefit to the beneficiary. Another important consideration is whether the commodities are culturally suitable for the particular role they are to play in the project. It is key to identify major constraints to using particular commodities.

Nutritional content: This refers to the energy, protein, fat, and micronutrient content of the ration package. For example, populations deficient in vitamin A would benefit from receiving vitamin A fortified vegetable oil and blended commodities. The age, sex, and activity level (e.g., distance to walk to school) of the target group are primary determinants of their nutritional needs. The ambient temperature must also be considered in cold climates.

Physiological appropriateness: The physical characteristics, such as, the bulk, viscosity, digestibility and tolerance, of the food commodity need to be considered as ration packages are being developed.

For example, children less then 24 months of age have a smaller stomach size and are, therefore, less able to consume enough high bulk foods to meet their caloric needs. Young children, the sick and the elderly are less able to chew and digest some foods. Please refer to *Module 1 – MCHN Program* for details on physiological appropriateness for mothers and children. HYPERLINK People suffering with HIV/AIDS also have special food requirements.

Availability of processing and/or storage facilities: Factors that affect food processing and preparation must be considered, such as access to mills, access to fuel for cooking and preparation and cooking time.

Characteristics of locally available food: Determine the timing of harvests and seasonal shortages of staple foods and examine the affordability of local foods for the target group, as locally produced or purchased food may complement the imported Title II food commodities and eventually might replace them.

Cost: In part, cost will guide the suitability of ration commodities. Step 5 below provides guidance on how to calculate the cost-effectiveness of a ration package.

STEP 3: RATION SPECIFICATIONS

Ration specifications should be based on specific program objectives and nutritional needs of the target population or the income transfer value of the commodities it contains. However, other factors may influence ration size, such as standards used by other implementing agencies or past program ration specifications. Program objectives and characteristics of the target group(s) should drive the decisions about ration specifications. Below is guidance for developing ration specifications for nutritional as well as income transfer consideration:

1. Determining Nutritional Values for On-site Feeding

Specifications for rations for institutional feeding programs should be based on the portion of recommended dietary allowance of food aid recipients it is intended to fulfill. Title II food commodities might provide beneficiaries' full energy, fat and protein requirements or may provide one or more basic staples to add to other foods provided by the community or another source. Based on WFP/ UNESCO/WHO recommendations for institutional feeding, programs that provide three meals a day should cover 100 percent of the daily recommended allowances for energy and protein for everyone in the institution (e.g., an orphanage). When only 2 meals are provided and recipients eat one meal at home or a third meal is furnished from some other source, then the two meals should together include 60-75 percent of the energy and 80-90 percent of the protein. Programs offering only a single meal should provide 30 to 45 percent of the recommended energy allowance and 60 to 70 percent of the protein allowance.[1]

Other food items such as fresh fruits, vegetables, sugar, salt, etc. from some other sources (e.g. community contributions or institutional gardens) should be added to the food aid commodities to improve the palatability and micronutrient content of the meals. Fresh fruits and vegetables are essential for ensuring adequate micronutrients in the diet.

[1] WFP,UNESCO,WHO. School Feeding Handbook, Rome, 1999.

It is critical that the design of an emergency program does not compromise the adoption of appropriate and recommended feeding and dietary practices including exclusive breast feeding for infants under six months of age. The eligibility criteria for recipients, quantities, commodity mix, and recommendations for use of the rations should be consistent with official government policies and with standard practices used by USAID and the UN. Detailed recommendations for appropriate feeding practices are available from USAID's LINKAGES Project series titled *Facts for Feeding* at www.linkagesproject.org. See also Module 1: MCHN Programs. *HYPERLINK*

Table 1 below lists the recommended daily allowances for different age/sex groups for use in determining the specification of a ration package for on-site feeding programs.

Table 1: 100% Recommended Daily Allowances for Different Age/Sex groups*

Age/Sex	Recommended Energy Allowance (kcal/d)	Recommended Protein Allowance (g/d)	Fat (g/d)
Children 1-3 yrs	1300	16	45-58
Children 4-6 yrs	1800	24	40
Children 7-10 yrs	2000	28	45
Non-pregnant female11-50 yrs	2200	47*	45-50
Female 51+ yrs	1900	50	36-42
Male 11-14 yrs	2500	45	50-56
Male 15-18 years	3000	59	57-67
Males 19-50 years	2900	60	55-65
Males 51+ years	1900	63	36-42
Pregnant female 20+ years[2]	+300	+13	+6-7
Lactating female 1st 6 mos	+500	+18	+10-11
Lactating female 2nd 6 mos	+500	+15	+10-11

*From the National Research Council's *Recommended Dietary Allowances*. National Academy Press, 1989.

Target groups in NEHA programs may include individuals that cross a wide range of ages, and recommended allowances vary according to age, sex and physiological status. The nutritional needs of two groups stand out as being the most different from other ages, i.e. children aged three years and younger and pregnant and lactating women. Young children (< 2 years) require proportionally more fat in their overall diets (30 to 40 percent) compared to other age groups (20 percent). Women need extra energy and protein during pregnancy and lactation, which would require adding a supplement to

these women's diets. For more details on nutritional needs of children and pregnant and lactating women, refer to *Module 1- MCHN Programs*. HYPERLINK

The recommended dietary balance of energy, protein, and fat for older children and non-pregnant, non-lactating adults is similar enough that all can be served from the same preparation. The differences among their particular needs relate more to quantity of food. Adolescent boys and men will need to eat more. Primary school-aged children and the elderly will need less. To specify ration size for a group of diverse ages, an average daily allowance can be used. The average should be a weighted average, depending on the age/sex distribution in the target group. Table 2 below provides a worksheet for calculating the average recommended energy allowance for mixed target groups.

Table 2: Table for Use in Calculating an Average Recommended Energy Allowance (REA) for Several age/sex Groups within an Institution.

Age/Sex	REA* (kcal/d)		% of target group	
Children 4-6 yrs	1800	X		=
Children 7-10 yrs	2000	X		=
Non-pregnant female11-50 yrs	2200	X		=
Male 11-14 yrs	2500	X		=
Male 15-18 years	3000	X		=
Males 19-50 years	2900	X		=
Elder adults 51+ years	1900	X		=
Average			100%	3=

*For high bulk rations add 5% for Atwater correction

Instructions for using this worksheet:

1) Insert the percentage of the target group that fits into the age/sex category in the third column for each line.

2) Multiply this percentage times the REA for each group and enter the product on the appropriate line in the last column.

3) Add the sum of the products in the last column, which will yield the average REA across the entire target group. (The percentages in column 3 should total 100%.)

4) For high bulk food aid commodities, multiply the Average by 1.05 (Atwater correction) to get the recommended energy allowance across the age/sex groups. This correction is to account for the varying fiber content, digestibility, and complex carbohydrate composition of high bulk commodities.

Box 2 below provides an example of how to calculate the average recommended energy and protein

allowance for children ages 4-10 years and adults.

Box 2. Example of Determining Average REA for a Target Population Across Age/Sex Groups (percentages are made up for this example)

REA*					
Children 4-6 yrs	30%	X	1,800 Kcal	=	540 Kcal/day
Children 7-10 yrs	20%	X	2,000 Kcal	=	400 Kcal/day
Females 11-50 yrs	15%	X	2,200 Kcal	=	330 Kcal/day
Males 11-14 yrs	15%	X	2,500 Kcal	=	375 Kcal/day
Males 15-18 yrs	10%	X	2,900 Kcal	=	290 Kcal/day
Males 19-50 yrs	10%	X	1,900 Kcal	=	190 Kcal/day
AVERAGE	100%				2,125 Kcal/day

* *From Table 1 above*

2. Determining Nutritional Values for Take-Home Rations

NEHA programs often provide dry, uncooked food rations that will be prepared and consumed at home. Take home packages can be in the form of a full ration package providing an entire day's worth of kilocalories and protein, or a partial ration package that is used to fill the gap in the recipient's diet. Generally speaking, take-home rations are partial rations and based on the nutritional deficit of a target group. For an explanation on how to calculate ration specifications for take-home packages, please refer to *Module 1 – MCHN Programs.*

Additional food may be needed to compensate substitution effects (when home diets or institution diets are reduced because of on-site feeding), or leakage (when take-home rations are eaten by untargeted members of the family). Substitution or leakage may occur if global household/institution levels of food deficits are large (seasonally or year round). Past experience with food aid programs or trial and error may be the best way to determine the quantity of calories to add to account for leakage. In the absence of local data, one option is to double the ration. to compensate the leakage. Other ways to address substitution or leakage are through education or by providing food commodities that promote self-targeting, i.e., that are more likely to be consumed by the target group because of income, cultural or age-group characteristics.

3. HIV/AIDS Affected Individuals

Special nutritional considerations must given to the diet for people with HIV/AIDS; affected people suffer from appetite loss (anorexia), eat less food and have difficulty eating and therefore fail to meet their dietary requirements. HIV/AIDS also affects how the body uses the foods that are consumed and this results in nutrient malabsorption. Fevers and the infections that accompany an HIV infection also lead to greater nutrient requirements and poor use of the nutrients by the body. There are several illnesses that are common with people living with HIV/AIDS and that cause malnutrition. These include poor appetite or anorexia, losing weight, fever, diarrhea, frequent vomiting, oral thrush and other infections. Good nutrition for HIV affected people requires the consumption of an adequate amount of macronutrients such as proteins, carbohydrates and fats, and micronutrients, which include

vitamins and minerals. A deficiency in macronutrients, also known as protein energy malnutrition manifests itself in the weight loss and wasting that is typical of AIDS patients. This weight loss and wasting occurs as a result of reduced food intake, nutrient malabsorption and changes in metabolism. Vitamin A for HIV affected people is important for growth, immune function and maintenance of the lining of the respiratory, gastrointestinal, and gastro-urinal tracts. Consuming micronutrients especially vitamin A, B6, B12, iron, and zinc are important for building a strong immune system and fighting infections. Consuming fortified foods like the cereal blends and vegetable oil fortified with vitamin A as well as taking micronutrient supplements at early stages of HIV infection can slow weight loss and disease progression. In the case of vitamin A there is the likelihood of reduced transmission between mother and child and slowing the progression of the disease in infected people. Refer to the FANTA publication on "*Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members*" at www.fantaproject.org.

STEP 4: RATION CALCULATION

After determining the ration specification for a proposed ration package, the following should be determined: (1) defining the ration package; (2) the total tonnage of commodities needed; and (3) the cost-effectiveness of the commodities selected. It is generally prudent to consider alternative rations in the initial planning stage in the event that the desired commodities may not be available in the quantities required.

1. Defining the ration package

The selection of rations for the different age groups will vary according to their nutritional needs Energy, protein, and fat are the three main macronutrients and are of primary concern for growth, health, and recuperation from disease. A ration package composed of Title II commodities that contains sufficient energy and includes a variety of protein-rich commodities (cereals, blended foods, legumes) usually provides sufficient amount of protein for most of the population, but it is important to ensure that it provides enough for nutritionally vulnerable groups, such as young children and pregnant and lactating women. Fats and oils are a rich source of energy and also essential for health and the prevention of some diseases. Similarly, vitamins and minerals, referred to collectively as micronutrients, are essential to the health of people of all ages, but especially for growing children and women during their reproductive years. Below are considerations for defining ration packages for specific target groups per mode of distribution.

For on-site feeding: When on-site feeding is the sole source of food, it is important that food aid rations provide sufficient energy, protein, and fats to meet all of the needs of the specific target groups. Nutritional needs vary according to the age and sex of the target group and subsequently affect the type of commodity selected for the age group. Guidelines for commodity selection for the specific age groups follows:

- **For children ages 1-3:** These children require sufficient energy, protein and micronutrients for growth, health and recuperation from infections. Fats should provide from 30-40 percent of the overall dietary energy for this age group[2]. Given the high nutrient needs and smaller stomach capacity of this target group, nutrient-dense food aid commodities, such as corn-soy blend (CSB) or wheat-soy blend (WSB) and refined vegetable oil, are recommended.

[2] WHO, *The Management of Nutrition in Major Emergencies*. Geneva, 2000.

- **For children ages 4-10**: Children this age still require that their caloric needs are met, but they need relatively less fat and micronutrients than their younger counterparts. Their diets should still include a combination of protein rich pulses and cereals, and about 20 percent of kilocalories should come from fats.

- **For Adults**: The diet should provide the minimum recommended amount of kilocalories. To cover the requirements for certain essential fatty acids, 17-20 percent of the ration calories should be provided in the form of fats or oil, but no more than 10% of energy should come from saturated fatty acids (found in all animal fats and some vegetable oils).[3] With the exception of vegetable oil, all Title II commodities contain some protein. Therefore, if the ration is restricted to 20-40% fat and includes either a blended food or both a cereal and a pulse, the minimum protein requirement for this group will be provided.

Table 3 below provides examples of NEHA ration packages for on-site feeding of different target groups. They are organized according to how many meals are provided at the institution/feeding center. Two different ration packages are provided per number of meals provided. These rations are nutritionally adequate in terms of energy, fat and protein, but without additions of fresh condiments, sugar and salt they may not be palatable to a child. Refer to *Module 1-MCHN* for more about complementary feeding for young children.

[3] WHO, *The Management of Nutrition in Major Emergencies*. Geneva, 2000

Table 3: Examples of NEHA Ration Packages for On-site Feeding of 1-3 Year Old Children

Commodities	**If 3 meals (100% REA) are provided, below are 2 possible ration packages***		**If 2 meals are provided, below are 2 possible ration packages***		**1 meal is provided, below are 2 possible ration packages***	
CSB	150 g	150 g	150 g	200 g	120 g	50 g
Cereal flour** or Rice	90 g	100 g	35 g	0	0	40 g
Pulse	50 g	35 g	15 g	15 g	0	10 g
Oil	35 g	35 g	25 g	20 g	10 g	20 g
Calories Protein Percent Fat***	1372 kcal 46 g 30%	1357 kcal 43 g 34%	965 kcal 32 g 33%	981 kcal 37 g 31%	541 kcal 20 g 31%	546 kcal 14 g 39%

* It is doubtful that children 1-3 can eat this volume of food in the number of meals indicated. The food for 3 meals should be split to provide 3 meals with 2-3 snacks (CSB is an easily prepared snack); the food for 2 meals can make 2 meals plus 1-2 snacks; and the food for 1 meal a meal plus a snack.

** If cereal other than rice is unmilled, add 10% to account for caloric difference, and if cereal will be hand milled, add another 10% to account for milling losses.

*** This amount of fat is appropriate for children who are not breastfeeding. If children are being regularly breastfed, the fat content could be reduced to 20 percent fat.

Table 4 below provides examples of ration packages appropriate for on-site feeding of children ages four to six years. Fresh fruits and vegetables as well as sugar will increase the caloric and micronutrient content of these ration packages. Table 5 provides sample ration packages for an adult target group. Tables 3 , 4 and 5 provide two sample rations per number of meals provided.

Table 4: Examples of NEHA Rations for On-site Feeding of 4-6 Year Old Children

Commodities	If 3 meals (100% REA) are provided, below are 2 possible ration packages		If 2 meals are provided, below are 2 possible ration packages		1 meal is provided, below are 2 possible ration packages	
CSB	150 g	100 g	0 g	100 g	200 g	0 g
Cereal flour* or Rice	250 g	210 g	250 g	100 g	0	150 g
Pulse	40 g	120 g	40 g	50 g	0	30 g
Oil	30 g	40 g	30 g	25 g	5 g	20 g
Kilocalories Protein Percent Fat	1886 kcal 57 g 19%	1899 kcal 62 g 21%	1306 kcal 31 g 21%	1130 kcal 35 g 23%	797 kcal 34 g 21%	822 kcal 20 g 22%

*If cereal other than rice is unmilled, add 10% to account for caloric difference, and if cereal will be hand milled, add another 10% to account for milling losses.

Table 5: Examples of NEHA Rations for On-site Feeding of Adults 19-50 years (50% each male and females)

Commodities	If 3 meals (REA = 2,600 kcal) are provided, below are 2 possible ration packages		If 2 meals are provided, below are 2 possible ration packages		1 meal is provided, below are 2 possible ration packages	
WSB	100 g	0 g	0g	100g	0 g	100 g
Fortified Cereal flour or Rice*	300 g	450 g	250g	100g	150 g	100 g
Pulse	200 g	150 g	150 g	50g	75 g	50 g
Fortified Oil	50 g	55 g	35 g	25g	20 g	15 g
Kilocalories Protein Percent Fat	2,575 kcal 98 g 21%	2,644 kcal 73.5 g 20%	1737 kcal 59.5 g 20%	1692 kcal 39 g 21%	980 kcal 36 g 20%	1,023 kcal 42 g 19%

* If cereal other than rice is unmilled, add 10% to account for caloric difference, and if cereal will be hand milled, add another 10% to account for milling losses.

For take home rations: Remember that a supplementary ration, by definition, adds to food from other sources, which also contribute nutritional energy, fat, protein, and micronutrients to the beneficiaries' diets. With regard to fat and protein, guidance that should be considered in the design of take-home ration packages for targeted exclusively to children or women are that:

Fats and oils in the diet (including the supplementary ration plus other foods eaten) should provide 20% of total energy intake of women of reproductive age and 30-40% of total energy for children up to 2 years of age, if they are not breastfeeding and 20% of total energy if they are breastfeeding.

- The protein needs of pregnant and lactating women are higher than those of non-pregnant/non-lactating women (7 grams per day (g/d) more during pregnancy and 14-19 g/d during lactation). On the other hand, the absolute protein needs of young children, are lower than the average in the population overall (only 25-35 g/d).

As noted above, it is important that mothers be encouraged to breast feed their young children and not use the donated foods to displace important breastmilk from the diet.

The likelihood that take-home rations will be shared with other family members (leakage) is high if global household levels of food deficits are large (seasonally or year round). Past experience with food aid programs or trial and error may be the best way to determine the quantity of calories to add to the ration to account for leakage. Other ways to address leakage include education and selection rations that promote self-targeting, i.e. that are more likely to be consumed by the target group because of income, cultural or age-group characteristics. For more guidance on developing take-home ration packages for women and children, refer to *Module 1- MCHN* Programs. HYPERLINK

Micronutrients: The micronutrient content of the ration package should also be considered, especially for nutritionally vulnerable target groups. All oil provided through Title II is fortified with vitamin A, an essential nutrient for the protection of the health of any population, but particularly young children. Forty grams (40g) of the oil provided supplies 2,400 IU of vitamin A, which satisfies children's full daily requirements and about 70% of adult requirements.

Whereas whole grain cereal, such as wheat and corn, are not fortified, all processed food cereals provided by Title II, with the exception of parboiled rice, are fortified with B vitamins (thiamin, riboflavin, folic acid, and niacin), vitamin A, calcium, and iron. Blended cereals (corn-soy blend and wheat-soy blend) are further fortified with zinc, B12, pantothenic acid, iodine, magnesium, vitamin C, vitamin D, and vitamin E.

The micronutrient content of blended cereals (see the Commodity Fact Sheets found in Part One of the CRG) are estimates.[4] Because some of these vitamins are lost during storage and cooking, they do not accurately reflect the quantities available to the body at consumption. For example, up to 40 percent of vitamin A is lost from fortified cereals that is exposed for several months to heat, light and air.[5] Minerals are not subject to deterioration by environmental factors, however, their bioavailability in

[4] However, U.S. manufacturers of dry food aid commodities are now required to produce fortified food with average lot values of not less than 80 percent of the vitamin values and 100 percent of mineral values as specified in Part One of the CRG. In refined vegetable oil, the vitamin A levels are mandated to be between 60 and 75 IU/gram.

[5] SUSTAIN, *Final Report of the Micronutrient Assessment Project*. Washington, D.C. 1999.

cereal can be greatly reduced by absorption inhibitors in the ration foods or in other foods commonly consumed, like tea and coffee.

2. Calculating the Total Amount of Food Commodities Needed

Once the ration package is determined, the total quantity of commodities needed can be calculated, usually in terms of metric tons (MT). To calculate the number of MT needed for each commodity in a general feeding or supplementary emergency ration package, use the following steps:

- Multiply the number of grams of the commodity per person per day times the total number of persons to receive the commodity.
- Multiply the total number of grams of the commodity times the number of days that the food will be provided to the target group.
- Determine the number of MT of commodity needed by dividing the total number of grams per program period by 1,000,000 (number of grams in a MT).
- Complete the same calculation for each commodity (vegetable oil, cereal, cereal blend, or legume) that comprises the ration.

Box 3 below provides an illustrative example of how to calculate the total amount of commodities needed to provide on-site feeding ration package to children ages 1 to 10 years a general feeding emergency ration package to 200 for one year (365 days).

Box 3: Calculating Total Amount of Commodities Needed for On-Site feeding of 200 Children 1-3 years for One Year (using the sample ration package in column 1 of Table 3).

OIL

1) Multiply grams of vegetable oil per person times 200 times 365 days
   35 g oil x 200 = 7,000 g x 365 days = 2,555,000 grams

2) Divide the total number of grams of oil by 1,000,000 (the number of grams in a MT)
   2,555,000 g. ÷1,000,000 = **2.55 MT of fortified, vegetable oil**

CSB

3) Multiply grams of Corn Soy Blend cereal (CSB) person times 200 times 365 days.
   150 g x 200 = 30,000 g x 365 days = 10,950,000

4) Divide the total number of grams of cereal-soy blend 1,000,000
   10,950,000 ÷ 1,000,000 = **10.95 or 11 MT of CSB**

WHEAT FLOUR

Multiply grams of wheat flour per person times 200 times 365 days.
   90 g wheat flour x 200 = 18,000 g x 365 days = 6,570,000 grams

5) Divide the total number of grams of wheat by 1,000,000
   6,570,000 ÷ 1,000,000 = **6.57 MT of wheat flour**

PULSES

6) Multiply grams of pulses per person times 200 times 365 days.
   50 g x 200 = 10,000 g x 365 days = 3,650,000

7) Divide the total number of grams of pulses 1,000,000
   3,650,000 ÷ 1,000,000 = **3.65 MT of pulses**

3. Determining Cost-effectiveness of Ration Packages

Cost may not be the primary factor in determining the ration package. Food preferences and energy requirements for cooking (e.g., fuel wood, etc.) and potential market disincentives may outweigh cost considerations. However, the cost-effectiveness of the commodity may help in determining whether it is cost-effective and/or appropriate for the food aid component of a NEHA program. CSs should determine the primary objective of the food aid program and conduct the appropriate cost-effectiveness analysis.[6]

It is helpful to calculate the cost-effectiveness of desired commodities in terms of cost per unit of nutritional value (1 kilocalorie or 1 gram of protein) or income transfer value (in U.S.$ to the recipient). This provides information about which commodities provide the most nutritional benefits or highest contribution at the lowest cost to the project. (See the *Overview* chapter for an example of such calculations as cost per nutrient value.)

[6] Cost also refers to costs to the project associated with a. In some projects, in-country transportation and storage costs and special handling costs may be critical; however, these costs may be similar for most commodities. For each project, first decide which of these cost elements are most relevant.

Cost-Effectiveness per Income Transfer Value: The cost-effectiveness per income value is determined by the value to the recipient compared to the overall cost of the program. For example, if a recipient receives a commodity that would cost them $0.40 in the local market, this is considered a $0.40 value to the family or local institution. If providing the same commodity only costs the program $0.33, the program would be cost-effective. A commodity is considered cost-effective if the cost of providing that commodity to a recipient is lower than the cost of the commodity in the local market. The more the commodity's local market value exceeds the program cost, the more cost-effective the program. See Box 4 below for an illustrative example of how to calculate the cost-effectiveness of income transfer value.

Box 4- Example of An Illustrative Cost-Effectiveness Calculation

1) First, calculate the cost of one kg of wheat flour to the household or local institution if purchased in the local market. This example uses the following (made up) figures:
   1 kg wheat flour = $0.40 cost to household for local market purchase.

2) Calculate the total program costs to provide one metric ton of wheat flour. This includes the cost of the commodity plus transportation costs.
   $228 (per MT) + $100 (transportation)* = $328

3) Then, divide the total program costs to provide one metric ton of flour by 1,000 (there are 1,000 kilograms in a MT). The costs of one MT of wheat flour plus transportation costs are $328.
   $328 ÷ 1,000 = $0.328 or 33 cents (rounded) cost to program to provide 1 kilo wheat flour

Thus, for every $0.33 in program costs, the program is providing $0.40 value to the recipient. Ratio of local cost to program cost is $0.40 ÷ $0.33 = 1.2. The larger the ratio, the more cost-effective the program, i.e., the higher the dollar value to the consumer for every dollar of program cost.

**Transportation costs vary from situation to situation; a rule of thumb for development programs is to add 30-50% of the commodity for transportation costs.*

During the initial planning period it is advisable to consider alternative rations as a contingency measure. For example, a desired commodity may not available, cannot be shipped in a timely manner or may not be appropriate for any number of unexpected reasons. The identification of a range of acceptable commodities makes easier to design a variety of ration packages. Also, changes in commodity availability, prices, and packaging can alter the relative cost-effectiveness of ration packages. It is useful to develop at least one alternative ration package so that it can be compared for cost and other trade-offs.
Take into consideration the following when designing an alternative ration package:

- Select culturally acceptable and physiologically suitable foods for NEHA recipients.
- Design rations that meet specifications using no more than three commodities per ration, unless good reasons exist to use more commodities.
- Use commodities that provide the maximum gain to recipients at lowest cost to the project.

- Based on the cost per unit of nutritional and/or income transfer value provided to the recipient, use the most cost-effective commodities and design at least one alternative package if a new project is being planned.

- Compare the nutritional and/or income transfer values of currently used rations with specifications and key suitability criteria.

STEP 5: RANKING AND SELECTION

It is important to rank ration packages commodities in order to select the most cost-effective and appropriate rations to meet program objectives. Cost plays a role in the size and effectiveness of projects. This calculation involves decisions about which cost elements to consider. At a minimum, the illustrative price list in Annex V and current in-country transportation and storage costs can be used. Other factors to consider are:

- **Market disruptions**: The Bellmon determination must ensure that the local market is not disrupted. Market considerations in the local areas where programs are targeted might also come into play. For example, it may less disruptive to provide certain foods in the lean season rather than the harvest season. Guidance on conducting the Bellmon analysis may be found online at www.usaid.gov/hum_response/ffp/bellmon.htm.

- **Logistics and management**: Some commodities may impose undue management or cost burdens due to unusual local conditions (e.g., transportation, storage, handling, pilferage, accounting costs, etc.) or unsuitable packaging for the shelf life of the commodity.

The usual sources of data for considering potential market disruptions and logistical problems include past evaluations of the same or similar programs, interviews with host government authorities and local and international PVOs as well as discussions with international organizations (such as the World Bank, the United Nations), USAID, USDA Agricultural Attaches and Economic/Commercial Officers at U.S. Embassies.

Nutritional value, income transfer value, total cost, and other factors, such as potential market disruptions or logistical constraints can, now be ranked for the proposed and the alternative ration packages. They might also be ranked by cost. Decisions to change ration packages can be made easily and less arbitrarily when alternative rations and their main attributes have been worked out in advance.

III. RESOURCE LIST

1. Food and Nutrition Technical Assistance (FANTA) Project, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax 202-884-8432. E-mail: fanta@aed.org; Web site www.fantaproject.org. FANTA has the following guides:

- *Agricultural Productivity Indicators Measurement Guide.* Patrick Diskin
- *Anthropometry Indicators Measurement Guide (Draft*). Bruce Cogill
- *Food For Education Indicator Guide (Draft).* Joy Miller del Rosso and Gilles Bergeron
- *Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs.* Frank Riely, Nancy Mock, Bruce Cogill, Laura Bailey, and Eric Kenefick
- *Improving the Use of Food Rations In Title II Maternal/Child Health and Nutrition Programs (Draft).* Serena Rajabiun, Beatrice Rogers, Margarita Safdie, Anne Swindale
- *Infant and Child Feeding Indicators Measurement Guid*e. Mary Lung'aho
- Measuring Household Food Consumption: A Technical Guide. Anne Swindale and Punam Ohri-Vachaspati
- *Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members* (forthcoming)
- *Potential Uses of Food Aid to Support HIV/AIDS Mitigation Activities in Sub-Saharan Africa*.
- *Sampling guide.* Robert Magnani
  - *Water and Sanitation Indicators Measurement Guide*. Patricia Billig, Diane Benahmane and Anne Swindale

2. Food Aid Management (FAM), 1625 K Street, NW, 5th Floor Washington, DC 20006. Tel: (202) 223-4860, Fax: (202) 223-4862; Web site www.foodaid.org. Provides USAID documents (FY 1990-ongoing).

3. Linkages Project. *Facts for Feeding* (English, Spanish, French). Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax: 202-884-8977; E-mail: linkages@aed.org; Website: www.linkagesproject.org.

4. National Research Council. *Recommended Dietary Allowances*. National Academy Press, Washington, D.C., 1989.

5. SUSTAIN. *Final Report of the Micronutrient Assessment Project*. Executive Summary available on web site: www.sustaintech.org.

6. USAID/BHR. *U.S. International Food Assistance Report 1999*. January 2000. Web site: www.usaid.gov/hum_response/farpt1999.

7. USAID/BHR. *Commodities Reference Guide (CRG): Section 1-4*. April 1999. Web site: www.usaid.gov/hum_response/crg.

8. USAID/BHR/FFP. *Monetization Field Manual PL 480 Title II Programs*. October 1998. Web site: www.usaid.gov/hum_response/ffp/monetiz.htm.

9. USAID/BHR/FFP. *Title II Guidelines for Development Programs*. January 2000. Web site: www.usaid.gov/hum_response/ffp/dappaa.htm.

10. USAID/CDIE. *Performance Monitoring and Evaluation Tips*. 1996. Web site: www.usaid.gov/pubs/usaid_eval/#02.

11. WHO. *Energy and Protein Requirements: Report of a Joint FAO Expert Consultation*. Geneva, 1985.

12. WHO. *Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers*. Geneva, 1999.

13. WHO. *The Management of Nutrition in Major Emergencies*. Geneva, 2000.

MODULE 5: EMERGENCY PROGRAMS

I. INTRODUCTION

The Office of Food for Peace's (FFP) Strategic Objective #1 (SO) for emergency food aid programs is stated as "Critical food needs of targeted groups met." This SO, in turn, directly supports the USAID strategic goal, "Lives saved, suffering associated with natural and man-made disasters reduced, and conditions necessary for political and/or economic development re-established". Therefore, PL 480, Title II-funded emergency food aid programs should be designed and implemented with this strategic objective in mind.

Title II emergency food aid is used largely for three types of humanitarian crises: natural disasters; complex emergencies; and post-emergency situations. Natural disasters are crises caused by nature, such as floods, earthquakes, flooding, or drought. Complex emergencies generally arise from prolonged civil strife, often exacerbated by climatic and other events, and are characterized by insecurity, failure or the inability of host governments to respond effectively to assist refugees, internally displaced persons (IDPs) and other vulnerable groups. In post-relief situations, food aid is used to help facilitate resettlement, reintegration of ex-combatants, and in rejuvenating local food production.[1] In accomplishing the latter objectives, private and voluntary organizations (PVOs) and other recipient organizations may -- with FFP approval -- monetize a portion of the food aid for local currency required for an emergency program.

By meeting the critical food needs of vulnerable groups when a natural, man-made, or civil disaster strikes, Title II emergency food aid can minimize human and economic losses and accelerate the return to normalcy. Emergency food aid can also be an important vehicle in building the capacity for longer-term food security during the post-relief period.

During the design of emergency food aid programs, Cooperating Sponsors (CS) and USAID endeavor to: (1) target food aid to reach the most vulnerable populations in a timely and cost-effective manner; (2) undertake interventions that do not disrupt local production and do not encourage aid dependency; and (3) incorporate capacity-building activities to ease the transition from crisis to recovery and eventually to longer term development. Guidelines to assist in the selection and use of food aid commodities in emergency programs are outlined below.

II. GUIDELINES FOR COMMODITY SELECTION FOR EMERGENCY PROGRAMS

This Module sets forth in five steps how to choose the most appropriate and cost-effective rations to accomplish emergency program objectives. This guidance is intended to be flexible enough to

[1] USAID/BHR/Office of Food for Peace Emergency Division, *PVO Guidelines for Title II Emergency Food Proposals and Reporting, 1999 (Draft)*

encourage the selection of food aid rations that are most appropriate for each emergency situation. Box 1 below identifies the five key steps in the commodity selection process:

Box 1: Five Steps for Selecting Food Rations:

Step 1. Program Design
Step 2. Suitability of Food Commodities
Step 3. Ration Specifications (Energy Requirements)
Step 4. Ration Calculations
Step 5. Ration Ranking and Selection

STEP 1: PROGRAM DESIGN

The five key program design steps usually consist of the following: (1) conducting a needs assessment; (2) determining appropriate use of food aid; (3) identifying the target population; (4) developing program activity objectives; and (5) reaching decisions regarding the distribution mode and frequency. These components are key elements for the development of Title II Emergency Food Aid proposals. These guidelines are primarily for use in determining rations selection and are not meant to be rigidly proscriptive. For detailed guidelines on proposal development see FFP's *PVO Guidelines for Title II Emergency Food Proposals and Reporting (Draft)* available on line at www.usaid.gov/hum_response/ffp/emerg.htm. An explanation of each design component follows:

1. Conducting A Needs Assessment

All FFP emergency food aid requests must demonstrate the need for food as an appropriate response to the emergency. A needs assessment should be carried out in a participatory and timely manner. Frequently, an in-country needs assessment is carried out on a joint basis involving several different agencies, including the World Food Program and PVOs. This assessment is needed to determine the nature, extent, severity of the emergency (including, whenever possible, an indication of the degree of malnutrition), food accessibility and availability, and to identify factors that may impede effective utilization of food. The assessment should also describe the criteria for selecting the beneficiaries and geographic areas to be targeted. Key to the assessment are good estimates as to whether local foods may be used to supplement the food aid ration package, and how donor and implementing agencies will work together and what role U.S. food aid will play in satisfying the populations complete food need

Primary Data Collection: Data may be attained through primary sources such as food consumption surveys, nutritional status surveys, or rapid food security assessments. Qualitative data may be collected using techniques such as, in-depth interviews, focus group discussions, rapid appraisal techniques, and observation verification of self-reported behavior by participating households. Key informants might include local health authorities, community leaders, teachers, or other knowledgeable members of the population. Tips for collecting primary data are provided in USAID/CDIE's *Performance Monitoring and Evaluation Tips*, which are available online at www.dec.org/usaid_eval. Other resources can be found in the Resource List at the end of this module.

Secondary Data Collection: Secondary data are available from several sources including: the USAID/Africa Bureau-funded Famine Early Warning System (FEWS); UN Food and Agriculture

Organization (FAO) crop and food supply reports; UN World Food Program (WFP) food aid assessment reports; international and local PVO reports and other donor reports. Quarterly reports on the nutritional status of refugees and internally displaced persons can be obtained in hard copy or on the Internet from the Refugee Nutrition Information System (RNIS) of the United Nations Sub-Committee on Nutrition at http://acc.unsystem.org/scn/. The Health Information Network for Advanced Planning (HINAP) of WHO's Department of Emergency and Humanitarian Action provides baseline health information, which is updated during an emergency at www.hinap.org. Additional information can be collected from on-site from reports produced by the local government, the national health system, or other agencies.

The findings from the need assessments will naturally drive the program design process. Box 2 below contains examples of some possible general outcomes of an assessment.

Box 2- Examples of Assessment Outcomes

No Food Assistance When:
There is only minor disruption in crop production or marketing systems or despite a minor or localized crop shortfall, the populations concerned are able to cope with the situation, or other resource needs take priority.

Short-Term (Rapid Onset) Assistance When:
Some food stocks may be lost, normal food supply/marketing systems may be disrupted, and/or crops may be damaged. Examples include situations immediately following earthquakes, floods, storms, fires, and short-duration civil disturbances. The duration may be as little as a few days or until the next harvest or longer under certain circumstances.

Medium-Term Assistance When:
It is not possible for the affected populations to return to normalcy within a period of 12 months or less. This includes massive crop failures and the inability of refugees or internally displaced persons (IDPs) to return home for security, political and other reasons.

Longer Term Title II Development Assistance When:
Refugees and IDPs have returned to their home areas or when populations affected by drought, floods and other natural disasters can resume productive agricultural activities. However, in this type of a transition situation, it is advisable for cooperating sponsors to consult with FFP prior to designing a Pre-Development or Short Term Development Program or Development Program (DAP) proposal.

2. Determining the Appropriate Uses for Food Aid

The objectives of emergency food aid can vary. Some examples of objectives include: (a) to satisfy the nutritional requirements of vulnerable target groups; (b) to improve the nutritional status of malnourished individuals; (c) to enable affected households to maintain or resume livelihood activities; (d) to reduce sales of household assets to purchase food; and (e) to prevent mass migration out of areas affected by drought and other natural disasters. Naturally, each of these different activities will involve different targeting rations, and exit criteria.

3. Identifying the Target Population

Plans for emergency food aid must include efforts to identify key characteristics of the recipient populations. The target beneficiaries may include entire populations of refugees, IDPs or persons who remain in their home communities. Other programs may be targeted only to extremely vulnerable groups within these populations, such as young children, lactating and pregnant women, the elderly, and certain livelihood groups or particular family units that have lost their source of income.

In emergency situations the size and circumstances of target groups can change quickly due to the movement of conflict zones, worsening drought conditions, encroaching floods, or other factors. These changing conditions naturally complicate planning and logistics, which can force changes to the size of the target group or the size of the ration, method of transportation or distribution or food storage arrangements.

4. Developing Program Activity Objectives

Although each CS will approach the achievement of FFP Strategic Objective No. 1 (Critical Food Needs of Targeted Groups Met) in different ways, it is urged that cooperating sponsors (CSs) review USAID's Managing for Results terminology (see Annex 1 (HYPERLINK)) prior to drafting the proposal. Program objectives will be result statements, that is, a description of the end result to be achieved through the food aid intervention. One results-oriented objective might be "Improved nutritional status of target population."

Each result statement should have at least one performance indicator to track progress. Performance indicators are variables with a particular characteristic or dimension to measure progress toward achievement of the stated result. For example, an indicator for the objective, "Improved nutritional status of target population" could be "average weight-for age- z-score within the target group". Sample food security and nutrition indicators may be found in Annex II. USAID/CDIE's *Performance Monitoring and Evaluation Tips,* available online at www.dec.org/usaid_eval, also provides guidance on how to develop result statements and performance indicators. For purposes of USAID humanitarian goal monitoring in emergency situations, changes in the wasting (weight for height) of children under five years of age and, if possible, the crude mortality rate are most important.

5. Determining the Distribution Mode and Frequency

Emergency food aid activities can generally be divided into two major categories: general food distribution and targeted food distribution.[2] General distribution programs often provide full nutritional support for emergency affected populations immediately after the onset of a humanitarian crisis. Food is distributed to all members of the population on a regular basis. Targeted food aid provides food to only a segment of the emergency affected population, to meet the particular needs of the most nutritionally vulnerable households or individuals. These groups often include children, especially those under five; orphans or unaccompanied children; pregnant and lactating women; the elderly, the ill; the handicapped; those who are malnourished; or those displaced from their homes.

The distribution of targeted food aid can take any of several different forms, depending on the characteristics of the targeted group and contextual circumstances. Common examples of targeted

[2] *US International Food Assistance Report, 1999, p. 22* http://www.usaid.gov/hum_response/farpt1999

programs are supplementary feeding for malnourished children or pregnant and lactating women, therapeutic feeding for the severely malnourished, school feeding, and/or food-for-work.[3] A combination of approaches may be necessary. For example, general feeding plus supplementary feeding for nutritionally vulnerable groups may be most effective in some situations. Programming should change over time to reflect positive or negative changes in circumstances that affect the population's ability to feed themselves. Similarly, the rations in a general feeding program may evolve from providing total daily requirements to providing only partial energy requirements and selected nutrients before being phased out completely in favor of targeted feeding for households least able to sustain themselves or food-for-work activities. In all phases of relief operations, the participation of affected populations, especially women, in ration determination, food distribution and monitoring is encouraged. This maximizes program efficiency and effectiveness and honors the dignity of the recipients.

There are two primary emergency food aid distribution methods:

♦ **On-Site (wet) Feeding:** In this type of distribution, recipients are provided prepared food for consumption on the spot. The most common examples of on-site feeding are therapeutic feeding of severely malnourished children and the feeding of children under two and a caregiver at community feeding centers**.** The advantage of on-site feeding is that food rations are eaten under supervision, which helps to ensure that the food supplement is actually consumed by the target population. To obtain maximum nutritional improvement, two meals or a meal and a snack, 365 days per year are suggested. The disadvantages are that on-site feeding is labor intensive and, therefore, not always feasible, and the likelihood is high that food may be withheld from beneficiaries at home because they have already eaten at a feeding center.

♦ **Take-Home (dry) Rations: More** commonly, uncooked food rations are distributed to be carried home for preparation and consumption. The advantages of take-home rations are that they are easier to administer, more cost-effective, less time consuming, and can reach larger numbers of people. However, dry rations may be consumed by family members (leakage) other than the intended beneficiary, if the program is targeted on special vulnerable groups, or it may be sold/exchanged in the market, thereby reducing their nutritional impact on the whole family. Yet, other critical needs of the household may be satisfied this way. In some cases, a pre-cooked emergency food such as a high energy, nutrient dense emergency relief biscuit or bar may be available. The advantage of these types of products includes ease of handling and a set nutrient profile. While convenient, these foods are not recommended for long term use. Refer to the specifications for these bars for their use and appropriateness.

When designing take-home rations for a targeted group, consideration must be given to the fact that other family members will almost always share take-home rations. Some ways of addressing intra-household food sharing include education, increasing the ration package to accommodate sharing, or selecting ration commodities that are more likely to be consumed exclusively by the targeted individuals. For example, blended cereals may be regarded as "baby food" and thus, less acceptable for consumption by other family members..

The mode and frequency of distribution should be based on the accessibility to the target population, commodity transport and distribution costs, the nutritional profile of the target group, and the type and

[3] *US International Food Assistance Report, 1999, p. 22* http://www.usaid.gov/hum_response/farpt1999

quantity of rations. It is also important to consider the distance and travel time to and from the center required for caregivers to pick-up and carry the food or the opportunities lost by beneficiaries and caretakers while attending on-site feeding.

STEP 2: SUITABILITY OF FOOD COMMODITIES

Suitability is defined as those attributes of the individual ration recipient, target household, or community that will affect their utilization of the foods provided. Judgment of ration foods' suitability should take into account traditional diets, food taboos, nutritional content, physiological appropriateness, resources for preparing the food for consumption, and the population's ability to access other food. Food that is not accepted by the population or that cannot be readily prepared with resources available to the recipients will not be eaten, and, consequently, cannot effect the intended results.

It is critical that the design of an emergency program does not compromise the adoption of appropriate and recommended feeding and dietary practices including exclusive breast feeding for infants under six months of age. The eligibility criteria for recipients, quantities, commodity mix, and recommendations for use of the rations should be consistent with official government policies and with standard practices used by USAID and the UN. Detailed recommendations for appropriate feeding practices are available from USAID's LINKAGES Project series titled *Facts for Feeding* at www.linkagesproject.org.

Below are other key factors that should be examined carefully when choosing suitable ration commodities:

Cultural suitability: It is important to consider women's and children's traditional diets, taste preferences, food taboos, and feeding practices. Unfamiliar food may be made more acceptable through nutrition education, food processing, packaging, and/or by combining it with familiar foods in recipes.

Nutritional content: This refers to the energy, fat, protein, and micronutrient content of the rations. There are certain nutritional considerations for women and children that should be examined when designing food rations. Young children, especially those up to 24 months of age, suffer linear growth faltering (stunting) and delayed development that leaves permanent damage when they are not adequately nourished. Underweight children are also at much higher risk of death due to illness than are their well-nourished counterparts. Although energy (kilocalories) is the main predictor of height and growth, adequate micronutrients and protein for this age group are also important particularly vitamin A.[4]

Pregnant and lactating women need extra energy, protein, and micronutrients to support the growth of their fetus or infant and maintain their own health. Pregnant women need the extra nutrients for the growing fetus and to ensure a healthy and safe birth outcome without depleting her own reserves and putting herself and her child at greater risk. While frequent, on-demand breastfeeding helps to maintain the quantity of breastmilk, lactating mothers need extra energy and nutrients to produce optimal quality breastmilk, to protect their own health, and to assure that their nutritional stores are preserved or restored to support subsequent pregnancies.

[4] WHO, Complementary Feeding of Young Children in Developing Country: a review of current scientific knowledge,1998

People with **HIV/AIDS** suffer from appetite loss (anorexia), eat less food and have difficulty eating and therefore fail to meet their dietary requirements. HIV/AIDS also affects how the body uses the foods that are consumed and this results in nutrient malabsorption. Fevers and the infections that accompany an HIV infection also lead to greater nutrient requirements and poor use of the nutrients by the body. There are several illnesses that are common with people living with HIV/AIDS and that cause malnutrition. These include poor appetite or anorexia, losing weight, fever, diarrhea, frequent vomiting, oral thrush and other infections. Good nutrition for HIV affected people requires the consumption of an adequate amount of macronutrients such as proteins, carbohydrates and fats, and micronutrients, which include vitamins and minerals. A deficiency in macronutrients, also known as protein energy malnutrition manifests itself in the weight loss and wasting that is typical of AIDS patients. This weight loss and wasting occurs as a result of reduced food intake, nutrient malabsorption and changes in metabolism. Vitamin A for HIV affected people is important for growth, immune function and maintenance of the lining of the respiratory, gastrointestinal, and gastro-urinal tracts. Consuming micronutrients especially vitamin A, B6, B12, iron, and zinc are important for building a strong immune system and fighting infections. Consuming fortified foods like the cereal blends and vegetable oil fortified with vitamin A as well as taking micronutrient supplements at early stages of HIV infection can slow weight loss and disease progression. In the case of vitamin A there is the likelihood of reduced transmission between mother and child and slowing the progression of the disease in infected people. Refer to the FANTA publication on "*Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members*" at www.fantaproject.org.

Physiological appropriateness: Young children and the elderly require food that can be easily chewed and digested. In particular, infants and young children are unable to meet their caloric needs through high-bulk foods, such as cereals and legumes, due to their limited gastric capacity.[5] See Box 3 below for gastric capacity of children aged 6-24 mos. For example, infants between 9-11 months have a stomach capacity of 285 grams.[6] If these infants are breastfed an average amount of breastmilk (659 kcal[7]), they would need 168 grams of CSB to meet their additional caloric needs (1,290 kcal[8] - 659 kcal = 631 kcal). This amount of CSB yields about 1,400 grams of gruel (assuming the gruel is 12% CSB).[9] If the infants are fed the gruel four times a day, they would need to consume 350 grams of gruel at each meal to meet their supplemental caloric needs with only CSB. This amount is too much for their stomach capacity. Therefore, to assure that the infant's energy needs are met, either the infant must be fed less of this gruel more frequently or an energy-dense, low-bulk source of energy, such as sugar or vegetable oil, must be added to the gruel. Children who are undernourished have an even smaller stomach capacity.

[5] ibid
[6] ibid
[7] WHO, Complementary Feeding of Young Children in Developing Country: a review of current scientific knowledge, 1998
[8] Per reference values in UNHCR/WFP"s *Guidelines for Estimating Food and Nutritional Needs in Emergencies*, 1997 p. 7
[9] Per Commodity Fact Sheets, CRG, Section I

Box 3- Stomach Capacity of Children 6 to 23 months

Well nourished:

6-8 months	249 g
9-11months	285 g
12-23 months	345 g

Growth retarded

6-8 months	192 g
9-11 months	228 g
12-23 months	273 g

Source: WHO, Complementary Feeding of Young Children in Developing Countries: a review of current scientific knowledge, p. 61.

The viscosity of prepared foods for children less than 24 months should also be considered. Cereals vary considerably in viscosity, and once prepared, can become thick and difficult for these young children to eat. When mothers dilute the cereals to make them more edible for their children, they are significantly reducing the density of energy, protein, and micronutrients, increasing the volume of intake that is necessary. For this reason, nutrient and energy dense soy-blended cereals are better choices for dilution than a one-grain cereal. Digestibility and/or food intolerance problems for this target group should also be taken into consideration as rations are selected.

Appropriateness to good feeding practices: The use of specific donated foods should be consistent with appropriate feeding guidelines including exclusive breast feeding for infants under 6 months of age and continued, frequent on-demand breast feeding to 24 months and beyond. For children 6 to 24 months, it is important to gradually increase food thickness and add variety as the child ages. However, care must be taken to ensure that these foods complement rather than replace breastmilk. In addition to breast milk, children over 6 months of age should be feed other foods with the following recommendations:

- Provide 6 to 8 month old infants *approximately* 280 kcal per day from complementary foods.
- Provide 9 to 11 month old infants *approximately* 450 kcal per day from complementary foods.
- Provide 12 to 24 month old children *approximately* 750 kcal per day from complementary foods.

Feeding frequency is another important consideration. By combining meals and snacks, children should be fed complementary foods with the following frequency:

- Feed complementary foods for 6 to 8 month old infants 2-3 times per day.
- Feed complementary foods for 9 to 11 month old infants 3-4 times per day.
- Feed complementary foods for 12 to 24 month old children 4-5 times per day.

Complementary foods can include the food aid commodity and should be programmed to ensure the young child has a diversified and nutritious diet. During illness, the child should continue to receive breast milk and receive frequent and active feeding. Any feeding activity should be designed that the

young child is feed directly, slowly and patiently. Children should not be forced to eat.

For more information on young child and adolescent feeding, refer to the LINKAGES Project series titled *Facts for Feeding (*www.linkagesproject.org/pubs.html*).*

Availability of processing and/or storage facilities: Consider factors that will affect households' ability to prepare the food, such as access (distance and affordability) to mills, household food storage capacities, access to fuel for cooking, and preparation time. The chosen foods should minimize preparation demands, especially fuel wood demands because of the potentially negative environmental impact.

Characteristics and availability of locally produced food: Determine the timing of harvests and seasonal availability and affordability of local foods, and the affected population's ability to access these foods. Imported Title II food aid should complement what is already available and accessible.

Food and cost effectiveness considerations: Ideally, the most cost-effective ration package to achieve the desired result should be selected. However, in rapid onset emergency situations, cost-effectiveness considerations may be overshadowed temporarily by the U.S. government's overarching humanitarian response objective, which is to save lives and reduce human suffering as quickly as possible.

STEP 3: RATION SPECIFICATIONS (ENERGY REQUIREMENTS)

1. General Food Distribution

Basic nutritional requirements for individuals vary according to age, sex and reproductive status. Nevertheless, for practical reasons, rations for general food distribution are usually distributed equitably for all persons, male and female of all ages. Therefore, the content of an individual ration package is based on the **average** per capita requirement. This presumes that the food can be redistributed within a household, which includes individuals some of whom have greater or lesser than average requirements. The average per capita energy needs can be calculated using the demography of the affected population and age/sex-specific energy requirements.

However, at the onset of an emergency rapid response is essential and, generally, the demography of the population is not known. Therefore, to enable planning for quick response, the key international humanitarian organizations have agreed to respond with rations that supply a default energy requirement of 2,100 kcal/person/day, if the population is totally dependent on outside sources of food[10]. This default value was not selected arbitrarily. It is the average need based on the demography of a "typical" developing country, and assumes that members of the population are of average (worldwide) body size, are engaged in light physical activity, and live in moderate climatic conditions. When planning for immediate response, the proposed ration package should meet this energy requirement. In extreme cases, additional energy to cover high activity or severe cold should be considered. (See Box 4.)

[10] This value was initially recommended by the Institute of Medicine (IOM) of the US National Academy of Science and has been adopted by USAID, WFP, UNHCR, and their PVO partners. Refer to IOM's "Estimated Mean per Capita Energy Requirements for Planning Emergency Food Aid Rations" for the calculation of this default value.

As soon as possible after the onset of the emergency, the ration should be adjusted to reflect the true demography of the population being served, and any good estimates of other reliable sources of food Typically, when beneficiaries are registered for food rations their age and sex are recorded, and within a few months after the emergencies' onset population breakdowns by relatively standard age/sex categories are available. Using these data, average per capita energy requirements for the population can easily be calculated using the following guidelines:

To calculate the average per capita energy requirement in a population of known demographics (by standard age/sex groups):

- Multiply the percentage of the population per age/sex group times the energy requirements for each group. For example, if the percentage of girls 0-4 is six percent (per demographic data available), multiply 0.06 times 1250 kilocalories. (The energy requirements for each age/sex group can be found in Table 1 below.) Do this for each age/sex group.

- Sum the calculations of percentage X per capita energy requirements for all age groups.

- Multiply the Total Sum by 1.05 to account for the high fiber content of typical food aid commodities (Atwater correction).[11]

The final adjusted sum is theoretically the average per capita energy requirement across the population. From that point, the energy content of rations should be based on the results of these calculations, i.e., the default of 2,100 kcal/p/d should be replaced by the newly calculated average. Table 1 below provides a table for calculating the average energy requirement in a population of unknown demography.

[11] UNHCR/WFP. *Guidelines for Estimating Food and Nutritional Needs in Emergencies*. 1997

Table 1: Calculation of Average Energy Requirements in Population of Known Demography

Age/sex group	% of population	X	Requirement for Age/sex group (kcal/d)	
Girls 0-4 yrs		X	1250[1] =	
Boys 0-4 yrs		X	1320[1] =	
Girls 5-9 yrs		X	1730 =	
Boys 5-9 yrs		X	1980 =	
Girls10-14 yrs		X	2040 =	
Boys 10-14 yrs		X	2370 =	
Girls 15-18 yrs		X	2120 =	
Boys 15-18 yrs		X	2700 =	
Non-pregnant female 19-59 yrs		X	1990 =	
Pregnant female 20+ years[2]		X	2275 =	
Male 19-59 yrs		X	2460 =	
Female 60+ yrs		X	1780 =	
Male 60+ yrs		X	2010 =	
SUM	100%			3 =
X 1.05 (Atwater correction) = Average Requirement =				

[1] For breast fed children, part of this energy is for the mother and the rest for complementary feeding of the child

[2] A crude estimate for % pregnant females = 4% of all females aged 19-59 years
and for % non-pregnant females = 96% of all females aged 19-59 years

Other adjustments that reflect differences from assumed conditions (i.e., average body size, light activity, and temperate climate) should also be considered. Members of a population that are engaged in moderate or high activity (e.g., doing heavy manual labor or walking long distances to gather fuel), or are living in extremely cold climates, will need more energy. Simple formulas for adjusting the average per capita requirement are:[12]

- Add an extra 100 kcal/p/d for every five degrees below 20° C. (Note: this may be a seasonal adjustment)
- Add an extra 140 kcal/p/d for moderate activity levels and 350 kcal/p/d for heavy activity.

[12] WHO. *The Management of Nutrition in Major Emergencies.* Geneva, 2000

Adjustments based on extreme body size is also a consideration but will rarely be needed. The adjustment may be upward (for populations of extremely large individuals) or downward (for populations of extremely small individuals).[13]

Finally, not every assisted population needs food aid to supply all of their daily needs. Except during the most acute stages of an emergency, many have access to other food. For example, as a displaced population adjusts to their new environment or emergency conditions are mitigated, some find employment and can buy food, and others gain access to land to farm and produce food. In these cases rations can be reduced, but reductions should be according to the type and quantity of food otherwise accessed. There is no simple formula to apply such adjustments. Each individual situation should be analyzed in terms of food availability and the households' ability to access that food. This requires a careful assessment of the household economy and food security.

In summary, the per capita energy content of rations for general feeding should equal the average requirement based on demography (or default of 2100 kcal/p/d) + activity level and/or temperature adjustments +/- body size adjustment – energy provided by other food (see Box 4 below).

Box 4 - Formula for Determining Energy Content of and Individual Ration for A General Feeding Program

Average Energy Requirement* + Activity Level/ Temperature Adjustments +/-
Body size adjustment – Energy from other food = Total kilocalories per daily ration

* *From demography or default of 2,100 kcal/p/d, if demography is unknown*

2. Targeted Food Distribution

Targeted food distribution is designed to target only a segment of the emergency affected population, to meet the particular needs of the most nutritionally vulnerable households or individuals. These groups often include young children, orphans or unaccompanied children, pregnant and lactating women, and those who are malnourished or displaced from their homes. Young children are most vulnerable to the cycle of malnutrition and infections and, therefore, should be the first target group to receive supplemental food. Targeted feeding generally include supplementary feeding and/or therapeutic feeding programs.

a) Supplementary Feeding

There are two types of supplemental feeding programs (SFPs): targeted and blanketed. Targeted SFPs are aimed at rehabilitating moderately malnourished target groups, preventing moderately malnourished groups from becoming severely malnourished, reducing the mortality and morbidity of children under five, and providing food supplements to selected pregnant and nursing women and other individuals at risk. Targeted SFPs should be considered when:

[13] WHO. *The Management of Nutrition in Major Emergencies.* Geneva, 2000

- There is a prevalence of 10-14 percent acute malnutrition among children (age 6 to 59 months) whose weight-for-height is below –2 Z scores or less than 80 percent of the median NCHS/WHO reference values and/or edema); or

- There is a prevalence of 5-9 percent acute malnutrition and widespread food insecurity and high rates of disease[14]

Blanketed SFPs are intended to prevent widespread malnutrition and excess mortality among at risk groups. Blanket food distribution is most often directed to all children under a given age, pregnant and nursing mothers, the handicapped or elderly. Blanket SFPs are needed when:

- At the onset of an emergency general food distribution is not adequately meeting energy deficits;

- The prevalence of acute malnutrition among children <5 years of age is equal to or greater than 15 percent;

- The prevalence of acute malnutrition among children <5 years is 10 - 14 percent, and there are aggravating factors, such as widespread food insecurity and/or disease;

- There is an increased rate of malnutrition due to seasonally induced epidemics; or

- There are cases of micronutrient deficiencies[15]

Guidelines for developing rations specifications for supplemental feeding programs are the same as for Maternal Child Health and Nutrition (MCHN) programs and can be found in *Module 1- MCHN Programs. HYPERLINK*

b) Therapeutic Feeding

Although it is not within the scope of the CRG to discuss details of therapeutic feeding, a brief mention may be useful here. The objective of therapeutic feeding programs (TFP) is to provide intensive curative care for severely malnourished recipients (primarily children with weight-for-height less than –3 Z score and/or edema). These programs should be closely supervised by qualified medical professionals. The establishment of centers for therapeutic feeding should be considered when the rate of malnutrition among under-fives exceeds 10% and the capacity of existing facilities is exceeded. For guidance on admission and practices of therapeutic feeding, see WHO's *The Management of Nutrition in Major Emergencies* (see Resource List).

3. Income Transfer Value.

Food is seldom used in lieu of cash as an incentive or partial payment for work for the entire duration of an emergency-feeding program. However, especially while phasing out of an emergency program, rations may be designed to serve as an income transfer. For example, some food commodities with a high monetary value on the local market may be provided in order to reduce household spending on food and thus free income to purchase other food or non-food essentials. However, in the light of cost

[14] UNHCR/WFP Guidelines for Selective Feeding Programmes in Emergency Situations, 1999.

considerations, low value rations might also serve this purpose while reaching larger numbers of people. Rations of this type are most commonly provided through a food-for-work program. Commonly, the minimum wage paid for work that is available in the area is the basis for determining the type and quantity of food in the ration, i.e., the market value of the ration should approximate the minimum wage. (*See Module 2: Food for Work.) HYPERLINK*

STEP 4: RATION CALCULATIONS

After determining the energy requirements of the ration package, the following may be determined: (1) type of ration package; (2) type and quantities of food commodities; and (3) the total tonnage of commodities needed.

1. Defining the ration package

Energy is the main macronutrient and is of primary concern for survival. However, two other macronutrients that deserve consideration are protein and fat. Protein is important for growth and recuperation from disease. While a ration package composed of sufficient energy and a range of protein-rich commodities (cereals, blended foods, legumes) usually provides a sufficient amount of protein, it is important to ensure that ration packages provide sufficient protein for nutritionally vulnerable groups, such as young children and pregnant and lactating women. Fat is a rich source of energy and essential for health and the prevention of some diseases. Therefore, ration packages need to content a minimum amount of fat.

Vitamins and minerals, referred to collectively as micronutrients, are essential to the health of people of all ages, but especially for growing children and women during their reproductive years. Below are some guidelines for defining the ration package by its nutritional content.

a) Macronutrients

For general rations: As with energy, the recommended protein and fat contents are averages of the needs across a typical population of diverse ages. WHO's recommendations are the following:[16]:

- The ration should include a mixture of cereal and pulse that provides a minimum of 46 grams of protein daily per person.[17]

- To cover the requirements for certain essential fatty acids, 17-20 percent of the ration energy should be provided in the form of fats or oil, but no more than 10% of energy should come from saturated fatty acids (found in all animal fats and some vegetable oils).

For supplementary feeding: Ration content should reflect the protein and fat needs of the targeted portion of the population. However, remember that a supplementary ration, by definition, adds to food from other sources, which also contribute fat and protein to the beneficiaries' diets, i.e., the supplementary ration does not supply all of the requirements of fat and protein. With regard to fat and protein, guidance that should be considered in the design of ration packages for supplementary feeding targeted exclusively to children or women are that:

[16] *WHO. The Management of Nutrition in Major Emergencies. Geneva, 2000*

[17] *This is described as a "safe" input, i.e., the amount required to prevent deficiency disease*

- Fats and oils in the diet (including the supplementary ration plus other foods eaten) should provide 20% of total energy intake of women of reproductive age and 30-40% of total energy for children up to 2 years of age.

- The needs of pregnant and lactating women are higher than those of non-pregnant/non-lactating women (7-10 grams per day (g/d) more during pregnancy and 14-19 g/d during lactation). On the other hand, the overall protein needs of young children, are lower than the average in the population overall (only 25-35 g/d).

For more guidance on developing ration packages for women and children, refer to *Module 1- MCHN Programs*. For the elderly, refer to *Module 4- Non-Emergency Humanitarian Assistance Programs.*

b) Micronutrients (vitamins and minerals)

People who have little or no access to fresh foods, and thus, are dependent solely on unfortified emergency food rations are at risk of developing micronutrient deficiencies. While assuring that the population gain access to fresh food and vegetables by some other means than food aid is a more satisfactory way to avoid deficiencies, in many cases, this is not possible. Especially during the acute phases of emergencies, while markets are not functioning and cultivation is interrupted, it is necessary to cover as much of the daily requirements as possible by including fortified food commodities in the general ration. When deficiency disease has already been identified in the population, the provision of fortified foods is even more important. Objectives for supplementary feeding programs should include the assurance of adequate intake of micronutrients by the most vulnerable groups, especially young children and pregnant or lactating women (often because resources are not sufficient to provide for the whole population). Regardless, the accessibility of fresh foods and the adequacy of intake of key micronutrients by food aid beneficiaries should be examined carefully before designing emergency rations.

All refined vegetable oil provided through Title II is fortified with vitamin A, a nutrient essential for the protection of the health of any population, but particularly young children. Forty grams (40g) of fortified vegetable oil potentially satisfies children's full daily requirements and about 70% of adult requirements. However, if the oil is used in dishes requiring high temperature frying, especially repeated uses of the oil, the value of the vitamin A may be substantially less.

Whereas whole grain cereal, such as wheat and corn are not fortified, all processed food cereals provided by Title II, with the exception of parboiled rice, are fortified with B vitamins (thiamin, riboflavin, folic acid, and niacin), vitamin A, calcium, and iron. Blended cereals (corn-soy blend and wheat-soy blend) are further fortified with zinc, B12, pantothenic acid, iodine, magnesium, vitamin C, vitamin D, and vitamin E. Levels of fortification can be found in the Commodity Fact Sheets in Part I of the CRG. HYPERLINK However, the values of vitamins reaching participants could be substantially less depending on the storage and handling, and cooking. Losses of vitamin C in particular can be substantial when cooked in relatively dilute gruel.

In order to fully satisfy the requirements for vitamins critical to the prevention of deficiency diseases, which have been observed in populations dependent on food aid for extended periods (beriberi- the lack of thiamin and pellagra- the lack of niacin), general ration packages should include 200 grams per person per day (g/p/d) of blended food. This quantity is also adequate to protect against scurvy provided losses in storage and cooking are not excessive. (In areas with particularly high vulnerability

to scurvy, e.g., the Horn of Africa, other vitamin C sources should be given a high priority by programmers.) To offer protection against iodine deficiency disease, 300 g/p/d of blended food would be needed.

The micronutrient content of blended cereals (see the Commodity Fact Sheets found in Section II of the CRG) are estimates.[18] Because some of these vitamins are lost during storage and cooking, they do not accurately reflect the quantities available to the body after consumption. For example, up to 40 percent of vitamin A is lost from fortified cereals that is exposed for several months to heat, light and air. Minerals are not subject to deterioration by environmental factors, however, their bioavailability in cereal can be greatly reduced by absorption inhibitors in the ration commodities or in other commonly consumed foods, like tea and coffee.

2. Choosing the type and quantities of food commodities:

a) General feeding rations: Initial response

Presented in Table 2 below are three combinations of the basic commodity types into daily per capita rations that meet the requirements for immediate response for general feeding in populations of unknown demography (hence the use of 2,100 kcal/p/d energy requirement). These sample ration packages have an appropriate balance of macronutrients (17-20% energy from fat and >46 g protein) and that provides essential micronutrients (although not 100% of requirements, except vitamin A).

The first selection is appropriate for populations that traditionally eat very little pulse, for example for some Asian populations that traditionally use pulses (legumes) only in desserts. The second selection is most appropriate where little cereal is eaten, for example where beans and tubers are the primary staples. The third selection is included only to accommodate the cases when blended food is simply not available. During an acute phase of an emergency, milled cereal or rice, not an unmilled cereal, should be provided because a population does not have access to milling facilities (either because of location or cost). This is especially relevant for displaced populations, who additionally do not have the equipment to hand mill the grain. Note that in the third selection, it is critical that the cereal provided is a fortified flour or meal as it does not include blended food.

[18] However, U.S. manufacturers of dry food aid commodities are now required to produce fortified food with average lot values of not less than 80 percent of the vitamin values and 100 percent of mineral values as specified in Part One of the CRG. In refined vegetable oil, the vitamin A levels are mandated to be between 60 and 75 IU/gram.

Table 2: Three Combinations of Ration Packages

Selection 1- Ration Package with Fewer Pulses

Amount	Commodity	Protein (g)	Fat (g)	Energy (kcal)
30 g	Fortified oil	0	30	270
100g	Blended food	17	7	376
350g	Cereal flour[19] or Rice	30-35	3.5-6	1,260
60g	Pulse	13	<1g	204
Total		60-65	41-44[20]	2,100

Selection 2- Ration Package with Cereal and Legumes

Amount	Commodity	Protein (g)	Fat (g)	Energy (kcal)
35 g	Fortified oil	0	35	315
100g	Blended food	17	7	376
300g	Cereal flour[21] or Rice	25-30	3-5	1,080
100g	Pulse	22	<1g	340
Total		64-69	46-48[22]	2,111

Selection 3- Ration Package with No Blended Foods

Amount	Commodity	Protein (g)	Fat (g)	Energy (kcal)
40 g	Fortified oil	0	40	360
400g	Fortified cereal flour[23]	35-40	4-7	1,440
90g	Pulse	20	<1g	306
Total		55-65	44-47[24]	2,106

[19] If an unmilled cereal other than rice is used, then 10% more should be included to account for difference in energy and another 10% for costs/losses during milling.

[20] 1g fat = 9 kilocalories

[21] If unmilled cereal other than rice is provided, then 10% more should be added to account for the difference in calories and another 10% more for cost/losses during milling.

[22] 1g fat = 9 kilocalories

[23] Without the blended food to supply micronutrients, only a fortified milled flour should be used.

[24] 1g fat = 9 kilocalories

Things to keep in mind when designing rations for general feeding are:

Protein:
- Cereal and pulse provide different types of protein, both of which are essential to a healthy diet. A diet that includes no animal protein must include both cereal and pulse to assure intake of all of the different amino acids needed for body growth and maintenance.
- In equal quantities of cereal and pulse, pulse caries about twice as much protein (about 22 g/100g of pulse versus 7-12 g/100g cereal).
- There are both cereal and pulse in blended foods, therefore, the protein they provide includes the full range of amino acids needed.

Fat:
- Among Title II commodities, fortified, vegetable oil is 100% fat and is the most dense source of energy (1g = 9 kilocalories).
- Blended foods also contribute fat Energy. (17% of calories from fat).

Micronutrients:
- Among the Title II commodities, blended foods are the best sources of micronutrients, except vitamin A.

- Fortified oil is the best source of vitamin A; 40 g of fortified oil protentially provides 100% of children's daily needs for vitamin A and about 70% of adults' needs, assuming shipping and storage times and cooking does not involve high temperature frying.

In some cases, micronutrient supplements may be provided by agencies in emergency situations. It is necessary to determine the amount, type and frequency of Vitamin A supplements to ensure that women and children are not provided excessive amounts. Check with the health and other providers to ensure a joint response to meeting vitamin A needs.

b) General feeding rations: After more is known

Once the acute phase of an emergency has passed and the demography of the population is assessed, adjustments to the ration content should reflect this knowledge, either increasing or decreasing the energy content accordingly. A presentation of the demographics and the calculation of average energy requirements should be included in proposals for general rations for emergency affected populations, except for cases of rapid response or when the population is too mobile or too remote for accurate assessment (e.g., for internally displaced within a zone of conflict).

As food production and market activity resumes, food needs may diminish in terms of energy. The compositional needs, in terms of protein, fat and micronutrients, should reflect deficits after determining the contributions of other foods. This will depend on the type and quantities of foods that are available locally and how well households in the beneficiary population are able to access that food. In proposals for rations of other than the recommended content of fat and protein or the absence of fortified foods, there should be some demonstration of knowledge about the other food accessed by the majority of targeted households that justifies the difference.

c) Supplementary feeding rations

The choice and quantities of food commodities for supplementary feeding programs for emergencies are similar to those in other contexts. See *Module 1-MCHN Programs* and *Module 4-Non-Emergency Humanitarian Relief* for more about the design of rations for this purpose.

3. Calculating the Total Amount of Food Commodities Needed

Once the ration package is determined, the total quantity of commodities to satisfy the needs of a population totally dependent of food aid can be calculated using the default energy requirement of 2100 kcal/person/day. To calculate the number of metric tons (MT) needed for each commodity in a general feeding or supplementary emergency ration package, use the following steps:

- Multiply the number of grams of the commodity per person per day times the total number of persons to receive the commodity.
- Multiply the total number of grams of the commodity times the number of days food will be provided to the target group.
- Determine the number of MT of commodity needed by dividing the total number of grams per program period by 1,000,000 (number of grams in a MT).
- Complete the same calculation for each commodity (vegetable oil, cereal, cereal blend, or legume) that comprises the ration.

Box 5 below provides an illustrative example of how to calculate the total amount of commodities needed to provide a general feeding emergency ration package to 100,000 people for six months. These amounts would be adjusted downward once reliable estimates of other sources of food available to the general population, and other factors shown in Box 4 can be estimated.

Box 5: Calculating Total Amount of Commodities Needed for a General Feeding Emergency Ration Package (Selection 1 from Table 2) to a Beneficiary Population of 100,000 for Six Months.

OIL

1) Multiply grams of vegetable oil per person times 100,000 times 180 days
   30 g oil x 100,000 = 3,000,000 x 180 = 540,000,000 grams

2) Divide the total number of grams of oil by 1,000,000 (the number of grams in a MT)
   540,000,000 g. ÷1,000,000 = **540 MT of fortified, vegetable oil**

WSB

3) Multiply grams of blended wheat soy blend (WSB) cereal per person times 100,000 times 180 days.
   100 g of WSB x 100,000 = 10,000,000 x 180 = 1,800,000,000 grams

4) Divide the total number of grams of WSB by 1,000,000
   1,800,000,000 ÷ 1,000,000 = **1,800 MT of WSB**

RICE

5) Multiply grams of rice per person times 100,000 times 180 days.
   350 g x 100,000 = 35,000,000 x 180 = 6,300,000,000

6) Divide the total number of grams of rice by 1,000,000
   630,000,000 ÷ 1,000,000 = **6,300 MT of rice**

PULSE

7) Multiply grams of pulses per person times 100,000 times 180 days.
   60 g x 100,000 = 6,000,000 x 180 = 108,000,000

8) Divide the total number of grams of pulses by 1,000,000
   108,000,000 ÷ 1,000,000 = **108 MT of pulses**

STEP 5: RANKING AND SELECTION

Still taking into consideration the nutritional content and suitability of the commodities (Steps 2 and 3), the next most important consideration when choosing ration packages is cost-effectiveness and appropriateness for meeting program objectives. When examining the primary cost elements, the illustrative price list of commodities Annex V can be used. Other cost factors to consider are:

- **Minimizing Market Disruptions**: Even with emergency food aid programs, an analysis should be done, (the Bellmon determination) to confirm that local markets will not disrupted. For example, it may be less disruptive to provide certain foods in the lean season rather than during the harvest season. In fact, every effort should be made to use Title II food aid to increase the productivity of the targeted groups (adequate food intake leads to improved health, which then leads to increased

productivity) and to promote local agricultural production. Guidance on conducting the Bellmon analysis may be found online at www.usaid.gov/hum_response/ffp/bellmon.htm.

- **Logistics, Packaging and Storage Considerations**: The Bellmon determination should include an assessment of in-country transportation and storage capacity. Some commodities may impose undue management or cost burdens due to unusual local conditions (e.g., transportation, storage, handling, pilferage, accounting costs, etc.), unsuitable packaging or a limited shelf life of the commodity.

The usual sources of data for considering potential market disruptions and logistical problems include past evaluations of similar programs, interviews with host government authorities, and local and international PVOs and discussions with international organizations (such as the World Bank and United Nations agencies), USAID missions, USDA Agricultural Attaches and Economic/Commercial Officers at U.S. Embassies.

The final step is to rank the alternative ration packages by nutritional value, cost, and other factors, such as potential market disruptions and logistical factors. Decisions to change ration packages are easier when alternative rations and their main attributes have been examined in advance.

III. RESOURCE LIST

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3. Food and Nutrition Technical Assistance (FANTA) Project, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000 Fax 202-884-8432. E-mail: fanta@aed.org; Web site www.fantaproject.org. FANTA has the following guides:

- *Agricultural Productivity Indicators Measurement Guide.* Patrick Diskin
- *Anthropometry Indicators Measurement Guide (Draft*). Bruce Cogill
- *Food For Education Indicator Guide (Draft).* Joy Miller del Rosso and Gilles Bergeron
- *Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs.* Frank Riely, Nancy Mock, Bruce Cogill, Laura Bailey, and Eric Kenefick
- *Improving the Use of Food Rations In Title II Maternal/Child Health and Nutrition Programs (Draft.* Serena Rajabiun, Beatrice Rogers, Margarita Safdie, Anne Swindale
- *Infant and Child Feeding Indicators Measurement Guid*e. Mary Lung'aho
- *Measuring Household Food Consumption: A Technical Guide.* Anne Swindale and Punam Ohri-Vachaspati
- *Nutritional Care and Support for Persons Living with HIV/AIDS and other Affected Household Members. (forthcoming)*
- *Potential Uses of Food Aid to Support HIV/AIDS Mitigation Activities in Sub-Saharan Africa.*
- *Sampling guide. Robert* Magnani
- *Water and Sanitation Indicators Measurement Guide*. Patricia Billig, Diane Benahmane and Anne Swindale

4. FANTA/Food Aid Management. *Enhancing the Nutritional Quality of Relief Diets, Workshop Proceedings*, April 28-30, 1999. Available at www.fantaproject.org.

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15. UNHCR/WFP. *Memorandum of Understanding on the Joint Working Arrangements for Refugee, Returnee and Internally Displaced Persons Feeding Operations*. 1997 Web site: www.wfp.org/eb_public/EB.2_97_English/eitem3_c1.html.

16. UNHCR/WFP. *Guidelines for Selective Feeding Programs in Emergency Situations*. Rome. February 1999. Available online at: www.wfp.-org/OP/guide/PolGuideSelect.html.

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18. WHO. *Management of Severe Malnutrition*. Geneva, 1999.

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ANNEX I : DEFINITIONS

(Source: USAID;s Automated Directives System and Food Aid Management's Lexicon)

A. USAID TERMINOLOGY

Activity Manager: That member of the strategic objective or results package team designated by the team to manage a given activity or set of activities. Member of an SO Team or sub-team who is responsible for the day-to-day management of one or more specific activity(s). The Activity Manager is selected by the SO Team, and may or may not also have the delegated authorities of a Cognizant Technical Officer (CTO), whose authority to carry out contract management functions are delegated from a Contracting or Agreement Officer.

Agency Goal: A long-term development result in a specific area to which USAID programs contribute and which has been identified as a specific goal in the Agency Strategic Plan (ASP).

Agency Objective: A development result that contributes to the achievement of an Agency goal as defined in the ASP.. Agency objectives generally denote preferred approaches or areas of emphasis for programs that support specific goals. Agency Objectives provide a general framework for more detailed planning that occurs for specific country and regional programs.

Agricultural Commodity: Agricultural commodity is defined in the Farm Bill as any agricultural commodity or products thereof produced in the United States.

Annual Estimate of Requirements (AER): The food budget proposal submitted by a PVO to A.I.D. that indicates who will receive food, how much, and how often. It provides the foundation on which call forwards of commodities are based.

Automated Directives System (ADS): The ADS comprises USAID's official, written guidance to its employees on policies, operating procedures, and delegations of authority for conducting Agency business. The ADS replaces the old AID Handbook System. The ADS is intended to help Agency employees understand their responsibilities and achieve the Agency's development goals, consistent with applicable rules, sound policy, and management practices. http://www.usaid.gov/pubs/ads/

Basic Foods: These constitute the main bulk of rations in emergency operations, and provide the majority of energy, protein, and fat required by recipients. These foods include staples (wheat, maize, sorghum, roots, tubers, etc.), vegetable oil, and protein-rich foods (e.g. pulses).

Bellmon Analysis and Determination: A ***Bellmon Analysis*** is required by US Federal law to determine that adequate storage facilities are available in the recipient country to prevent the spoilage or waste of commodity and importation of the commodity will not result in a substantial disincentive to or interference with domestic production or marketing in that country. The analysis also takes into account the Usual Marketing Requirement (UMR) of United States commercial commodities to ensure that there is no interference with this requirement. A ***Bellmon Determination*** is supported by a Bellmon Analysis, which is prepared prior to the initiation of any PL 480 programs. In countries where PL 480

commodities are already being programmed, the CS reviews the existing Bellmon analysis to determine whether the marketplace can absorb the additional commodities, and whether storage is adequate. In countries where no PL 480 program is operating, the CS must conduct its own Bellmon analysis, unless an analysis has been or is being carried out by USAID. The Bellmon Determination must be recertified each year. For multi-year development programs, the Bellmon analysis must be updated annually by the CSs.

Bills of Lading (B/L): Document used by exporters, importers and functional intermediaries to establish contract of carriage, receipt for the goods carried, and the transfer of legal title to the goods carried.

Blended Foods: PL 480 foods consisting of finely granulated precooked cereal flour, soy flour, and grains fortified with vitamins and minerals. These have shorter cooking time, easier digestibility, higher donor cost, and shorter shelf life.

Bulk commodities: Commodities that are not processed, fortified, or bagged. Whole wheat, corn, and beans are commodities that can be provided in bulk form.

Call Forward: A request initiated by the Field Office of a Cooperating Sponsor to AID for the delivery of a specified amount of food commodities to a particular country program for use over a specified period of time. A Call Forward can be made only after the DAP and AER have been approved. In response, USDA solicits bids, and arranges procurement and shipping. USDA notifies the PVO shipping department of the purchase order, the port of arrival and the estimated time of arrival.

Cargo Preference: Requirement that commodities supplied by the USG must be shipped on US-flag vessels, as established by the Merchant Marine Act of 1936 (section 901b).

Certificate of Inspection: Document certifying the condition of goods at a particular point of transit.

Certificate of Origin: A certificate stating the country in which a commodity has been grown, milled, produced, manufactured or assembled.

Chronic Food Insecurity: A state of food insecurity that arises and endures as a result of long term, not easily changed conditions, such as access to land. (See also **Transient Food Insecurity**)

Chronic Food Insecurity Indicators: Measurement of chronic food insecurity, which reflects resources access and socio-economic constraints.

Chronic Vulnerability: Long-term conditions that predispose a particular group or region to food insecurity.

Clearing and Forwarding Agent: Licensed individual or firm who takes responsibility for passing documents to customs and port authorities, and often for moving the commodities out of port to warehouses.

Commodity Credit Corporation (CCC): Operating unit of the US Department of Agriculture, under the management of an Undersecretary for International Affairs and Commodity Programs, that manages export credits, surplus stocks and acquisition of commodities for PL 480 and Section 416(b) purposes.

Commodity Eligibility List: AID circular listing PL 480 commodities available to be called forward.

Cooperating Sponsor (CS): Any foreign government, U.S. registered voluntary agency, or intergovernmental organization, which enters into an agreement with the U.S. Government for the use of P.L. 480 Title II, agricultural commodities and/or funds, including local currencies.

Cost and Freight (C&F): A pricing term indicating that the cost of the goods and freight charges is included in the quoted price. The supplier must pay the costs and freight necessary to bring the goods to the named destination, but the risk of loss or damage to the goods, as well as of any cost increases, is transferred from the seller to the buyer when the goods pass the ship's rail in the port of shipment. The buyer must purchase shipping insurance against the risk of loss and damage.

Cost, Insurance and freight (CIF): The value of procuring, loading, shipping and covering risk on commodities to a foreign destination. The seller is obligated to cover the cost of the goods, the freight charges to the named port, the freight charges to the overseas destination, and the cost of insurance against loss.

Counterpart: An entity, indigenous to the country in which a Title II program is conducted, which is associated with and is sometimes sponsored by the cooperating sponsor in the implementation of an approved Title II program.

Demurrage: Excess time for loading or unloading a vessel, railroad car, truck, etc. beyond the time agreed upon, and the penalties and liabilities related by contract to such detention.

Development Activity Proposal (DAP): The document prepared by a CS and submitted to FFP requesting funding for the implementation of a Title II program in a particular country or region. A DAP may seek approval to implement the proposed program for up to five years.

Discharge Survey: A report prepared by an independent commercial firm based on a thorough examination of the cargo when it is discharged from the vessel at the destination port. Contains an accounting of the quantity discharged in sound and in damaged condition with details relating to the nature and extent of the damage, as well as the probable cause of damage.

Docket: The quarterly list of commodities available to cooperating sponsors from which to design, program and call forward categories of food. Also includes procurement prices per MT, indicating the relative efficiency of using any commodity and suggestive of the amount of the commodity that may be approved.

Dunnage: Materials placed adjacent to or beneath stacked goods to secure them in place or to allow for ventilation during transport or storage.

Duty Free: Exempt from all customs, excise, and other duties, tolls, taxes, or government impositions levied on the act of importation or the commodities imported.

Emergency: An urgent situation in which a population is in imminent danger of increased malnutrition and mortality as a result of food shortages. It is usually caused by an event that results in human suffering and dislocation in the life of a community on an exceptional scale, and one, which the community or other authorities are unable to remedy without substantial external assistance.

Emergency Operations Program (EMOP) – World Food Programme (WFP): The mechanism whereby WFP provides emergency food for the victims of sudden disasters or abnormal droughts, and initial assistance to refugees and displaced persons.

Endowments: Financial mechanisms through which sales proceeds are deposited into an interest-bearing account with only the interest earned used to finance project activities.

Entitlement: An individual's endowment or initial resource bundle, which is transformed via production and trade into food or commodities which can be exchanged for food. (Sen 1981)

Evaluation: A relatively structured analytical effort undertaken selectively to answer specific management questions regarding USAID-funded assistance programs or activities. Evaluation focuses on *why* results are or are not being achieved, on unintended consequences, or on issues of interpretation, relevance, effectiveness, efficiency, impact, or sustainability. It addresses the validity of the causal hypothesis underlying strategic objectives and embedded in results frameworks. Evaluative activities may use different methodologies or take many different forms, e.g. ranging from highly participatory review workshops to highly focused assessments relying on technical experts.

Exchange Rate: Also "rate of exchange"; the price at which one currency can be bought with another currency or commodity such as gold. Ideally, the rate is determined by supply and demand in the foreign exchange market, but is frequently fixed by government.

Excise Tax: A form of sales tax on certain commodities.

Export Enhancement Program: Export subsidies for US farmer to export grains and oilseeds authorized by the 1985 Farm Bill. Designed to compete with the export subsidy programs of the EC, the EEP lowered previously high domestic US support prices and used on-hand surplus of agricultural inventories to subsidize exports.

Fair Market Price: Also "competitive market price"; in monetization, a sales price that reflects the value of a similar commodity in the same market and, as such, does not place local producers or traders at a marketing disadvantage.

Famine Early Warning System (FEWS): A generic term that includes methods of advance forecasting of food insecurity and famine using satellite imagery and ground-level crop, demographic and market observations. FEWS is also a USAID Africa Bureau-funded project that aggregates remotely sensed and in country collected data, which is then analyzed. The resulting information is given to decision-makers to assist them in choosing timely emergency interventions in African countries. More detailed information on FEWS may be found online at http://www.fews.org/

Field Operations Guide for Disaster Assessment and Response (FOG): The FOG was development by USAID's Office of Foreign Disaster Response (OFDA) as a reference tool for individuals sent to disaster sites to perform initial assessments or to participate as members of an OFDA Disaster Assistance Response Team (DART). The FOG contains information on general responsibilities for disaster responders, formats and reference material for assessing and reporting on populations at risk, DART position descriptions and duty checklists, sample tracking and accounting forms, descriptions of OFDA stockpile commodities, general information related to disaster activities, information on working with the military in the field and a glossary of acronyms and terms used by OFDA and other disaster response and humanitarian relief organizations.

Food Aid: Edible commodities donated to needy populations. U.S. government food aid is authorized under the agricultural appropriations bill, not foreign operations.

Food Aid Consultative Group: Established by Section 205 of the 1990 Farm Bill, this group is to meet regularly and make recommendations regarding Title II regulations, guidance and procedures. Included in the group are the AID Administrator, the USDA Under Secretary for International Affairs and representatives of each PVO participating in the Title II program or receiving planning assistance funds, plus representatives from indigenous PVOs in recipient countries.

Food, Agriculture, Conservation and Trade Act (Farm Bill, FACT Act): Public Law 101-624 passed by Congress in 1990 that extends USG loans and grants of commodities to developing countries for five years (1991-1996). Food resources are directed to five purposes:

a) to combat world hunger and malnutrition and their causes;
b) to promote broad based, equitable and sustainable development;
c) to expand international trade;
d) to develop and expand export markets for US commodities;
e) to foster the development of private enterprise and democratic participation in developing countries.

Food and Agriculture Organization of the United Nations (FAO): UN agency responsible for promoting agricultural development, dissemination of advanced agricultural techniques, combating plant/livestock diseases, promoting soil conservation, tracking global trends in food production and consumption, monitoring food deficit problems, and to promote sharing of knowledge in food processing, and food safety. The Global Information and Early Warning System (GIEWS) of FAO estimates food production and food needs in famine-prone countries.

Food Deficit Countries: Countries where food supplies are not sufficient to meet the population's demands. Neither do they produce enough nor do they have sufficient foreign exchange to pay for imports needed to meet the country's food demand.

Food for Peace: The general term applied to the food-donation program authorized by the Agricultural Trade Development and Assistance Act of 1954 (P.L. 480), as amended.

Food for Peace Officer (FFPO): USAID representative who advises and assists the mission, PVO, and counterpart personnel on P.L. 480 matters and who oversees, monitors, and manages Title II projects and activities.

Food for Progress Act: Section 1110 of the Food Security Act of 1985, as amended, authorizing use of Title I and Section 416 resources to assist emerging democracies and developing countries which are committed to expanding free enterprise by liberalizing commodity pricing, marketing, input availability, distribution, and private sector involvement. USDA is responsible for this program.

Food Security: The 1990 Farm Bill first identified the concept of food security as an objective of U.S. food assistance programs. In the Bill, food security was defined simply as "access by all people at all times to sufficient food to meet their dietary needs for productive and healthy life." The *USAID Food Aid and Food Security Policy Paper* (1995) and the *U.S. Position Paper for the World Food Summit in Rome, Italy* (November, 1995) further expanded and refined the definition to encompass the three dimensions of ***access***, (individuals and households have the resources to acquire appropriate foods for nutritious diet), ***availability*** (sufficient quality of appropriate quality food supplied via domestic production or imports) and ***utilization*** (adequate food diet available with water, sanitation and health care). Through the World Food Summit, this definition has been accepted by most nations. The USAID Food Aid and Food Security Policy Paper may be found online at http://www.usaid.gov/hum_response/ffp/fspolicy.htm

Free Alongside Ship (FAS): Transport term whereby seller is obligated to procure and deliver goods alongside the vessel, and clear them for export.

Free on Board (FOB): Export price including loading and port charges. The seller is obligated to place the goods aboard a named carrier at a specified port, obtain a clean bill of lading attesting to this performance, and pay the freight charges of inland carriers.

Global Programs or Activities: Global programs or activities refer to USAID programs or activities which take place across various regions, (i.e. they are trans-regional in nature). These types of programs are most often managed by central operating bureaus such as BHR or the Global Bureau.

Guaranteed Export Credit (GSM 102/3): USG program whereby the USDA (CCC) guarantees commercial loans for foreign purchases of US commodities.

Humanitarian Assistance: Is a broad term that includes all types of external aid to respond to as well as prevent, mitigate, and prepare for, humanitarian emergencies.

Indigenous Coping Strategies: Activities and behavior patterns adopted by households under the stress of food insecurity, including reducing food consumption, engaging in wider-ranging migration in search of wage labor possibilities and food assistance, dry season farming, sending children off to stay with distant relatives, reducing recreational activity, and selling assets including tools, land, and homes.

Initial Environmental Examination (IEE): When an AID funded activity has the potential to affect the environment, documentation is required in the form of an IEE to determine whether or not the activity will have significant adverse environmental impact. The IEE must be submitted with a DAP or TAP, and is updated annually through an Environmental Status Report (ESR) submitted with the PAA.

Inland Transport: The activity or cost of moving food from ocean port to the first point of delivery in the country within which distribution or sale will occur.

Intermediate Result: An important result that is seen as an essential step to achieving a Strategic Objective. Intermediate Results (IRs) are measurable results that may capture a number of discrete and more specific results. IRs may also help to achieve other Intermediate Results. .

Internal Transport, Storage and Handling (ITSH): The major complementary expenses of moving food within a recipient country from port to final distribution, as paid for out of the PL 480 account ITSH funds are awarded by FFP to support the costs of internal transport, storage, and handling incurred in Title II emergency programs.

Kansas City Commodity Office (KCCO): The United States Department of Agriculture (USDA) office is responsible for the acquisition, handling, transportation, and disposition of Title II commodities, including fiscal and claims responsibilities prior to export. More detailed information regarding KCCO may be found online at http://www.fsa.usda.gov/daco/kccoorg.htm

Leading Indicators: Measurements used when changes exist in conditions prior to the onset of decreased food access. Such indicators include, crop failures (i.e., poor access to seed and other inputs due to inadequate rainfall), sudden deterioration of range land conditions or condition of livestock (i.e., unusual migration movements, unusual number of animal deaths,

or large number of young females being offered for sale), significant deterioration in local economic conditions (i.e., increase in price of food grain and increases in unemployment), significant accumulation of livestock by some households (due to depressed prices caused by oversupply).

Local Capacity Building: The process of one organization passing on a skills and knowledge base to another organization. Very often this involves a mutual exchange or sharing of skills and knowledge, or a process of working in partnership to achieve a set of objectives. Building local capacity can take place between two or more organizations, or it can be accomplished among different levels of the same organization.

Low-Income Countries: Officially those countries with per capita income below the level used by the World Bank to determine eligibility for grants under the International Development Assistance fund.

Low Income, Food Deficit Country (LIFDC): For purposes of Title II programming, LIFDCs are those food-deficit (i.e., net importing basic foodstuffs) countries with per capita GNP not exceeding the level used by the World Bank to determine eligibility for International Development Association (IDA) (soft loan) assistance. FFP references the list published by the Food and Agriculture Organization to determine a country's status as an LIFDC.

Meals Ready to Eat (MRE): Standard USG issued, preprocessed enclosed meal, including a balanced mix of foods, for consumption during wartime by US troops, and distributed on occasion as foreign aid.

Minimums and Sub-Minimums: US legislative annual targets for commodity tonnage by type: (a) at least 75% of Title II for development programs should be in the form of processed or fortified products or bagged commodities; (b) at least 15% of the value of Title II non-emergency program food aid should be for monetization; (c) within the 1.9 million-ton minimum, a sub-minimum of 1.3 million metric tons for non-emergency programs operated by the PVOs, the World Food Program and the cooperatives; (d) at least 75% of all food aid shipped must be on a US flag carrier; and (e) at least 252,000 of Title II commodities should be loaded and shipped out of US Great Lakes ports.

Monetization: The selling of agricultural commodities to obtain foreign currency for use in U.S. assistance programs. PVOs monetize USG donated commodities through PL480 Title II and USDA programs. Monetization can be conducted by direct negotiation with government parastatals or through sealed-bid auctions to wholesalers and mid-level merchants. 1995 US legislation requires that a minimum of 15% of Title II food aid be monetized each year.

Monetization Field Manual (MFM): Published by USAID in 1998, this manual defines and describes the requirements of both partial and 100% monetization programs. It provides guidelines on how to develop a monetization program. The manual may be found online at http://www.usaid.gov/hum_response/ffp/ffp.htm.

Office of Foreign Disaster Assistance (OFDA): The office within the Bureau for Humanitarian Assistance administers international disaster relief, management and preparedness program and aids victims of natural disasters throughout the world.

Output: The product of a specific action, e.g., number of people trained, MT of food delivered. A tangible, immediate, and intended product or consequence of an activity within an organization's control or manageable interest.

Parastatal: A business owned and controlled by a government.

Participation: The active engagement of partners and customers in sharing ideas, committing time and resources, making decisions, and taking action to bring about a desired development objective.

Performance Baseline: The value of a performance indicator at the beginning of a planning and/or performance period. A performance baseline is the point used for comparison when measuring progress toward a specific result or objective. Ideally, a performance baseline will be the value of a performance indicator just prior to the implementation of the activity or activities identified as supporting the objective that the indicator is meant to measure.

Performance Indicator: A particular characteristic or dimension used to measure intended changes defined by an organizational unit's results framework. Performance indicators are used to observe progress and to measure actual results compared to expected results. Performance indicators serve to answer "whether" a unit is progressing towards its objective, rather than why/why not such progress is being made. Performance indicators are usually expressed in quantifiable terms, and should be objective and measurable (numeric values, percentages, scores and indices). Quantitative indicators are preferred in most cases, although in certain circumstances qualitative indicators are appropriate.

Performance Monitoring: A process of collecting and analyzing data to measure the performance of a program, process, or activity against expected results. A defined set of indicators is constructed to regularly track the key aspects of performance. Performance reflects effectiveness in converting inputs to outputs, outcomes and impacts (i.e., results).

Performance Monitoring Plan: A detailed plan for managing the collection of data in order to monitor performance. It identifies the indicators to be tracked; specifies the source, method of collection, and schedule of collection for each piece of datum required; and assigns responsibility for collection to a specific office, team, or individual. At the Agency level, it is the plan for gathering data on Agency goals and objectives. At the Operating Unit level, the performance monitoring plan contains information for gathering data on the strategic objectives, intermediate results and critical assumptions included in an operating unit's results frameworks.

Performance Monitoring System: An organized approach or process for systematically monitoring the performance of a program, process or activity towards its objectives over time. Performance monitoring systems at USAID consist of, *inter alia*: performance indicators, performance baselines and performance targets for all strategic objectives, strategic support objectives, special objectives and intermediate results presented in a results framework; means for tracking critical assumptions; performance monitoring plans to assist in managing the data collection process, and; the regular collection of actual results data.

Performance Target: The specific and intended result to be achieved within an explicit time frame and against which actual results are compared and assessed. A performance target is to be defined for each performance indicator. In addition to final targets, interim targets also may be defined.

Public Law (PL) 480, Titles I, II and III:

- **Title I**: Concessional loans to developing countries to purchase food or agricultural commodities determined to be surplus to the domestic and commercial export requirements of the United States by the Secretary of Agriculture. The USDA administers program.

- **Title II**: A program to provide agricultural commodities to foreign countries on behalf of the people of the United States to address famine or other urgent or extraordinary relief requirements; combat malnutrition, especially in children and mothers; carry out activities that attempt to alleviate the causes of hunger, mortality or morbidity; promote economic and community development; promote sound environmental practices; and carry out feeding programs. Agricultural commodities may be provided to meet emergency food needs through foreign governments and private or public organizations, including intergovernmental organizations. The program is administered by USAID.

- **Title III**: A government to government grants program, entitled Food for Development that is implemented by USAID in food-deficient countries. Local currency is generated by the sale of the commodities which is then utilized for economic development and policy reform activities.

Point of Entry: The first customs point, or any other designated point in a recipient country where imported commodities enter via an ocean port not located in the recipient country.

Pre-Qualification: A process whereby eligibility to bid is determined by a formal process; it might impose standards on bidders, or require a show of good faith, or might simply require registration prior to bidding.

Previously Approved Activity (PAA): The report submitted annually by a CS requesting a fiscal year allocation of commodities and dollars for a multi-year Title II activity. The term "PAA" is one of two new designations for "Operational Plan" as defined in Regulation 11.

Private Voluntary Organization (PVO): A U.S. non-profit organization registered with USAID, which traditionally deals with international programs and is funded by private grants and contributions. In other countries the term used is non-governmental organization or NGO.

Program: Generally defined as the overall efforts of an agency in a region or country. An approved plan for utilizing available Title II commodities in authorized types of development or emergency projects by a CS.

Project: A cluster of one or more activities with a single, clear purpose, usually a finite time-span for implementation, and a single project management. One level of aggregation below the program level in a country program. For food aid, a portion of a cooperating sponsor's approved Title II program.

Recipient Agency Agreements: A written agreement between the cooperating sponsor and the recipient agency prior to the transfer to a recipient agency of commodities, monetized proceeds, or other program income for distribution or implementation of an approved program.

Regulation 11: The primary USAID regulation containing detailed and specific terms and conditions governing the transfer and use of P.L. 480 Title II commodities in emergency relief and non-emergency programs.

Result: A change in the condition of a customer or a change in the host country condition that has a relationship to the customer. A result is brought about by the intervention of USAID in concert with its development partners. Results are linked by causal relationships, i.e., a result is achieved because related and/or interdependent outcomes were achieved. Strategic objectives are the highest level result for which an operating unit is held accountable; intermediate results are those results that contribute to the achievement of a strategic objective.

Results Framework: The results framework represents the development hypothesis including those results necessary to achieve a strategic objective and their causal relationships and underlying assumptions. The framework also establishes an organizing basis for measuring, analyzing, and reporting results of the operating unit. It typically is presented both in narrative form and as a graphical representation.

Results Package: A results package (RP) consists of people, funding, authorities, activities and associated documentation required to achieve a specified result(s) within an established time frame. An RP is managed by a strategic objective team (or a results package team if established) which coordinates the development, negotiation, management, monitoring and evaluation of activities designed consistent with: (1) the principles for developing and managing activities; and (2) achievement of one or more results identified in the approved results framework. The purpose of a results package is to deliver a given result or set of results contributing to the achievement of the strategic objective.

Section 416(b) of the Agricultural Act: Legislation of 1949, which allows for surplus commodities to be donated for overseas aid, for instance as grants to PVOs and to governments. Funds appropriated are not charged to the 150-budget account but are treated as domestic programs because commodities generally are taken from the US agricultural price support program. Effective December 1991, USDA took sole statutory responsibility for these donations, previously shared with AID under a memorandum of understanding. Legislated targets: Allocate a minimum of 500,000 MT of grains and oilseeds annually, 150,000 MT of dairy products annually, 5% of the value of Section 416 to monetizations by PVOs and cooperatives and allocate a minimum of 75,000 to Food for Progress. The interest arising from the principal sum only.

Section 202(e) of Farm Bill: PL 480 legislation which as of 1990 provides nearly $20 million per year to PVOs and WFP to cover complementary cash costs of food programs in the field. 202(e) grants fund only in-country expenses toward improving the management and efficiency of Title II programs.

Tariff: A tax levied by a national government on goods that are imported or, less often, exported across its borders. The amount collected is called the "duty" or "customs duty."

Third Country Monetization: A monetization in which commodities are sold in one country and the foreign currency generated is used to support the implementation of a Title II program in that country and/or another country in the same region.

Transient Food Insecurity: Seasonal or annual fluctuations in food insecurity due to factors that may be expected to change from period to period, such as prices, weather or economic conditions. (See also **Chronic Food Insecurity**)

Transparency: Policy that mandates that all phases of the monetization process be carried out openly with full public disclosure.

Triangular Transactions: Monetization activities through which the funds generated by sales in one country are used to purchase foods in surplus in another country which are then transported to a third food-deficit country or region.

Usual Marketing Requirements (UMR): Analysis required under PL480 to ensure that PL480 sales programs do not disrupt world commodity prices or normal commercial trade patterns between the importing country and other friendly countries. The UMR (calculated by USDA) is the minimum quantity of a commodity that the importing country must purchase commercially in a year to maintain the U.S. and friendly country imports to that country. Usually, it is a five year average of the importing country's commercial imports of a commodity. The importing PVO needs to obtain certification from the USAID mission that either no analysis is required because the volume to be imported is so small or that an analysis is required. UMR analysis must be included in the monetization proposal as part of the Bellmon Analysis .

Vulnerable Demographic Groups: Women, especially pregnant and lactating women, and young children (below 5 years of age) and the elderly are considered to be vulnerable because they are most likely to receive less than adequate food within a household and because the consequences of poor nutrition are most severe in these groups as compared with others in a community. Also, the handicapped and persons afflicted with chronic disease, such as HIV/AIDS, are groups that are vulnerable to inadequate food security.

Vulnerable People: There are three basic groups of people categorized by the ability to take advantage of the development process: The potentially productive and mostly subsistence, chronically malnourished, landless, rural poor, urban under-employed, who typically buy or barter more food than they produce and are continually food insecure. The unemployed in rural but mostly in urban settings, who fail to meet their energy needs and are susceptible to illnesses, which place an additional burden on the potential for earning income. The chronically ill and disadvantaged whose ability to work is severely restricted.

Waybill (WB): A document issued by a carrier that contains the same information as a Bill of Lading (origin of goods, destination, consignor, consignee, description of shipment) but, unlike the latter, does not represent a contract between the shipper and the carrier or a document of the title to the goods. It is generally a document used for tracking items sent for distribution, or for transfer between warehouses.

World Food Programme (WFP): A UN agency operating in 80 countries and specializing in food assistance and logistics. WFP channels over $1 billion worth of goods and services a year, representing approximately 1.4 million tons a year for emergencies and refugee feeding. Detailed information regarding WFP programs may be found online at http://www.wfp.org

B. SELECTED FOOD SECURITY RELATED DEFINITIONS

Activity: The work, services, or training performed under a project, as distinct from the mode of food distribution, the project's purposes, inputs or outputs.

Amino Acids: The building blocks of proteins, used throughout the body. 12 are required in the diet (organic compounds possessing at least one amino group and one acidic carboxyl group): isolucine, leucine, lysine, histidine, methionine, cystine, phenylalanine, tyrosine, threonine, tryptophan, and valine.

Anemia: A deficiency of oxygen-transport capacity of the blood that leads to fatigue, impaired work capacity increased maternal mortality, increased cardiac failure, and decreased cognitive function in humans. Results from inadequate consumption, digestion or absorption of iron, vitamin B12, vitamin B1, folic acid, or vitamin E. Outward signs include listlessness, lack of red veins evident in lining of the eyelids and whites of eyes, and pale fingernails. Anemia can also result from hemolytic (red blood cell destruction) bacterial infections, malaria, blood loss due to certain parasites or ulcers or by genetic disorders such as thalassemia or G-6-PD deficiency.

Anthropomorphic Measurement: Includes measures of distance across shoulders (biacromial), head circumference, pelvic width, arm length, skinfold (fat) thickness, and many other indicators of human physical development. Anthropometric measures are used to indirectly assess the nutritional status of individuals. Specifically, those measurements used commonly in the growth monitoring of infants, children and school-aged children and to monitor the health and diets of entire populations.

Basal Metabolic Rate (BMR): The portion of human energy, or kilocalorie, use involved in homeostasis, or merely living and breathing. Excludes work activities, walking, standing, thinking, and digestion of foods. Typically measured on a daily basis and estimated to represent between 60% and 70% of total minimum energy requirements. BMR can be as low as 30% of total requirements among the physically active. It is important to know, for instance, for calculating survival rations and food-for-work pay scales.

Bioavailability: The relative ability of nutrients in foods to be properly digested, and absorbed. For example, the iron in vegetable foods is less absorbable than the iron in meat foods. The bioavailability of iron in vegetables increases when vitamin C is also present, having been consumed during the same meal.

Body Mass Index (BMI): Measure of an individual's attained growth, measured as the body weight (kg) divided by the square of the height (meters). BMI is an indirect measure of lean body mass and body fat mass.

Complementary Foods: These are required in appropriate quantities to complement breast-feeding or the "basic" foods by providing additional nutrients - especially vitamins and minerals.

Displaced Population: (see ***Internally Displaced Persons***)

Drought: Prolonged and severe lack of water usually caused by a dearth of rainfall. Drought can occur when rainfall occurs at the wrong point in the harvest cycle. Drought also connotes the agricultural crisis and economic challenges that follow water scarcity, including famine.

Famine: Period of starvation for large portions of a population. Famine often results from a sharp downturn in food supply, such as two consecutive years of drought. Famine can also occur in situations where food is plentiful but entitlements to food sharply decrease, for instance through massive recession, unemployment, civil strife, and because of low foreign exchange and income levels of the poor in conjunction with weak infrastructure and low port offtake capacity. Famines effectively redistribute income away from the poor. Mitigation activities reduce the severity of impact. Short-cycle varieties of local crops (e.g. groundnuts or millet) are helpful strategies during crop failures.

Food Aid Management (FAM): An association of 17 US PVOs formed in 1989 to improve the efficiency and effectiveness of overseas food assistance. It promotes sharing of technical and field information among its members and the development of shared PVO food security program guidelines and operating standards. FAM's goals are to: a) facilitate and promote the

development of food aid standards, b) promote the food aid and food security knowledge base of PVOs, USAID staff, and other collaborators through information exchange and coordination, and c) facilitate collaboration between PVOs, USAID, and appropriate development and humanitarian professionals by organizing fora for discussions.

Food Basket: (see ***Food Ration***)

General Feeding Program: A program in which food is provided to enable households to meet their basic nutritional needs. Such programs may include all families within a specified population, or be "targeted" on all members of selected sub-groups.

Hunger: Hunger is the experience of having an empty stomach. Hunger should be distinguished from undernutrition, which is the process whereby a person fails to consume adequate nutrients and/or the clinical state, which follows such a failure.

Intra-household food Distribution: The distribution of food within the household.

Iron Deficiency Anemia (IDA): Widespread and debilitating micronutrient deficiency that impairs mental development and labor productivity. Iron deficiency anemia is addressed by efforts to increase iron intake (e.g. through food fortification), iron absorption (e.g. making consumed iron more bioavailable), and to reduce iron losses due to blood loss from parasistes (e.g. reducing hookworm).

Malnutrition: Impairment of physical and/or mental health resulting from a failure to fulfill nutrient requirements. Malnutrition may result from consuming too little food, a shortage of key nutrients, or impaired absorption or metabolism due to disease.

Mid-Upper Arm Circumference (MUAC): Common measure of child nutritional status that is fast, does not hinge on the accuracy of age reporting, and is quickly interpretable Used as a rapid screening tool for identifying malnourishment in children under five in emergency situations. Not suitable for monitoring the progress of individual children. MUAC is measured in centimeters.

Nutrition Security: Appropriate quantity and combination of food, nutrition, health services, and care takers time needed to ensure adequate nutrition status for an active and healthy life at all times for all people.

On-site or "wet" Feeding: When the food is cooked and distributed for consumption at the distribution center. This type of feeding is generally used in supplementary feeding for selected, highly vulnerable groups.

Ration Package: A combination of selected food commodities in fixed amounts determined for the purpose of meeting nutritional needs or providing an incentive.

Internally Displaced Persons (IDP): Persons who have fled their homes and villages because of persecution, civil strife, food insecurity or other emergency but remain within their country of origin. This definition is used by those who distinguish between displaced and refugee categories as non-overlapping. i.e., once a dislocated person crosses an international border they are no longer "displaced" and then and only then become a "refugee" or asylum seeker.

Micronutrients: Vitamins and minerals required for human health and survival. A lack of micronutrients can contribute significantly to morbidity and mortality. Micronutrients play and important part in short-term human health, risk of death, and in long-term human function.

PVO Monetization Manual: In FY98, the FAM Monetization Working Group commissioned the publication of an updated monetization manual for use by all CSs engaged in the monetization of Title II commodities. The manual may be found online at http://www.foodaid.org/manual.htm

Refugee: "Persons recognized as refugees under the 1951 United Nations Convention relating to the Status of Refugees or its 1967 Protocol, the 1969 Organization of African Unity (OAU) Conventions Governing Specific Aspects of Refugee Problems in Africa, persons recognized as refugees in accordance with the UNHCR Statute, persons granted humanitarian or comparable status and those granted temporary protection."

Starvation: Starvation is life-threatening undernutrition, when a poor nutritional state unilaterally raises vulnerability to mortality through any means (De Waal 1991). Physical and biological condition describing chronic lack of food, which leads to death.

Supplementary Feeding: A program in which food is provided to selected individuals to prevent or treat malnutrition. The beneficiaries are selected, according to prescribed criteria, as being malnourished and/or nutritionally at risk, and are discharged when it is determined that they are no longer malnourished or at risk. The rations are additional to what the beneficiaries would normally receive as their share of the general household ration and food commodities selected reflect the unique physiological needs of this group.

Take-home or "Dry" Distribution: Food distributed in bulk and without cooking. Generally, several days or weeks' worth of supplies are provided. The food is expected to be shared by all family members.

Targeting: Any method by which an intervention is designed or implemented so that benefits accrue selectively to only a portion of the overall population. Targeting can be by geographic concentration, eligibility requirements such as age, sex or health status, or by means tests that assess household income. The efficiency of targeting decreases as the proportion of the population that is food insecure increases. Targeting generally becomes inefficient when the targeted group comprises 50% or more of the population.

Weight-for-Age (underweight): Most common method of assessment is the proportion of children below -2 standard deviations (S.D.) weight-for-age or less than 80% of the standard reference weight for age (measurement in kilograms compared with age in months in children under five.)

Weight-for-Height (WFH) (wasting): Ratio of weight in grams to height in centimeters, WFH is the preferred measure for the nutritional status of children under five, because it can be used for both nutritional surveillance and for measuring individual progress. The raw WFH score is compared with international norms and converted into either a percentage of a reference median or a "Z" score. Children with a score less than 80% WFH or –2 Z are considered "wasted." Children under 70% WFH or –3 Z are considered severely malnourished.

Z Scores are a statistical parameter that measures the position of an observational value along a normal distribution (binomial, bell curve) continuum. In field assessments it is commonly used to evaluate individual and groups of infants and children according to their physical growth and nutritional status. A Z score of -2.0 means that the individual falls two standard deviations below the population standard. A -2.0 anthropometric measure indicates that 98% of healthy children have higher growth. A Z score even lower, -2.5 to -3 is suggestive.

ANNEX II: Resources for Emergency, Food Security and Nutrition Related Performance Indicators

USAID's Managing-for-Results Policy

The Government Performance and Results Act (GPRA) of 1993 requires all U.S. government departments and agencies to develop strategic plans and to measure performance against objectives. To comply with the GPRA, USAID developed a "Managing-for-Results" policy in consultation with collaborating sponsors (CSs) and other donors. This policy led to the creation of specific guidance, concepts, and terms for measuring the performance and impact of humanitarian assistance programs. For USAID's Bureau for Humanitarian Response (BHR), the ultimate beneficiaries of this policy are vulnerable populations in targeted host countries. In an effort to measure the impact of Title II food aid programs on vulnerable populations, BHR's Office of Food for Peace (FFP) urges that all food aid proposals include performance monitoring and measurement plans. These plans should include goal, objective and intermediate result statements, and each objective and intermediate result should have at least one performance indicator to track progress toward achievement

Definition of Goal, Objectives and Intermediate Results

A ***goal*** is a longer-term result, which is usually not achievable over the life of a CS's program. However, Title II program proposals should be designed to contribute toward the achievement of the goal. ***Strategic Objectives*** are defined as the end results that CSs seek to achieve through the proposed program. ***Intermediate Results*** are interim result targets. Result statements are usually stated in the past tense of an action verb. Some examples are as follows:

- Sustainable farm-level production capacity established
- Increased market access for small farmers
- Improved policy environment for broad-based food security programs

Definition of Indicators

Performance Indicators are variables with a particular characteristic or dimension used for measuring progress toward achievement of objectives and intermediate results. These indicators determine whether progress is being made toward stated results, rather than a statement as to why such progress is not being made. ***Performance indicators*** must be direct, measurable and sufficiently sensitive to capture small changes over short periods of time. Further, the indicators must be relevant, practical and cost-effective. Performance indicators may be visualized as signposts to indicate movement toward a destination. There are several types of indicators.

An ***output/process*** indicator measures activity, such as the following:

- Percent of food aid managers trained in improved project accountability
- Number of vulnerable groups receiving emergency food aid
- Quantity of food delivered through school lunch programs

Effect indicators gauge the degree of behavioral change in the assisted population. Examples of these indicators are changes in people's attitudes on improved diet and nutrition, the importance of pre-natal care or changes in perception on breast-feeding.

Impact indicators measure the fundamental changes in people's well being. Some examples are as follows:

- Average annual income per capita
- Morbidity and mortality rates
- Percent of population living below an established poverty line

Performance indicators can be measured quantitatively or qualitatively. ***Quantitative measures*** answer questions such as "how many?", "how much?" and "what percent?" Examples of quantitative information are data from food delivery records, health clinic records, and death records. ***Qualitative measures*** are subjective (e.g., changes in people's attitudes, perceptions and well being, etc.) and therefore, require indirect methods to quantify. These indirect methods include interviews, focus group discussions and rapid assessments.

Establishment of Performance Indicators

There are several reference documents that may be used to assist CSs in developing performance indicators. Some of the more useful documents are identified below by category.

- **Nutritional Status**: Anthropometric Measures (height/age; weight/height; weight/age) are typically used to measure the nutritional status of children, although it can also be used for adults. That said, Body Mass Index (BMI) is now considered to be a better measurement of nutritional status for adults. The BMI determines body mass by relating body weight to surface area rather than height and is calculated by dividing the square of a person's height squared divided by their weight. For detailed guidance on the use of anthropometry measurement, please see Annex 3 of WHO's *The Management of Nutrition in Major Emergencies* and the *Antropometry Measurement Guide*, which is listed under the FANTA publications in the Resource List at the end of this Annex.

- **Maternal and Child Health and Nutrition (MCHN)**: For useful guidance on establishing indicators for food aid programs focused on improving the nutritional status of women and children, please see Annex 2 of UNHCR/WFP's *Supplementary Feeding for Mothers and Children: Operational Guidelines*; M*easuring Household Food Consumption: Analyzing Data* prepared by FANTA and *Infant and Young Child Feeding Emergencies* prepared by LINKAGES. Both documents are listed in the Resource List at the end of this Annex.

- **Food Security:** For a complete list of generic food security indicators, please see Appendix 26 of FANTA's *Measuring Household Food Consumption: Analyzing Data.*

- **Emergency**: For useful guidance on developing performance indicators for emergency programs, please see the chapter on Minimum Standards in Food Aid of the SPHERE Project's *Humanitarian Charter and Minimum Standards in Disaster Response;*

UNHCR/WFP's *Guidelines for Selective Feeding Programmes in Emergency Situations;* and Annex 7 of WHO's *The Management of Nutrition in Major Emergencies*.

Development and Use of Baseline Data

For each performance indicator, a ***baseline*** is necessary. This is crucial in measuring progress toward an intermediate result or objective. Depending on the type of performance indicator being measured, the baseline data can be a point-in-time observation, a cumulative or an average value over a period of time.

One key to success with the Managing-for-Results approach is the involvement of all stakeholders in the design and implementation of Title II food aid programs. When all stakeholders are engaged, resources are better utilized, funds better leveraged, results are more relevant and an efficient and effective transfer of program activities to local counterparts and institutions is more likely.

For more detailed guidance on performance monitoring and measurement, please see USAID's *Managing for Results Terminology* in Annex 1 and USAID/CDIE's *Performance Monitoring and Evaluation Tips*, which is available online at www.dec.org/usaid_eval.

RESOURCE LIST

1. Food and Nutrition Technical Assistance (FANTA) Project, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax 202-884-8432. E-mail: fanta@aed.org; Web site http://www.fantaproject.org. FANTA has the following guides:

   - *Agricultural Productivity Indicators Measurement Guide*, Patrick Diskin
   - *Anthropometry Indicators Measurement Guide* (draft)., Bruce Cogill
   - *Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs*, Frank Riely, Nancy Mock, Bruce Cogill, Laura Bailey, and Eric Kenefick
   - *Household Food Consumption Indicators Measurement Guide*, Anne Swindale and Punam Ohri-Vachaspati
   - *Infant and Child Feeding Indicators Measurement Guide*, Mary Lung'aho
   - *Measuring Household Food Consumption: A Technical Guide*
   - *Measuring Household Food Consumption: Analyzing Data*
   - *Sampling guide*, Robert Magnani
   - *Water and Sanitation Indicators Measurement Guide*, Patricia Billig, Diane Benahmane and Anne Swindale

2. Food Aid Management (FAM), 1625 K Street, NW, 5th Floor Washington, DC 20006. Tel: (202) 223-4860, Fax: (202) 223-4862; Web site http://www.foodaid.org. Provides USAID documents (FY 1990-ongoing).

3. Linkages Project. *Recommended Feeding and Dietary Practices to Improve Infant and Maternal Nutrition*, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, D.C., 20009-5721. Tel: 202-884-8000; Fax: 202-884-8977; E-mail: linkages@aed.org.

4. Linkages Project. *Infant and Young Child Feeding Emergencies*, Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, DC 20009-5721, April 1997.. Tel: 202-884-8000; Fax: 202-884-8977; E-mail: linkages@aed.org.

5. National Research Council. *Recommended Dietary Allowances.* National Academy Press, Washington, D.C., 1989.

6. The Sphere Project. *Humanitarian Charter and Minimum Standards in Disaster Response*, PO Box 372, 17 Chemin des Crets, CH-1211 Geneva 19, Switzerland, 2000. Tel: 011-41-22-730-4501; Fax: 011-41-22-730-4905; E-mail: sphere@ifrc.org; Web site: http://www.sphereproject.org.

7. USAID/BHR. *Menu of Sector-Specific Humanitarian Assistance Performance Indicators*, Checchi-Louis Berger International, Inc., 1819 H Street, Suite 900, Washington, DC 20006. Tel: 202-331-7775.

8. USAID/CDIE. *Performance Monitoring and Evaluation Tips*. 1996. Web site: http://www.usaid.gov/pubs/usaid_eval/#02

9. WFP/WHO *Supplementary Feeding for Mothers and Children: Operational Guidelines (Provisional),* World Food Programme, Via Cesare Giulio Viola 68, Parco dé Medici, Rome 00148, Italy, August 1998. Tel: 011-3906-6513-1; Fax: 011-3906-6590-632 or 637; E-Mail: Pieter.Dijkhuizen@wfp.org and Mokbelm@who.ch. Web site: http://www.wfp.org.

10. WFP/UNHCR *Selected Feeding Guidelines in Refugee and Emergency Situations*, World Food Programme, Via Cesare Giulio Viola 68, Parco dé Medici, Rome 00148, Italy. Tel: 011-3906-6513-1; Fax: 011-3906-6590-632 or 637; E-Mail: Pieter.Dijkhuizen@wfp.org and Mokbelm@who.ch. Web site: http://www.wfp.org.

11. WHO. *The Management of Nutrition in Major Emergencies*. Geneva, 2000.

Annex III: Recommended Energy Allowances (REA)[1]

Table 1: REA for Light to Moderate Activity Levels

Category	Age (years) or Condition	Weight (kg)	Weight (lb)	Height (cm)	Height (in)	Kcal per kg	Total kcal/day[2]
Infants	0.0-0.5	6	13	60	24	108	650
	0.5-1.0	9	20	71	28	98	850
Children	1-3	13	29	90	35	102	1300
	4-6	20	44	112	44	90	1800
	7-10	28	62	132	52	70	2000
Females	11-14	46	101	157	62	47	2200
	15-18	55	120	163	64	40	2200
	19-24	58	128	164	65	38	2200
	25-50	63	138	163	64	36	2200
	51+	65	143	160	63	30	1900
Males	11-14	45	99	157	62	55	2500
	15-18	66	145	176	69	45	3000
	19-24	72	160	177	70	40	2900
	25-50	79	174	176	70	37	2900
	51+	77	170	173	68	30	2300
Pregnant	1st trimester						+0
	2nd trimester						+300
	3rd trimester						+300
Lactating	1st 6 mo						+500
	2nd 6 mo						+500

Adapted from Table 3-5 in *Recommended Dietary Allowances*, National Research Council, National Academy Press, Washington, D.C. 1989

[1] REA expressed in kcal/day
[2] In the range of light to moderate activity, the coefficient of variation is about 20%. Figures are rounded.

Table 2: REA for Breastfeeding Children 6 Months to 5 Years

Age in Months	Daily Energy Requirement[1]	Kilocalories needed from complementary foods per level of Breastmilk (BM) intake[2]		
		High BM intake	Average BM intake	Low BM intake
6-8	680 kcal	75	270	465
9-11	830 kcal	230	450	675
12-23	1090 kcal	490	750	1000

Adapted from Table 1 in *Recommended Feeding and Dietary Practices to Improve Infant and Maternal Nutrition*, 1999, by the Linkages Project

[1] Figures are rounded.
[2] Estimates of average breastmilk intake are: 410 kcal for 6-8 mo old and 340 kcal for a 12-23 mo old. These estimates should be adjusted for the size of the infant.

Annex III, Table 3: REA, Heavy Activity Level–Adults

Based on multiples of Resting Energy Expended (REE)

Category	Age (years) or Condition	Weight (kg)	Weight (lb)	Height (cm)	Height (in)	REE[1]	Multiple of REE[2]	Total kcal/day[3]
Females	11-14	46	101	157	62	1310	1.82	2400
	15-18	55	120	163	64	1370	1.82	2500
	19-24	58	128	164	65	1350	1.82	2500
	25-50	63	138	163	64	1380	1.82	2500
	51+	65	143	160	63	1280	1.82	2300
Males	11-14	45	99	157	62	1440	2.10	3000
	15-18	66	145	176	69	1760	2.10	3700
	19-24	72	160	177	70	1780	2.10	3700
	25-50	79	174	176	70	1800	2.10	3800
	51+	77	170	173	68	1530	2.10	3200
Pregnant	1st trimester							+0
	2nd trimester							+300
	3rd trimester							+300
Lactating	1st 6 mo							+500
	2nd 6 mo							+500

Adapted from Table 3-5 *Recommended Dietary Allowances*, National Research Council, National Academy Press. Washington, D.C. 1989 and WHO, 1985, *Energy and Protein Requirements Report of a Joint FAO/WHO/UNU Expert Consultation,* World Health Organization in Geneva, p.78.

[1] Calculation based on WHO (1985) equations. These equations are derived from basal metobalic rate (bmr) data. Figures are rounded.
[2] These REE multiples are for heavy activity levels only and are based on WHO (1985) equations.
[3] Figures are rounded.

Annex IV: Recommended Dietary Allowances[a], Revised 1989

							Fat-Soluble Vitamins				Water-Soluble Vitamins							Minerals						
	Age (years)	Weight[a]		Height[b]		Protein	Vitamin A	Vitamin D	Vitamin E	Vitamin K	Vitamin C	Thiamin	Riboflavin	Niacin	Vitamin B_6	Folate	Vitamin B_{12}	Calcium	Phosphorus	Magnesium	Iron	Zinc	Iodine	Selenium
Category	or Condition	(kg)	(lb)	(cm)	(in)	(g)	(IU)[c]	(IU)[d]	(mg ∝-TE)[e]	(µg)	(mg)	(mg)	(mg)	(mg NE)[f]	(mg)	(µg)	(µg)	(mg)	(mg)	(mg)	(mg)	(mg)	(µg)	(µg)
Infants	0.0-0.5	6	13	60	24	13	1,249	300	3	5	30	0.3	0.4	5	0.3	25	0.3	400	300	40	6	5	40	10
	0.5-1.0	9	20	71	28	14	1,249	400	4	10	35	0.4	0.5	6	0.6	35	0.5	600	500	60	10	5	50	15
Children	1-3	13	29	90	35	16	1,332	400	6	15	40	0.7	0.8	9	1.0	50	0.7	800	800	80	10	10	70	20
	4-6	20	44	112	44	24	1,665	400	7	20	45	0.9	1.1	12	1.1	75	1.0	800	800	120	10	10	90	20
	7-10	28	62	132	52	28	2,331	400	7	30	45	1.0	1.2	13	1.4	100	1.4	800	800	170	10	10	120	30
Males	11-14	45	99	157	62	45	3,330	400	10	45	50	1.3	1.5	17	1.7	150	2.0	1,200	1,200	270	12	15	150	40
	15-18	66	145	176	69	59	3,330	400	10	65	60	1.5	1.8	20	2.0	200	2.0	1,200	1,200	400	12	15	150	50
	19-24	72	160	177	70	58	3,330	400	10	70	60	1.5	1.7	19	2.0	200	2.0	1,200	1,200	350	10	15	150	70
	25-50	79	174	176	70	63	3,330	200	10	80	60	1.5	1.7	19	2.0	200	2.0	800	800	350	10	15	150	70
	51 +	77	170	173	68	63	3,330	200	10	80	60	1.2	1.4	15	2.0	200	2.0	800	800	350	10	15	150	70
Females	11-14	46	101	157	62	46	2,664	400	8	45	50	1.1	1.3	15	1.4	150	2.0	1,200	1,200	280	15	12	150	45
	15-18	55	120	163	64	44	2,664	400	8	55	60	1.1	1.3	15	1.5	180	2.0	1,200	1,200	300	15	12	150	50
	19-24	58	128	164	65	46	2,664	400	8	60	60	1.1	1.3	15	1.6	180	2.0	1,200	1,200	280	15	12	150	55
	25-50	63	138	163	64	50	2,664	200	8	65	60	1.1	1.3	15	1.6	180	2.0	800	800	280	15	12	150	55
	51 +	65	143	160	63	50	2,664	200	8	65	60	1.0	1.2	13	1.6	180	2.0	800	800	280	10	12	150	55
Pregnant						60	2,664	400	10	65	70	1.5	1.6	17	2.2	400	2.2	1,200	1,200	320	30	15	175	65
Lactating	1st 6 months					65	4,329	400	12	65	95	1.6	1.8	20	2.1	280	2.6	1,200	1,200	355	15	19	200	75
	2nd 6 months					62	3,996	400	11	65	90	1.6	1.7	20	2.1	260	2.6	1,200	1,200	340	15	16	200	75

[a] The allowances, expressed as average daily intakes over time, are intended to provide for individual variations among most normal persons as they live in the United States under usual environmental stresses. Diets should be based on a variety of common foods in order to provide other nutrients for which human requirements have been less well defined. See text for detailed discussion of allowances and of nutrients not tabulated.

[b] Weights and heights of Reference Adults are actual medians for the U.S. population of the designated age, as reported by National Health and Nutrition Examination Survey (II), 1979. The median weights and heights of those under 19 years of age were taken from Hamill et al. (1979). The use of these figures does not imply that the height-to-weight ratios are ideal.

[c] Conversion of IU to retinol equivalents (RE): 3.33 IU = 1 microgram (µg) of retinol = 1 RE or 6 µg, β-carotene.

[d] As cholecalciferol. 10 µg cholecalciferol = 400 IU of vitamin D.

[e] ∝-Tocopherol equivalents. 1 mg d-∝ tocopherol = 1 ∝-TE.

[f] 1NE (niacin equivalent) is equal to 1 mg of niacin or 60 mg of dietary tryptophan.

(Source: Adapted from *Recommended Dietary Allowances* , National Research Council, National Academy Press. Washington, D.C. 1989)

ANNEX V: Illustrative Price List of Commodities [1]

Table 1

Commodities	$CCC Value per MT [2]
Beans, Black	$818
Beans, Great Northern	577
Beans, Kidney (All types)	700
Beans, Navy (Pea Beans)	573
Beans, Pinto	401
Bulgur (BW)	178
Bulgur, Soy-Fortified	191
Corn (bagged, bulk)	122
Cornmeal	194
Cornmeal, Soy-Fortified	209
Corn Soy Blend (CSB)	260
Corn Soy Masa Flour	199
Lentils	374
Peas, Green	277
Rice (milled, non-parboiled, bagged, bulk)	350
Sorghum (bagged, bulk)	115
Sorghum Grits, Soy Fortified (SFSG)	250
Soybeans (bulk)	220
Soybean Meal (bulk)	180
Fortified Refined Vegetable Oil(4 Ltr)	725
Wheat (bulk, hard, red, winter)	123
Wheat Flour (AP and bread flour)	228
Wheat Soy Blend (WSB)	376

*Illustrative prices, not all commodities shown.

[1] As of June 2000
[2] CCC define