

Burmese Border Consortium

Nutrition and Food Security for Refugees, October 2003

SUMMARY

Since the first group of refugees arrived in Thailand in 1984, the BBC food basket has evolved from only 50% rice to a full basket. Over the years, opportunities to supplement the food basket have decreased substantially, and the refugees are now dependent on food aid.

This report outlines the main elements of nutrition and food security activities in the camps.

BBC FOOD BASKET

The BBC Food Basket Provides:

- an average of just under 2250 kcal per person per day (average of adult and child rations) and 79% carbohydrates, 8% protein, and 13% fat
- inadequate amounts of most vitamins and minerals
- few foods easily used for complementary feeding (feeding young children) or weaning food

SUPPLEMENTARY FEEDING

Supplementary feeding is supported by BBC and administered by the medical agencies in the camps

- target groups include pregnant and lactating women, malnourished children, and TB and other chronically ill patients, including disabled persons.
- most of the feedings are distributed as dry, take home rations that are prepared in the home (except therapeutic feeding)

CCSDPT NUTRITION SURVEYS

Nutrition surveys were conducted and reported in all camps (excluding Tham Hin) by health agencies in early 2003 using guidelines prepared by BBC.

- There were *few acutely malnourished* (thin) children (3.3%) and a *high number of chronically malnourished* (short) children (38.8%).

VITAMIN A

BBC oversees the procurement via UNICEF and distribution of vitamin A supplements to the camps for prevention of vitamin A deficiency, which can lead to permanent blindness.

- target groups include children < 12 years and lactating women
- Vitamin A coverage is over 95% in most camps reporting.

BERIBERI

Beriberi continues to be reported by the health agencies in the camps. However, following the inclusion of a more concise case definition and training for medics on diagnosing beriberi, current statistics show a downward trend in cases.

INDICATORS

Indicators are reviewed and limitations outlined.

PROGRESS AND PLANS FOR 2004

Blended Food

BBC has contracted with a Nepali supplier for blended food production (used by WFP). Following thorough explorations in Thailand, it has been discovered that is the most economical way to produce it.

The blended food will be a mix of whole wheat and soy, milled to a flour with added vitamins and minerals.

Blended food will be piloted and evaluated in Site 1 (former Camp #2) in January, 2004, for 2 months. A report will be presented to the Ministry of Interior for review and approval for introduction into other camps.

Assuming that the blended food will be approved, BBC will begin implementing into other camps on a monthly basis beginning in April and to be completed by Jan 05.

COMMUNITY AGRICULTURE AND NUTRITION PROJECT

Outline of activities for 2003 and 2003/4.

BACKGROUND

BBC FOOD BASKET

- the **CURRENT BBC FOOD BASKET** includes the items listed below. The basket is distributed in full for adults and in ½ quantities of rice, beans, and oil for children < 5 years. The total amount planned for distribution is based on an average ration calculation using the percent of adults and children under five in the population.

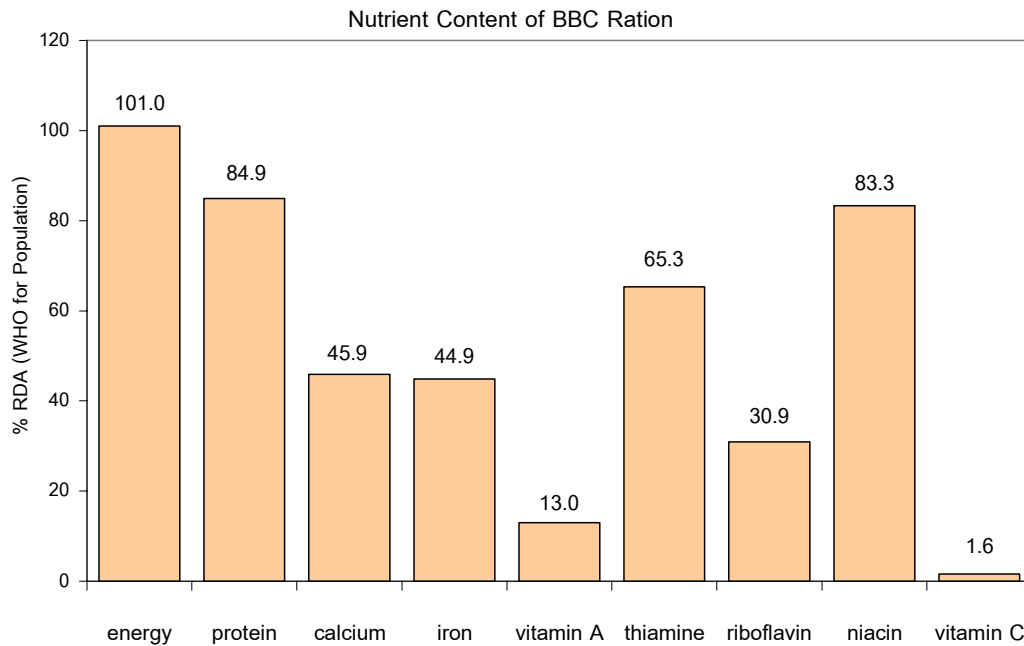
Current BBC Food Basket

Food Item	Adult - per month	Adult - per day (/30 days)	Child – per day	average per person day*
rice	16 kg	533 g	267 g	499 g
split mung bean (yellow, hulled)	1.5 kg	50 g	25 g	47 g
fermented fish	1 kg	33 g	33 g	33 g
iodized salt	300 g	10 g	10 g	10 g
soybean oil	914 g (1 L)	30 g	15 g	28 g
condiments	125 g (dried chilli)	4 g	4 g	4 g
Average BBC Ration				
		kcal	protein	fat
		2246 (79%)	48 g (8%)	32 g (13%)

*average ration = adult ration x .87 + child ration x .13 (child = children < 5 years)

- the BBC Food Basket Provides:**
 - an average of just under 2250 kcal per person per day (average of adult and child rations) and 79% carbohydrates, 8% protein, and 13% fat
 - inadequate amounts of most micronutrients
 - few foods easily used for complementary feeding or weaning food
- World Food Programme/UNHCR Guidelines (Sphere Minimum Standards)**
 - provide a minimum average of 2,100 kcal per person per day in ration, 10-12% protein, at least 17% fat
 - provide essential micronutrients
 - provide an appropriate weaning foods in the ration

- The graph below shows the BBC ration distributed in comparison with WHO recommendations for rations (minimum of 2100 kcal, 10-15% protein, 17% fat and population RDA for micronutrients).



- The ration is adequate in energy (kcal), but less than 10% protein and lacking in many micronutrients.
- Kilocalorie requirements were calculated according to the specific demographic profile of the camp population border wide at 2224 kcal per person per day.

age group	male			female			male and female		
	% pop*	requirement		% pop	requirement		% pop	requirement	
0-5	6.8%	1320	89.76	6.5%	1250	81.25	13.2%	1290	170.28
5-10	6.4%	1980	126.72	6.3%	1730	108.99	12.6%	1860	234.36
10-15	7.4%	2370	175.38	6.9%	2040	140.76	14.3%	2210	316.03
15-20	5.9%	2700	159.3	5.5%	2120	116.6	11.5%	2420	278.3
20-60	23.0%	2460	565.8	21.7%	1990	431.83	44.7%	2230	996.81
60+	1.8%	2010	36.18	1.7%	1780	30.26	3.6%	1890	68.04
preg				2.4%	285	6.84	2.4%	285	6.84
lact				2.6%	500	13	2.6%	500	13
whole pop	51.3%		2306	48.6%		1859	1.049		2084
* UNHCR 30 June 03									140
									add for moderate activity level
									average kcal /person /day
									2224

SUPPLEMENTARY FEEDING

- Supplementary feeding is supported by BBC and administered by the medical agencies in the camps
 - target groups include pregnant and lactating women, acutely malnourished children, and TB and other chronically ill patients, including some disabled persons.
 - most of the feedings are distributed as dry, take home rations that are prepared in the home (except therapeutic feeding)
 - foods include eggs, mung beans, dried fish, milk powder, etc.

Exit and Entrance Criteria

PROGRAM	ENTRANCE	EXIT
MALNOURISHED CHILDREN Supplementary Feeding	❖ < 80% weight-for-height or < -2 SD	Dry Feeding ❖ maintain 85% median weight-for-height for ONE MONTH Wet Feeding ❖ maintain 85% median weight-for-height for 2 WEEKS
MALNOURISHED CHILDREN Therapeutic Feeding	❖ < 70% weight-for-height or < -3 SD ❖ oedema	❖ > 75% weight-for-height for TWO WEEKS – REFER to SFP ❖ good appetite, free from illness
PREGNANT WOMEN	❖ at diagnosis of pregnancy	
LACTATING WOMEN		❖ lactation to 9 months after delivery

*adapted from WHO/UN Recommendations

- Supplementary Feeding programs do not treat chronically malnourished children unless they are severely malnourished.
 - the feeding is intended for short-term treatment of acute malnutrition and does not address chronic malnutrition
 - Supplementary Feeding enrolment rates may be lower than malnutrition rates determined from surveys for some camps, indicating that some children are not being identified and treated

Supplementary Feeding Enrolment Rates – Jan-Jun 03

	6 Month Average		Pop. < 5 Years	% of Pop. < 5 years	
	Mod	Sev		Mod	Sev
Total	189	8		1.0%	0.04%
Total Malnutrition	197		18,942	1.04%	

Range in enrolment between camps was 0.34% - 4.66% of < 5 population

Notes: Figures are based on the average number of patients registered during each month, Mod=Moderate (<80% WFH), Sev=Severe (<70% WFH)

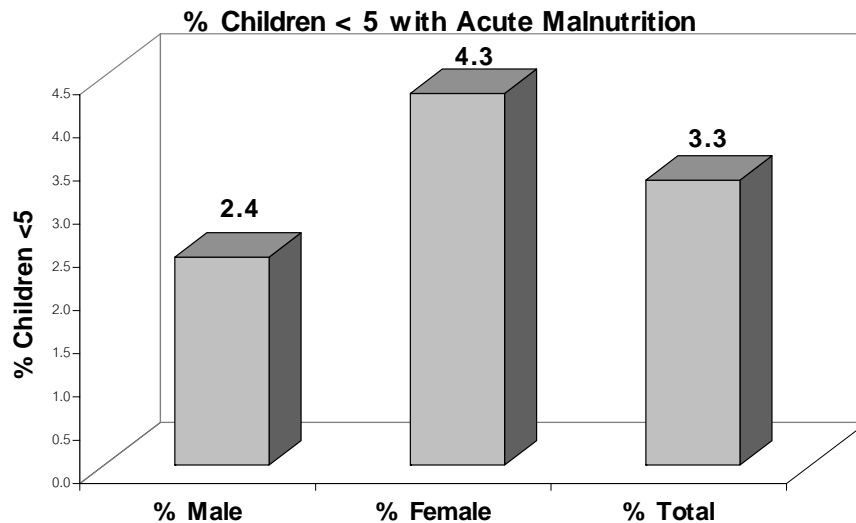
Population figures from medical agencies via CCSDPT Common Data form

UPDATE ON NUTRITION STATUS OF REFUGEES

CCSDPT Nutrition Surveys

Nutrition surveys were conducted and reported in all camps (excluding Tham Hin) by health agencies in early 2003 using guidelines prepared by BBC. Surveys are expected to be conducted annually to ensure ongoing nutrition surveillance.

- As per the usual trend in the camps, there were **few acutely malnourished** (thin) children. More girls were malnourished than boys, but significance was not tested (raw data are unavailable).
- The total rate reported from 5 camps during the last period was 4.9%. The difference may be due to actual reduction in malnutrition, but is more likely due to errors in measurement. BBC will follow up with the health agencies to ensure standardization of future data collection and analysis.



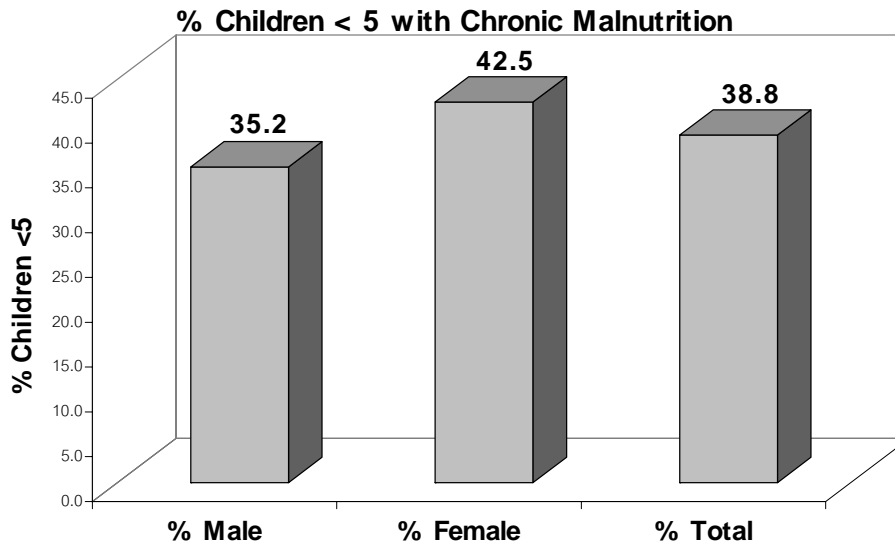
According to the WHO Classification, the border wide rate of acute malnutrition is acceptable.

WHO Classification of Severity for Acute Malnutrition	
severity	prevalence in < 5 population
acceptable	< 5%
poor	5-9%
serious	10-14%
critical	≥ 15%

- acute malnutrition = low weight for height (<80% median or <-2SD)
 - caused by acute shortage of food or illness
 - result – thin, wasted child
 - may be reversed in the short-term

There are a **high number of chronically malnourished** (too short) children in the camps, and higher among girls than boys (significance was not tested).

- The total rate reported from the last period as 42.6%. Again, the difference may be due to actual reduction in malnutrition, but is more likely due to errors in measurement.



- According to the WHO Classification, the border wide rate of chronic malnutrition is high.

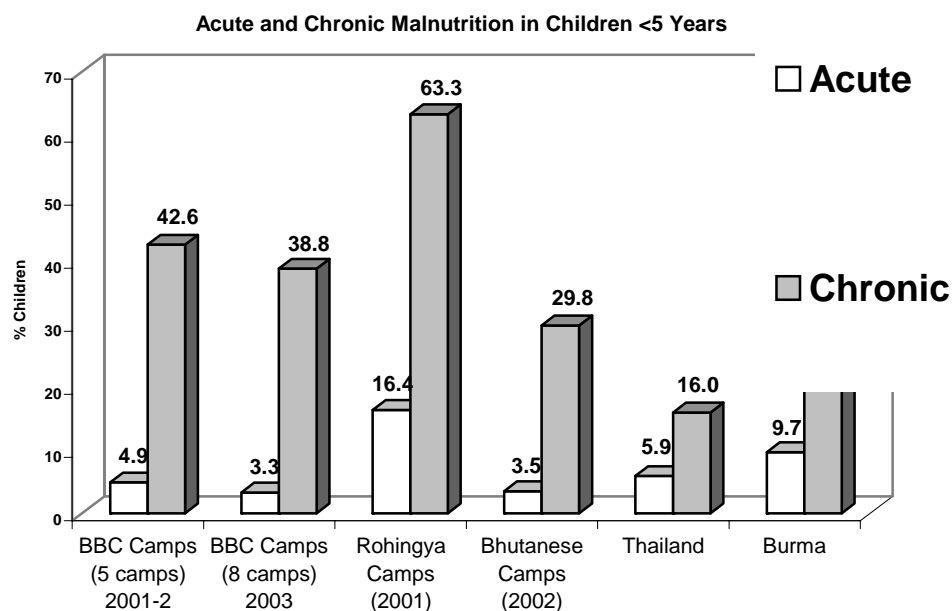
WHO *Proposed* Criteria for Severity for Chronic Malnutrition

severity	prevalence in < 5 population
low	< 20%
medium	20-29.9%
high	30-39.9%
very high	> 40%

- chronic malnutrition = low height for age (< 89% median or < -2SD)
 - caused or influenced by long-term mild food deficit or poor quality diet, previous acute malnutrition, poor maternal nutrition status, low economic status, poor feeding practices, etc.
 - result – short child
 - must be addressed in the long-term

Note: high levels of acute malnutrition are of much greater physiological significance than similar levels of chronic malnutrition – e.g. a population of 10% low weight for height (acute) is at much higher risk than a population that is 10% low height for age (chronic).

Comparison of Acute and Chronic Malnutrition Rates



Vitamin A Coverage for Children (6 months to 12 years)

- BBC oversees the procurement via UNICEF and distribution of vitamin A supplements to the camps for prevention of vitamin A deficiency, which can lead to permanent blindness.
- Target populations include children < 12 years and lactating women. Children receive supplements every 6 months. Health agencies are expected to report percent of children that receive supplements using the CCSDPT common data form.
- Vitamin A coverage in most camps reporting is over 95%. Minimum recommendations for coverage to be effective are 65% (Micronutrient Initiative). It has been recommended that the CCSDPT attempt 95% coverage.

January to June 2003 - % Children Supplemented

Camp	Children < 6 Years	Children 6-12 Years
Site 2 (Camp #5)	100.0	100.0
Site 1 (Camp #2)	100.0	100.0
Mae Khong Kha	97.0	99.0
Mae Ra Ma Laung*	na	na
Mae La*	na	na
Umpiem*	na	na
Nu Po	100.0	100.0
Tham Hin	79.4	66.7
Ban Don Yang	100	99.9

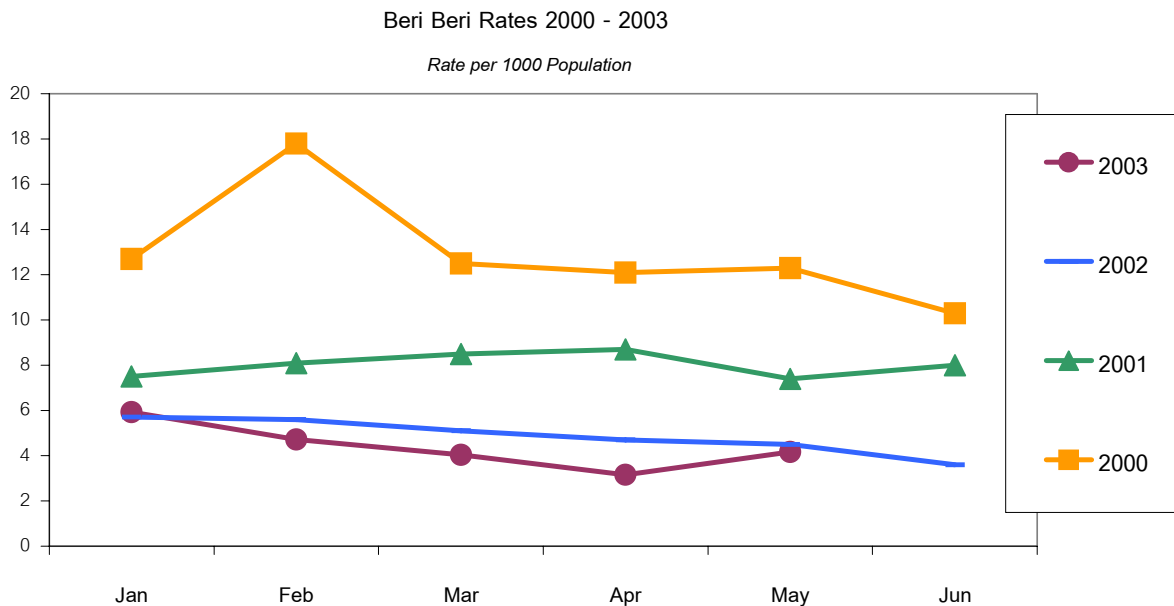
*data not yet available

Beriberi (vitamin B₁ or thiamine deficiency)

- Beriberi continues to be reported by the health agencies in the camps. However, following the inclusion of a more concise case definition and training for medics on diagnosing beriberi, current statistics show a downward trend in cases.

Reported Cases of Beriberi in Camps (Jan – June, all years)

	Jan	Feb	Mar	Apr	May	Jun
Year	Rate per 1000 population					
2003	5.9	4.7	4.0	3.2	4.2	na
2002	5.7	5.6	5.1	4.7	4.5	3.6
2001	7.5	8.1	8.5	8.7	7.4	8
2000	12.7	17.8	12.5	12.1	12.3	10.3



NUTRITION INDICATORS: ISSUES AND CONSIDERATIONS

- Indicators must be easy to measure and sensitive to change. Constraints in this context include reliance on camp medics/health agencies to collect data, and lack of field-friendly indicators for micronutrient status and dietary intake.

Current Indicators for Nutrition in Camps

Indicator (A)1: Percentage of children <5 with malnutrition:

Means of Verification

- BBC Supplementary Feeding Statistics: children <5 enrolled in supplementary feeding programmes.
 - Nutrition Survey: children <5 weight/height measurements (WHO/NCHS %median).
 - Common Data Collection: children identified as malnourished from clinic visits or nutrition surveys conducted by the medical agencies (implemented during 2003).
- Acute malnutrition is an easy indicator to measure and is very sensitive to changes in the food security situation.

Issues:

- acute malnutrition is not a problem in the camps.
- chronic malnutrition is more difficult to measure, and change is very long-term
- some data from recent health agency surveys are not consistent with previous BBC/Institute of Nutrition at Mahidol University surveys – this is most likely due to error in measurement or varying techniques.

Solutions:

- provide close support to health agencies in the field conducting accurate measurements, analyzing data, etc.

Indicator (A) 2: Percentage of children <5 receiving vitamin A supplements (preventive 6-monthly dose)

Means of Verification

- Common Data Collection for vitamin A coverage

Issues:

- a clinical sign of vitamin A deficiency (Bitot's spots) was used initially as the indicator as per the Sphere guidelines. However, only 0.5% of the target population need be diagnosed for the deficiency to be a public

health problem. This means that large numbers of children need to be screened to detect the problem.

Solutions:

- use coverage rates (% target population receiving vitamin A supplements) as proxy indicator to determine adequate vitamin A status for vulnerable populations.

Indicator (A) 3: Percentage of population diagnosed with clinically apparent thiamine (vitamin B₁) deficiency

Means of Verification

- Common Data Collection: clinical incidence of thiamine deficiency.

Issues:

- Beriberi is difficult for camp medics to diagnose, since the signs and symptoms are not very specific (e.g. tingling in extremities, numbness, etc.).

Solutions:

- health agencies should include screening for riboflavin deficiency in nutrition surveys - this is currently being done in camps in Nepal. This sign is easier to detect and indicative of general vitamin B deficiency.
- health agencies should continue to monitor beriberi, while keeping in mind the limitations of the measure.

Dietary Surveys

Issues:

- data are very difficult to collect and analysis extremely time consuming.

Solutions:

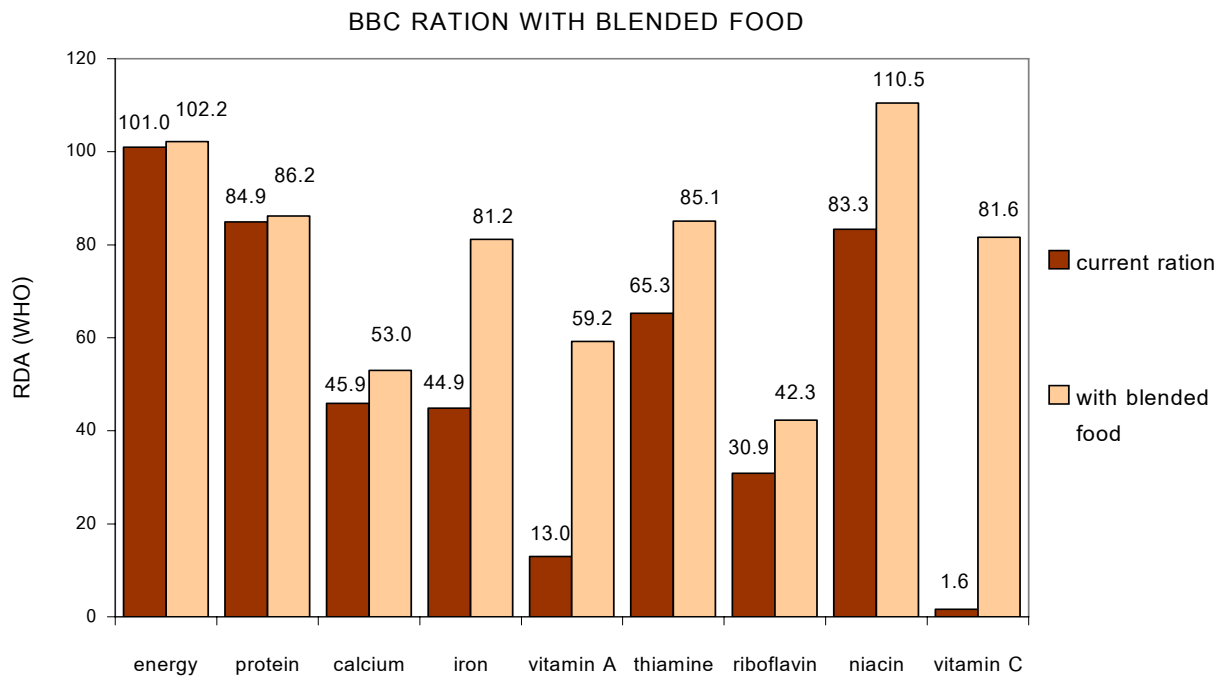
- consider only several components of the diet to survey (eg foods containing vitamin A)

PROGRESS AND PLANS FOR 2003/04

Introduction of Blended Food into Ration Basket

- After thoroughly exploring options in Thailand, BBC has contracted with a Nepali supplier for blended food production (on advice from WFP). Currently, this is the most economical way to produce it.
- The blended food will be a mix of whole wheat and soy, milled to a flour with added vitamins and minerals (at the RDA for a child 3-5 years)
- BBC will consider adjusting the vitamin/mineral mix to increase the amounts of some of the added nutrients.

The graph below illustrates the change in nutrition in the food basket.



Fortified Blended Food Composition

whole wheat	75%
soybean	24.8%
Value per 100 g finished product	
energy	415 kcal
protein	14 g (14%)
fat	2.9 g (6%)
Micronutrient Premix	0.2%
vitamin A	1664 IU (500 RE)
thiamine (B1)	.128 mg
riboflavin (B2)	.448 mg
Niacin (B3)	4.8 mg
folate	120 mcg
vitamin C	48 mg
vitamin B12	1.2 mcg
iron	16 mg
calcium	100 mg
zinc	5 mg

- Blended food will be piloted and evaluated in Site 1 (former Camp #2) in January, 2004, for 2 months. A report will be presented to the Ministry of Interior for review and approval for introduction into other camps.
- Assuming that the blended food will be approved, BBC will begin implementing into other camps as per the following tentative schedule.

Month/Year	Camp	Comments
January 2004	Site 1 (Camp 2)	pilot and evaluate during Jan-Feb 1 month for MOI approval
June	Mae La	2 months for order and shipping for June consumption
July	Umpiem	
August	Tham Hin	
November	Site 2 (Camp 5)	stockpiles camps to begin consumption after the rainy season
December	MKK	
December	MRML	
January 2005	Nu Po	
January	Don Yang	

- BBC will consider other changes to the ration to improve the nutrition content including:
 - brown rice or paddy (can only be provided to non-stockpiles camps, as storage time is very short).

RESULTS FROM PREVIOUS SURVEYS

The Burmese Border Consortium and the Institute of Nutrition at Mahidol University (INMU) conducted a series of surveys in 2001 to assess food consumption and nutrition status of refugees living in camp on the Thai-Burma border.

A summary of results, interpretations, and conclusions are presented below.

- **actual average kcal consumed in households per person per day (all foods)**
2029 kcal – Camp #2
2072 kcal – Mae La
- **the total diet meets an average of 96.6% and 104.5% of the RDA for energy in Mae and Camp #2, respectively**
households with children < 5 years consume, on average, less than 100% of the RDA - households without small children consume more than 100% RDA
- **the diet (BBC ration + other foods) is proportionately high in carbohydrates**
the ratio of carbohydrate : protein : fat is 84:9:7 in Mae La, and 82:9:9 in Camp #2
most of carbohydrates come from rice consumed (rice provides approx. 90% total energy) – rice is a culturally important food
- **micronutrient intake does not meet minimum cut-off of 70% RDA for most micronutrients, except iron**
ration foods supply vitamins A, B1, B2, C, and calcium between only 18.4 - 51.3% in Camp #2 and 24.2 - 53.1% in Mae La. Iron is supplied mainly by plant foods, and mainly from rice (51.9% in Mae La and 58.6% in Camp #2)
- **ration foods supply the majority of energy in the diet**
ration foods supply 88.9-98% of carbohydrates, protein, and fat in both camps
- **protein comes mainly from plant sources**
animal protein in diets in Mae La = 12%; Camp #2 = 5%

The table below shows the average %RDA for all foods eaten (ration + other foods) by households.

	kcal	protein	vitamin A	vitamin B1	vitamin B2	vitamin C	iron	calcium
Mae La	95.1	107.9	34.8	42.9	23.8	51.9	83.6	50.5
Camp #2	97.2	112.9	16.7	51.6	31.4	48.6	76.3	19.9

INMU/BBC surveys, 2001

CLINICAL NUTRITION STATUS

The table below shows evidence of clinical nutrient deficiencies (INMU – Mae La and Camp #2; BBC – Tham Hin, Don Yang, and Umpiem Mai)

% Children With Clinical Signs of Nutrient Deficiencies						
Camp		Mae La	Camp #2	Umpiem Mai*	Don Yang*	Tham Hin*
Bitot's Spots (vitamin A deficiency)		0	0	0	0	0
angular stomatitis (vitamin B2 deficiency)						
	active	5.0	21.1	3.1	2.6	2.1
	previous	7.6	10.9	2.1	1.9	2.1
palleness (iron deficiency or other anaemia)						
	eyelids	9.2	8.6	27.3	20.7	no data
	fingernails	3.6	0.5	18	18.8	no data
goitre grade 1 (iodine deficiency checked in children age 7-13 years only)		2.0	5.6	na	na	na

*children <5 only

YOUNG CHILD FEEDING PRACTICES

- children < 5 start complementary foods too early**
the average age of starting solid or complementary foods well below 6 months in camps surveyed. UNICEF recommends exclusive breastfeeding until 6 months
- children wean from the breast at an appropriate age**
children wean at approximately 1.6 years, which is an adequate amount of time to breast feed
- children do not eat enough meals to consume adequate nutrients**
children eat only 2-3 meals, on average. WHO/UNICEF recommend 4-5 meals in addition to breastfeeding for children > 1 year

The table below shows results from recent surveys (BBC)

Camp	median age for first foods	average weaning age	average number of meals per day (children > 1 year)
Umpiem Mai	5 months	20 months	2
Ban Don Yang	4 months	20 months	3
Tham Hin	3 months	21 months	2

NUTRITION STATUS

Adults

- ***a low proportion of adults are underweight***
This indicates that the refugees are receiving and consuming their rations as planned

BMI < 18.5

	Mae La Camp	Camp #2	Thailand
male	4.5%	12.7%	na
female	7.9%	11.2%	15.3%

Note: figures for Thailand include only females, and at BMI < 18
Data sources for Thailand: WHO/SEARO

Children < 5

- ***Rates of acute malnutrition* are within acceptable limits***
This indicates that the total amounts of foods provided are adequate for the population
- ***Rates for chronic malnutrition* are elevated***
This indicates a diet poor in micronutrients, complementary or animal protein
Also, it was found that households with children under 5 consume proportionately less %RDA for energy than households without, probably because small children are not able to eat enough rice to meet energy needs
- rates of chronic malnutrition tend to be higher in boys than girls

Malnutrition in Children < 5 Years

Type of Malnutrition	BBC Camps	Thailand*	Burma**
total <u>acute</u> malnutrition < -2 SD	4.9%	5.9%	9.7%
total <u>chronic</u> malnutrition < -2 SD	42.6%	16.0%	37.2%

*Thai Public Health Department

** UNICEF

Sources:

WHO: The Management of Nutrition in Major Emergencies

UNICEF: State of the World's Children, 1998

Nutrition Essentials: A Guide for Health Managers

UNHCR/WFP: Guidelines for Estimating Food and Nutritional Needs in Emergencies

The Sphere Project: Humanitarian Charter and Minimum Standards in Disaster Response

Institute of Nutrition at Mahidol University

Data sources:

Thailand: Nutritional survey of under five children, Nutrition Division, MOPH, May-July 1993, published on UNICEF Global Database on Child Malnutrition

BBC/INMU surveys, 2001

CCSDPT Common Data, 2000-2003