# A Nutrition and Food Security Review:

## Protecting Nutritional Status
## And
## Saving Food Costs

**Thailand Burma Border Consortium**

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## Acronyms and Abbreviations

| | | | |
|---|---|---|---|
| *AM* | Asia Mix, a fortified blended food | *kg* | kilogram |
| *AS* | Angular stomatitis | *KnDD* | Karenni Development Department |
| *BBC* | Burmese Border Consortium | *KnRC* | Karenni Refugee Committee |
| *BCM* | Beneficiary Contact Monitoring | *KnWO* | Karenni Women's Organization |
| *BH* | Boarding House | *KRC* | Karen Refugee Committee |
| *CAN* | Community Agriculture and Nutrition | *KWO* | Karen Women Organization |
| *CBO* | Community Based Organization | *LWG* | Livelihood Working Group |
| *CCSDPT* | Committee for Coordination of Services to Displaced Persons in Thailand | *MHS* | Mae Hong Son |
| *CDC* | Center for Disease Control | *MI* | Malteser International |
| *CFW* | Cash for Work | *MNP* | Micronutrient Powder |
| *CHW* | Community Health Worker | *MLO* | Mae La Oon Camp |
| *COERR* | Catholic Office for Emergency Relief and Refugees | *MOI* | Ministry of the Interior |
| *COPD* | Chronic Obstructive Pulmonary Disease | *MRML* | Ma Ra Ma Luang Camp |
| *CVD* | Cerebrovascular Disease | *MSF* | Medicins San Frontieres |
| *DSM* | An international company that makes specialized nutritional products | *MSR* | Mae Sariang |
| *DY* | Don Yang Camp | *MST* | Mae Sot |
| *ECHO* | European Community Humanitarian Office | *MT* | Metric ton |
| *FAO* | UN Food and Agriculture Organization | *NTF* | Nutrition Task Force of the CCSDPT Health Sub-committee |
| *FBF* | Fortified Blended Food | *RCH* | Reproductive and Child Health |
| *FFT* | Food-for-Training | *RDA* | Recommended Dietary Allowance |
| *FFW* | Food- for-Work | *RSB* | Rice Soy Blend, a Fortified Blended Food |
| *FSC* | Food Security Coordinator | *RTG* | Royal Thai Government |
| *FSA* | Food Security Assistant | *RUSF* | Ready-To-use-Supplemental Food |
| *FSO* | Food Security Officer | *RUTF* | Ready-To-Use-Therapeutic Food |
| *FSP* | Food Security Program | *SI* | Solidarities International |
| *GAM* | Global Acute Malnutrition | *SFP* | Supplemental Feeding Program |
| *GFR* | General Food Ration | *SPHERE* | Humanitarian Charter & Minimum Standards in Disaster Relief |
| *GM* | Growth Monitoring | *TBBC* | Thailand Burma Border Consortium |
| *gm* | Gram | *TFA* | Targeted Food Assistance |
| *HIS* | Health Information System | *TFP* | Therapeutic Feeding Program |
| *HKI* | Helen Keller International | *ToT* | Training of Trainers |
| *HQ* | Head Quarters | *UN* | United Nations |
| *IASC* | Inter Agency Standing Committee Task Force | *UNHCR* | United Nations High Commissioner for Refugees |
| *IDP* | Internally Displaced Persons | *UNICEF* | United Nations International Children's Emergency Fund |
| *IGA* | Income Generation Activity | *VA* | Vulnerability Assessment |
| *INMU* | Institute of Nutrition Mahidol University | *WFP* | World Food Program |
| *IYCF* | Infant and Young Child Feeding | *WHO* | World Health Organization |
| *IRC* | International Rescue Committee | *ZOA* | Netherlands Refugee Care |
| *JAM* | Joint Assessment Mission of the United Nations | | |

## Executive Summary

In light of poor foreign exchange rates, increasing food costs and donor reluctance to continually increase funding, a consultancy to review TBBC's food basket and to develop cost saving food ration scenarios took place. The study also presents TBBC's historical approach to food and nutrition, reviewed similar humanitarian contexts, appropriate new food assistance tools and the current health, nutrition and food security context in the nine Burmese refugee camps along the Thailand Burma border.

A review of TBBC's key historical and recent documents was coupled with visits to refugee camps (6) to observe programs and conduct interviews, meetings and focus group discussions over a 6 week period. In addition, many TBBC field and headquarter staff were interviewed and meetings held with critical stakeholders. The consultant also met with ECHO Regional office staff twice: initially and to debrief. Lastly, information was solicited through phone and e-mail correspondence with individuals involved in refugee nutrition and health programs, including WFP, UNHCR and CDC refugee health staff.

### Background

A review of TBBC's nutrition and food security approach pointed out that the same ration was provided for the first 14 years. Following this, in 1998 the first improvement to address inadequacies occurred based on a nutritionist's review; and the ration continued to improve as additional evaluation recommendations were implemented and a nutritionist hired over the next 8 years. At about this same time, TBBC began to support a low input gardening and nutrition program initiated by a refugee that has expanded over the years, until recently. Since 2006, due to rising food costs, there have been several ration reductions. As a result, overall calories have decreased and the protein and micronutrient content of the ration, in particular, has deteriorated as the quantity of fortified blended food, chilies and beans have decreased. TBBC's strength in integrating cultural preference and refugee input in food reductions was their weakness when considering the nutritional impact of the ration changes made over those years. This came to a head earlier this year when beans were temporarily suspended from the ration as their price skyrocketed. Recently, TBBC has incorporated livelihood support into its programming and this year an entrepreneur training program started in 2 camps.

The nutritional review of TBBC's food basket prior to the 2010 bean cut confirmed the high carbohydrate content and poor quality of the available protein (primarily from rice) coupled with an insufficient quantity of beans to complement and complete this protein making it less available. In addition, due to the low level of fortified blended food (FBF), the ration is low in micronutrients, particularly for beneficiaries over age 5. The level of sodium in all rations is high due to the high provision of iodized salt on top of the sodium rich fish paste provided as a condiment. The soybean oil provided is not fortified with vitamin A and D and is higher than the amount usually provided by WFP. The white rice provided is also not fortified. TBBC conducts quality checks on all foods, such as, iodized salt, FBF, rice and the fish paste to ensure adequate fortification, quality, compliance with standards and food safety.

The review of similar humanitarian nutrition and food security situations turned up two situations of interest: one similar refugee situation-- the Bhutanese refugees in Nepal and another protracted situation in Eastern Sudan where rations were recently reduced. For the Bhutanese refugees, their situation is also protracted--nearly 20 years in duration. Bhutanese and Burmese refugees' child nutrition surveys report similar levels of malnutrition. A riboflavin deficiency outbreak in 1999 after the FBF was withdrawn from the ration precipitated a micronutrient survey; since that time anemia and riboflavin assessment have been added to nutrition surveys. In 2008, an intervention (distribution of a

micronutrient powder) to address micronutrient deficiencies in young children began. It has produced mixed results in decreasing anemia, on the one hand, and, on the other, was in part, attributed to a 40 percent reduction in stunting—a dramatic and potentially promising impact. Bhutanese refugees receive a full ration of 2,100 calories including a fortified blended food; in addition, they receive fresh vegetables and condiments every 2 weeks.

The Ethiopian and Eritrean refugees in Eastern Sudan are one of the longest protracted refugee situations in the world. In this context, refugees are not confined to camps; and over time many have been assimilated into local villages. Like most African refugee camps, levels of acute malnutrition are higher than in Asian camps. Since 2004, UNHCR/WFP have embarked on the promotion of self-reliance through consolidating and closing camps. Part of this approach included using the results of a needs assessment to develop vulnerability criteria to identify households (HH) for ration reductions. The identified vulnerable households were provided half rations for the 6 months of the year that coincided with the harvest and full rations for the rest of the year; HH identified at not vulnerable were completely cut from the ration. Food for Work and Training programs for non-vulnerable households were implemented. As it turned out, following the ration changes in five of the eight camps, dramatic increases in acute malnutrition were found; and a follow-up assessment mission determined that most vulnerable HH were not capable of contributing to their food needs and that many of the non-vulnerable HH lacked livelihood opportunities and were thus food insecure.

Border-wide nutrition surveys consistently report low levels of acute malnutrition and high (to very high) levels of chronic malnutrition and underweight. A shocking 50 percent of children are stunted by age 5. Stunting contributes to poorer survival and learning capacity in children and to the increased risk of chronic disease and obesity in adults. It correlates closely with poverty and is caused by poor quality diets, repeated illness and micronutrient deficiencies. Micronutrient malnutrition, such as, iron-deficiency anemia is also a problem in the camps that appears to be worsening. Vitamin A coverage is not optimal and a recent CDC review raised concerns, in addition to vitamin A, about vitamin D, calcium and zinc levels. Micronutrient deficiencies are considered a silent emergency and recently have gained attention in the protracted refugee context.

Although data is available only recently, it appears that Burmese refugees suffer from a number of chronic diseases, such as, high blood pressure, chronic obstructive pulmonary disease and stroke. In addition, overweight and obesity may be common among adults. Given their confinement in camps, most adults and children exercise less than they or their ancestors did when living in Burma. In a study from one camp, 24 percent of pregnant women reported smoking.

Little border-wide food security, vulnerability and livelihood information is available or systematically collected. A recent ECHO vulnerability study exists from 4 camps and the CCSDPT Livelihood Working Group recently put together an inventory of agriculture, gardening and livelihood programs implemented in the nine camps.

**Protecting Nutrition and Saving Food Costs**

In contemplating ration reductions, protecting the nutrition and health status of all, and in particular, vulnerable groups is critical, particularly in light of the nutrition and health problems mentioned. With this in mind the following recommendations are made. The Supplementary Feeding Programs (SFP), which include preventive, recuperative and chronic disease beneficiaries should be updated and simplified to ensure compliance with international guidance and cost-effectiveness. Preventative SF for pregnant and lactating women should continue and expand to increase impact by covering young

children from 6 months to 2 years so they as well can benefit from higher levels of FBF or newer food products, such as lipid nutrient spreads . The food would act as an incentive to increase participation in community-based monthly growth monitoring and nutrition education sessions to improve infant and young child feeding and support optimal growth lead by volunteer mothers and supervised by CHWs. Through bulk buying, provision of ration foods and standardized recipes the nursery school lunch and snack program could save money and increase nutritional impact. An update of the guidelines on the use of breast milk substitutes and regular monitoring of implementation is needed to ensure appropriate use of infant formula for infants unable to breastfeed.

Wider dissemination and enhancing the nutritional impact of CAN is another way to help protect food security and nutrition while reducing rations. Selection of indigenous/acceptable vegetables known to be high in micronutrients and nutrition education and information on the quantity of vegetables to grow and consume is suggested. In addition, supporting fruit tree production, particularly of fruits high in micronutrients is also suggested. Incorporating small animal husbandry where possible is recommended as the consumption of animal protein has been shown to improve iron and vitamin A status.

To save costs, facilitate procurement and food distribution and in some cases to improve health, some of the ration foods with less nutritive value should be reduced or eliminated. It is recommended that sugar and chilies be eliminated and salt and oil be reduced (see copies of proposed new rations in Annex L). The reduction in salt along with nutrition education will help prevent high blood pressure. A small decrease in oil for older children and adults along with nutrition education will support decreased consumption. Sugar was added to the ration to improve acceptance of blended food; it will now be added directly to the product by the manufacturer. The quantity of chilies was so small that they contributed little nutrition to the overall diet. At the same time, modifying some of the ration food to improve nutritional composition is also needed. For example, piloting a mixture of brown (cargo rice) and 25% broken rice, if accepted would improve the quality of the rice so that more can be consumed as well as the nutritional value possibly without adding cost. Similarly, continuing to investigate the availability and cost of fortified soybean oil is also recommended as is substituting fortified blended foods (FBF) with improved formulations for Asia Mix. Looking for alternative foods, such as, canned mackerel in oil or water, to substitute for FBF and beans in the stock pile camps instead of canned fish in tomato sauce is also suggested. Distributing as many of the commodities as possible monthly would support more consistent food intake and less sales; this is particularly important for the FBF and beans.

Improved food management and procurement practices have the potential to save significant costs and improve the quality of the foods provided. Regular TBBC staff monitoring at beneficiary verification and monthly distributions has been shown to decrease feeding figures, in turn, this saves food costs, promotes more stable camp populations and builds the capacity of camp staff. Currently few bids are received on TBBC's food tenders, to address this researching the availability of commodity transporters and producers is recommended along with separating the tenders into commodities and transportation. This is critical as the small number of producers/transporters influences the price as well as the decision to reject shipments that do not meet TBBC's quality standards and to develop and enforce stiffer penalties. Researching the costs associated with and the process to procure beans and fortified oil internationally is also recommended since it shows potential for cost savings.

Some changes to the "Extra" Food Needs program were also suggested. It is recommended that the camp security guard ration be reduced similarly to the general food adult ration. It is also suggested that border-wide guidelines for the extra needs program be developed and quantities of food provided to camps be equalized proportionate to population over time and that this program also be reduced

such that it reflects the general ration reductions. Regarding reductions to the IDP camp rations, this should only be considered after conducting food security assessments as is currently done. As planned the rations for the Shan residing in Wieng Heng camp should be reduced in line with the change to the rations in refugee camps and monitored similarly.

**Strategy for Ration Reduction and the Scenarios**

The strategy proposed for reducing rations is to gradually reduce the ration while protecting vulnerable groups (pregnant and lactating women, young children, SFP beneficiaries and households identified as vulnerable) through increasing and improving safety nets and linking with other programs targeting the vulnerable. At the same time, complementary programming, such as Community Agriculture and Nutrition (CAN) should be expanded to protect refugees' food intake through displacing their need to purchase vegetables. TBBC should also increase funding and expand livelihood initiatives where they have a competitive advantage, such as, weaving and shelter supplies as soon as feasible. Although ECHO funded vulnerability studies in four camps last year, sample sizes were inadequate to interpret results by camp or, likewise, to compare results between camps; and further due to time constraints refugees coping strategies weren't assessed and, in some cases, sampling frames weren't implemented properly. Thus, in order to understand more about household food economy, food consumption and eating habits, dietary adequacy, coping strategies and to develop criteria to identify vulnerable households, vulnerability studies with a dietary intake and food consumption component similar to the ones conducted by ECHO are proposed for each camp to be conducted as soon as possible. In addition to monitor nutrition indicators, a simple nutrition surveillance system is proposed; and to collect information on how households are responding to the ration changes in a timely way enhancing the current beneficiary contact monitoring (BCM) system is needed.

Although this approach incurs upfront costs, given the level of vulnerability established through the recent ECHO study, the high level of stunting and the potentially worsening micronutrient situation coupled with the problems experienced in other contexts when rations have been reduced, it is warranted. Following this systematic approach, as it calls for extensive sensitization and nutrition education, protects vulnerable groups and slowly reduces rations while at the same time monitoring the situation it will minimize the risk of increasing malnutrition and unrest in the camps. It also builds a monitoring system that will provide ongoing food security, nutrition and livelihood information on which future ration reductions can be based. Simply put, the increased short term (and ongoing costs) will help to protect the health, nutrition and food security of the refugees, while at the same time, preserve the stability and peace in the camps, while contributing to longer term savings.

Three ration reducing scenarios (Plans A, B and C) were developed with decreasing total budgets along with rationale and impact. All three plans include a phased approach and start with similar small reductions to take place during the first quarter of 2011, though plans B and C include a reduction in the rice ration at that time too. This would allow for the results of enhanced BCM, nutrition surveillance and the vulnerability studies to inform the development of vulnerable household criteria, track initial impact of reductions and to plan the second reductions (all plans) and third reduction (Plan C). Plan A, B and C initial reductions include eliminating chilies and sugar and reducing oil and salt. Plans A and B are both implemented in two phases and include rice reductions—Plan A includes a 10% rice reduction and plan B a 20% rice reduction. Plan C is implemented in 3 phases and includes a slightly larger rice reduction, an increased oil reduction, and reduction of fish paste. In all plans, children and vulnerable adult rations are protected. The estimated yearly cost savings are as follows: Plan A- 7.6% of the food budget or $1.6 million, Plan B- 12.4% or $2.5 million and Plan C-17% or $3.5 million, with the phased

reductions savings will be smaller for the first year. Savings are based on projected food costs for 2011 and estimated totals of ration demographic groups.

The actual impact of the ration reductions is not possible to predict. That's why it is essential to implement the enhanced BCM, nutrition surveillance and the vulnerability studies. However, the nutrition and household financial loss of the ration changes has been quantified (see table 3). Other impacts, such as, poorer diet diversity and quality are anticipated. Demand for gardening and livelihood programs may increase. More refugees may engage in risky behavior, such as, seeking casual labor opportunities outside of camp or feel coerced into returning prematurely into areas of ongoing armed conflict in eastern Burma; and some may decide to seek resettlement in third countries. Although the child under 5 year old ration was not decreased much, one impact of the overall reductions, may be more child malnutrition. If the process of ration reductions is not managed well (and even if it is managed well) the risk of unrest in camps may increase. Cutting food rations may encourage more leakage of foods from camp stocks. It will also strain existing social networks and coping strategies and may contribute to theft and violence.

***Although 3 ration scenarios are provided, Plan C is not supported and Plan B would only be recommended if phases 1 and 2 follow that of Plan A and that phase 3 only be implemented when the monitoring information indicates that households are coping well and could accommodate another food reduction.*** The large reduction in calories and protein provided in the revised rations for Plan C is done over too short a time not allowing for sufficient monitoring and analysis. This is worrying, particularly with the high number of new arrivals, the overall poor quality diet consumed by the population for a number of years as well as the high levels of undernutrition and chronic disease. Dramatic increases in the levels of acute malnutrition were found after reducing rations by half for vulnerable refugees for half of the year and removing non-vulnerable households from rations in Eastern Sudan. Further, an outbreak of riboflavin deficiency occurred when FBF was removed from the Bhutanese refugee ration, these experiences underscore the fragile nutritional and micronutrient status of refugees in protracted situations, their dependence on ration foods as well as the slow pace and monitoring needed when making reductions to food rations.

UNHCR and WFP have incorporated lessons learned from reducing rations in refugee contexts within their current approach. Prior to considering ration reductions, WFP will quickly assess refugee access to land and other livelihoods; if access exists and appears widespread a comprehensive food security assessment is conducted. The food security assessment, results from nutrition and anemia surveys, past Joint Assessment Mission (JAM) reports, qualitative data and other secondary data are analyzed by a JAM team and decisions taken regarding potential ration reductions and the programming required to support these changes. UNHCR/WFP have successfully reduced refugee food rations, without negatively affecting nutrition status, in situations where there has been a high degree of integration of refugees with the local population and sufficient livelihood capacity. Sufficient livelihood capacity refers to access to land for agriculture not just for vegetable and fruit gardens or opportunities to work legally with skills adapted to the local labor market [personal communication, Caroline Wilkinson].

The Burmese refugees along the Thai Burma border, given their confinement to camps do not have sufficient access to livelihoods. This constraint supports the recommended vulnerability assessments and gradual reductions in the ration accompanied by surveillance and extensive monitoring. The recent CDC team which reviewed TBBC's evaluations and proposed future program options came to the same conclusion: if reducing the ration is necessary, only small reductions in the ration with intensive monitoring should be considered. Lastly, the ECHO Vulnerability Assessment (2009) recommended

ration changes that would improve the nutritional value of the ration with minimal calorie loss and a slight overall cost increase. They did not recommend removing the small percentage of "better-off" families from rations as their monthly HH income is similar to the ration cost; nor did they recommend a significant reduction in the food ration given refugees' dependence on it and ongoing livelihood constraints.

**New Food Assistance Tools**

The review of programming in comparison to available new food assistance tools found that TBBC is appropriately using newer tools. It is doubtful that cash instead of food assistance would be feasible or cost-effective in refugee camps, though it might be considered in some of TBBC's other programming. Another tool, food vouchers targeted to vulnerable households has been effectively used in other refugee contexts to provide foods that cover deficiencies in the food ration. TBBC should consider piloting such an intervention with vulnerable households in one of the smaller camps. Vouchers for vegetables, eggs and other inexpensive forms of protein could be considered. Separating the food provided to the Thai authorities and Karen/Karenni security guards in exchange for their labor currently included in the camp extra needs program, and re-budgeting it to a Food-for-Work (FFW) line item is recommended as it better reflects the function of this food. The nursery school lunch and snack program represents an example of an innovative adaptation of another tool, i.e. "school feeding" and helps to protect the nutritional status of a particularly vulnerable group, preschool children.

See page 56 for concluding remarks and recommendations.

**Introduction**

In light of poor foreign exchange rates, increasing food costs and reluctance of donors to continue funding increasing budgets, a consultancy to review TBBC's food basket content and nutrition program and to develop cost saving food ration scenarios took place from late August through early November of this year. The study also reviewed TBBC's historical approach to food security and nutrition and the literature and guidance available from similar humanitarian contexts. The current health, nutrition and food security situation was examined given the planned reduction in the food basket. And, lastly, new food assistance tools were analyzed taking into account the circumstances of the Burmese refugee camps along the Thai border and recommendations made.

This report is organized into five sections: section I- background; section II- improving and protecting nutrition and saving food costs; section III- ration reductions plans; section IV- analysis of new food assistance tools; and section V- concluding remarks and recommendations. The five sections are followed by a list of documents consulted and numerous annexes referred to throughout the report.

**Methodology**

Initially a desk review of TBBC's key historical documents as well as current reports and documents was conducted. In addition the consultant visited Thailand for a period of five weeks. During this time 6 of the 9 refugee camps along the Thai border (Tham Hin, Mae La, Umpiem Mai, Mae Ra La Luang, Site 1 and Site 2) were visited so that interviews, meetings and focus group discussions could be carried out with camp committees, community-based organizations (CBOs) and their headquarter staff, Health Agency staff including Community Health Workers, and COERR and CAN staff. Home visits with refugee families were conducted in nearly all of the camps. A general food distribution, food warehouses, Supplemental Feeding Programs, Nursery School lunch/snack programs, Boarding Houses, and a CAN training and demonstration sites were observed; and their staffs and beneficiaries interviewed.

In addition, nearly all TBBC field and HQ staff were interviewed and provided support for this consultancy. Meetings were also held with the INGO health staff and the CCSPDT Health Sub-committee chair to share findings and gather information. Several WFP Asia regional office staff provided critical information through correspondence and meetings. The consultant's field work coincided with a visit from a TBBC donor and board member so he was interviewed as well. ECHO Regional staff was met initially and at the end of the consultancy to debrief. Lastly, information was received through phone and correspondence with nutritionists and others involved in refugee nutrition and health programs, including WFP, UNHCR and CDC refugee health staff. For more information on meetings and interviews conducted see Annex B.

## SECTION I: Background

### *I. Historical Review of TBBC's Nutrition and Food Security Approach*

This section is divided into five parts which cover the 26 year history of TBBC's food provision, nutrition programming, food security and livelihood approach. A table depicting food rations from 1984 to 2010 can be found in Annex C and a time line of historical events related to the general food ration and complementary programming can be found in Annex D.

A. Early Years: 1984 to the mid-1990's

Refugees on the Thailand-Burma border were initially relatively self-reliant. The first ration provided in 1984 was 8 kilograms (kg.) of rice per month, which increased to 16 kg.,8 kg. for children, by 1986 supplementing the diet refugees consumed. At this time and through the early 1990's refugees had mobility; they still controlled land in Burma and grew crops in some areas. They participated in seasonal work, foraged for food, grew kitchen gardens and raised small numbers of livestock. In addition to the general food ration, a SFP program for children with acute malnutrition, pregnant women and TB patients, run by Medicins Sans Frontieres (MSF) in Karen refugee camps was supported. The foods provided included: eggs, vegetable, beans, dried fish, sugar and milk.

The ration expanded to include condiments--fish paste and salt (from 1993 on the salt included was iodized). SFP programs started in the Mon and Southern Karen camps though the program was not standardized between camps. During this time beriberi caused by a deficiency of thiamin (vitamin B1) was confirmed in the Mon camps. In 1994, to address this, at the request of MSF, yellow beans were provided to 3 of the poorest camps on a trial basis. The results were positive; and as a result, a policy to provide a ration of yellow beans (1.5 kg./month) for 3 months to new camps and any displaced or relocated refugees began. MSF reported that confirmed cases of beriberi fell in 1995.

B. Initial Improvements to the Ration: mid-1990's to 2000

By the mid-1990's circumstances had changed. There was an ongoing influx of refugees. The camps had been relocated (some several times)--smaller camps had been consolidated into much larger ones--and restrictions were placed on refugee mobility which limited their ability to garden or obtain food from outside sources. Self-sufficiency was decreasing, as a result, in 1995 the BBC (TBBC) policy shifted to supply 100 percent of basic food requirements. However, at the same time medical personnel confirmed low acute malnutrition rates and attributed this to the refugees' ongoing capacity to supplement their rations; and a program evaluation conducted [Gibson, 1996] concluded that no changes to the ration were needed.

This same program evaluation also concluded that SFP had been effective in reducing morbidity and mortality and recommended they be evaluated to assess impact and identify indicators for ongoing monitoring. Another recommendation was that BBC (TBBC) with health agency support should monitor the health and nutritional status of refugees. Mass vitamin A distribution, based on guidelines developed by the Border Eye Program, started in 1996 following screenings that determined vitamin A deficiency among children to be a public health problem as defined by WHO.

Previously, as mentioned, yellow beans had been provided only to vulnerable groups, such as, relocated refugees, new arrivals and supplementary feeding beneficiaries. By the first half of 1997 yellow beans

and cooking oil had already been extended to all refugees in the most restricted camps. Based on the conclusions of an assessment to determine the nutrient adequacy of the ration [Menefee, 1997], it was agreed to extend the provision of yellow beans and cooking oil to all refugees during the first months of 1998. The assessment noted that the current basic ration did not provide the minimum WHO standards for total calories, lacked a complete protein source and was micronutrient deficient. These problems were most pronounced in the ration provided to children under 5 years of age. The following year the BCC rations were compared with the new WFP/UNHCR guidelines that set a higher recommended allowance of 2100 kcal per person per day. The conclusion was to provide a food ration that ensured this level of calories.

Also in 1998, a consultant conducted an evaluation of the SFP [Klaver, 1998] and concluded that the program was necessary, target groups were justified and the current food items were appropriate. It also noted that the SFP protocols of the health agencies needed to be harmonized and recommended a joint health agency review process to achieve this. It was advised that Agencies should have greater exchange to share experiences; and that a new reporting format be pilot tested so that stocks could be more accurately reported and more details of the beneficiary caseloads provided.

At about this same time BBC's rationale for a full ration for children over 5 was questioned by the Thai authorities, pointing to a Ministry of Interior (MOI) standard of providing half-rations for under-12 year olds. BBC maintained the under 5 year old cut-off and reasoned that the objective was to ensure 2100 calories per person a day and any change in the age cut-off would require other compensations in the ration.

C. Improving the Micronutrient of the Ration, Initiation and Expansion of CAN: 2000 to 2005

An evaluation of BBC's program in relation to the SPHERE standards [Hazleton 2000] suggested the possibility of micronutrient deficiencies among refugees and noted that the ration was deficient in micronutrients and mildly deficient in protein and fat. It also concluded that the SPHERE minimum standards are applicable to the border situation and should serve as a guide in overseeing the program. BBC's lack of nutrition expertise was noted and a recommendation to hire a nutritionist made. BBC's first nutritionist was hired later that year.

Since the mid-1990's when refugees became confined to camps their capacity to supplement the food ration had decreased and they had become increasingly dependent on the food ration. However, little information was available on the refugees' food intake, use of ration foods or their nutritional status. To rectify this, food consumption surveys were conducted in Mae La and Site 1 camps in 2001 and rapid nutrition surveys in Tham Hin, Ban Don Yang and Umpiem Mai camps in 2002. The results showed quite consistently that the ration was disproportionately too high in carbohydrate at the expense of protein and fat and low in many micronutrients. The ration was determined to be inadequate over the long term or to support optimal growth in young children. Further, the studies concluded that the refugees were not able to adequately supplement the ration as had been previously assumed. The rapid nutrition surveys [Faraj, 2002] reported high levels of chronic malnutrition or stunting (35-53%) and underweight (30-40%) with low levels of acute malnutrition (3.6%-6.7%). Clinical signs of micronutrient deficiencies were also assessed; more than 25% of children showed clinical signs of anemia and 5% had signs of riboflavin deficiency.

Based on the results of these studies TBBC began to study options for adding a fortified blended food (FBF) to the ration to improve micronutrient content and provide a complementary food for young

children. After unsuccessfully introducing an imported wheat-based FBF, a locally produced rice-based FBF was added to the ration in 2005. A nutrition education campaign including posters, videos, food demonstrations and recipes was successfully carried out to improve the acceptance and use of Asia Mix (AM). The rice ration was slightly reduced (by 1 kg. per month for adults and .5 kg. for children) when Asia Mix was introduced and when sugar was added a year later to improve AM consumption, the quantity of AM was reduced by nearly a third in child and adult rations. TBBC also initiated collaboration with the medical agencies to expand nutrition surveillance activities in the camps; yearly nutrition surveys in each camp began in 2003. Results from the first nutrition survey included a high level of stunting with a border-wide rate of 39% and low global acute malnutrition (3%). At this time cases of beriberi continued to be reported however, following the inclusion of a more concise case definition and training in 2000 a declining trend followed. Other micronutrient deficiencies, such as, anemia and riboflavin deficiencies were also regularly detected with clinical observation. In 2002, a BBC sponsored consultancy to clarify the border vitamin A guidelines, describe the rationale that lead to their development and to assuage unwarranted fears of vitamin A toxicity took place.

Even with a nutritionist on board, making changes to the SFP came slowly. A new reporting format was implemented, but harmonizing the SFP protocols between health agencies evolved slowly. The ECHO evaluation [Schuftan 2003] uncovered inconsistencies in SFP protocols and implementation and found that most agencies had not adopted BBC guidelines. It wasn't until 2004 when a CDC nutritionist was seconded for 6 months that revised and standardized SFP guidelines were implemented border-wide.

By the end of the 1990's Karenni refugees were experimenting with agriculture using indigenous plants and accommodating camp constraints based on limited access to land and water. David Saw Wah, a Karenni refugee developed an agriculture program with support from the KnRC (Karenni Refugee Committee). The MOI new policy (2000) of encouraging refugees to grow small-scale agriculture for home use supported the development of these activities. In the early 2000's, the Community Agriculture and Nutrition (CAN) Program was established; it included demonstration gardens, a Training-of-Trainers (ToT) component and community gardens. TBBC became interested in CAN because of the connection between home gardens and increased consumption of micronutrient rich vegetables. Although it was a new focus and program area, it was a natural progression given that vegetables complemented the ration and helped to address its inadequacies. Demonstration sites were expanded to other camps and TBBC staff (in Mae Sot a full-time coordinator and the nutritionist located in Mae Hong Son) were hired to coordinate food security and gardening activities. In 2003 CAN expanded to all 9 camps.

During 2004 and 2005 the food ration peaked in terms of nutritional adequacy providing 2,458 calories (adult ration) a day; and also it met the requirements for most micronutrients and protein. For more information see Annex C for a table with TBBC general food rations from 1984 to 2010. The nursery school lunch and snack program started in 2004. Also at this time cooking stoves were provided and there was experimentation with bio-fuels and small livestock (to improve and diversify diets) and other pilot projects. Catholic Office for Emergency Relief and Refugees (COERR) gardening and other activities to support vulnerable households were initiated. In 2005 CCSDPT/UNHCR began their advocacy with the Royal Thai Government (RTG) to promote: increased skills training, income generation activities, access to education outside of camps, less restrictions on refugee movement and the opening up of work opportunities outside camps. Resettlement to third countries also began in this year.

D. Reducing the Micronutrient Content of the Ration, Expanding CAN and Adding Livelihoods (2006 to 2008)

Over the next 2 years CAN staff doubled. Livelihoods promotion became a core TBBC objective and a study on this topic was carried out. The food security assistant (FSA) position was created along with a new organization structure that fully integrated CAN into field activities such that the field coordinators supervised an FSA responsible for both nutrition and CAN support. In addition in 2007 a nutrition technical officer was hired to support the Food Security Coordinator (FSC)/Nutritionist who with her increasing FSP responsibilities had less time to focus on TBBC nutrition programming. There were also several reductions to the ration (and 1 food, sugar was added) during this time; some to offset the costs of AM and sugar and others due to funding shortfalls. Yellow beans were decreased by one-third shortly after the introduction of AM since the protein in the FBF could compensate for the reduction in beans, chilies were reduced by two-thirds and FBF (AM) was reduced by nearly one-third to off-set the cost of adding sugar to the ration. Sugar was added to improve the acceptability of AM. Fish paste was also reduced twice, once in 2006 and the second time in 2007, but it returned to its 2007 level in 2008. (See Annex C.) Only about 100 calories were lost with the reductions (from 2460 to 2350 calories), however, the impact on micronutrients was more drastic; three-quarters of micronutrients met two-thirds the RDA in the 2004/5 ration, but only one-half did so by 2007. At the same time there was a disruption in the vitamin A supply; and as a result, coverage declined from 95 to 25 percent.

Ration reductions due to funding shortfalls and staffing changes continued in 2008. With the FSC/nutritionist leaving, her position was eliminated after the hiring of an Agriculture Manager and the promotion of the nutrition technical officer to nutrition manager. This left TBBC with less nutrition capacity as a nutrition program, Growth Monitoring (GM) of under 5 year olds, was added and difficult choices regarding ration reductions were faced. The 2008 ration reductions focused on Asia Mix (AM) and sugar. In adult rations, AM Asia decreased from 1 kg. to .25 kg ; children under 5 retained their 1 kg. ration of AM. Calories decreased again by 100, but now only 1 micronutrient met two-thirds of the RDA in the adult ration. ***With the three reductions in AM in 2006 and 2008 (adult ration only), the adult ration was micronutrient deficient again and the quantity of AM in the child ration was too low.*** Given the reality of intra-family sharing and that only children under 5 years old received a larger amount of AM, all refugees except those who adequately supplemented their diets (with animal products and vegetables) were at increased risk for micronutrient deficiencies. TBBC's strength in integrating cultural preference and refugee input in food reductions was their weakness when considering the nutritional impact of the ration changes made between 2005 and 2008.

Also at this time the UNHCR Health Information was adopted including some of the SFP/TFP indicators and tracking GM data. Nutrition surveys continued to identify high levels of stunting (36% in 2008) and low levels of GAM (3% in the same year). The surveys also provided information on vitamin A supplementation coverage in under 5 year; for 2008 it had increased to 49 percent. In the same year, elevated blood lead was studied among Burmese refugee children in the United States and found to be a problem. This lead to a CDC study in the Tak Province refugee camps the next year; the study found that 5 percent of children had lead poisoning (15% of children under 2) and 55 percent of children had anemia (70% of children under 2). The CDC team has developed education materials on preventing lead poisoning that have been distributed to some of the camps, but as yet, there has been no intervention to address the very high levels of anemia found.

With the hiring of the Agriculture manager in 2008, CAN shifted to a more sustainable low-input community-development focus while continuing to expand its use of indigenous plants and non-hybrid seeds. A recent evaluation recognized TBBC's and Karenni Development Department (KnDD) valuable pioneering (and ongoing work) and pointed out the importance of agriculture in decreasing dependency and ensuring that the new generation retains the knowledge and skills of their ancestors. It recommended strengthening the program through improved monitoring and sharing of results, the introduction of more indigenous/local vegetable species and to expand community outreach by introducing the cluster approach and community gardens. These recommendations are currently being implemented; one outcome was the decision to phase-over CAN activities in 4 camps so that the program can be better managed and activities intensified and strengthened in the other 5 camps.

E. An Increased Livelihood focus and Funding Constraints: 2009-2010

Last year, one of TBBC's major donors, ECHO funded a program evaluation and vulnerability assessment using a sustainable livelihoods assessment in 4 camps. The study found a total of 34 percent of refugee households poor (25%) and very poor (9%) with 9 percent better off and 1.4 percent well off and that more than 90 percent of households earned some cash income during the last three months. Refugees reported that their cash income was used to purchase food and other commodities—few households had savings (7%) and more had debt (37%). The results indicate that nearly all households (98%) purchased food and over 60 percent estimated that they spent more than 50 percent of their income on food. Only 9 percent of households reported earning enough to cover the cost of the food and charcoal ration (2200 baht). In addition, the study identified the main types of household configurations in the camps. The largest number of households was those made of parents and children (32%) and multi-families (32%); this was followed by households consisting of parents and grandparents (24%), single (grand) parents (5%), couples no kids (5), and 1 person families (3%).

The average household monthly income was estimated at 960 baht/month, or the equivalent of $1. per day that is needed to cover the cost of food required to adequately supplement the ration, school materials for children, clothes and shoes and non-food household items for an average family or household of six people. The study also reported on refugees' diets. Just over 80 percent of refugees consume an acceptable diet including acquired foods, such as, fruit and protein-rich foods; an acceptable diet was associated with higher income. However, non-animal protein, such as, beans were only consumed on average less than 3 times per week.

The evaluation concluded that the ration was micronutrient deficient. Based on the study's findings, changes to the ration (reduced rice, and increased AM, beans and oil) were recommended to improve the micronutrient and protein content. The proposed changes slightly increased overall costs and lowered calories for adults and children over 5 to 1900 a day. They did not recommend removing households with incomes over 2200 baht from the rations as they felt it wouldn't be cost-effective. The evaluation also recommended that AM be added as an incentive to protect an especially vulnerable group infants and young children and increase participation in monthly GM sessions. Following up on a recommendation from the 2003 evaluation, the elimination of SFP foods other than AM and premix items to save costs and comply with international SFP guidelines was recommended. Despite the findings of this study, ECHO proposed cutting food costs and reduced its level of funding for 2010.

Earlier this year TBBC hired an Income Generator Coordinator who initially conducted an assessment. Based on these findings, a pilot entrepreneurship developed project has started in 2 camps (Tham Hin, Ma Ra Ma Luang) with plans to expand to Mae La Oon. Starting saving and loan groups is planned for next year in collaboration with the CAN program. Other livelihood activities include a study of the potential market for refugee made woven products in urban areas in Thailand and another on the prospect of refugees making their shelter materials. TBBC nutrition program activities include improving the SFP reporting and data collection and Nursery School lunch/snack program monitoring, a CDC review of past nutrition assessments and a change from annual to biennial nutrition surveys.

Until this year TBBC was able to raise adequate funding to supply a food basket providing on average 2,100 kcals/person/day for all eligible refugees. However, this had become more problematic in the last few years as the global food crisis drove up the cost of foods and the foreign exchange rates deteriorated. Earlier this year when bean prices skyrocketed TBBC was forced to temporarily suspend beans from the ration. This lowered the average ration calories to just under 2,000 and further reduced the micronutrient content (iron and B vitamins). The protein content also decreased to 82% of the recommended level. And without beans there wasn't a source of complementary protein in the ration to complete the protein provided by the rice.

## *II. Literature Review of Similar Nutrition and Food Security Situations in Other Humanitarian Settings*

A. Similar Protracted Refugee Situations

***The Bhutanese Refugees in Nepal***

The review of similar humanitarian nutrition and food security contexts turned up one situation similar to the Burmese refugees along the Thai border, the Bhutanese refugees in Nepal. Their situation is also protracted with nearly 100,000 Bhutanese arriving in Nepal in 1991. Bhutanese refugees live with similar camp confinement restrictions as the Burmese refugees. They are unable to leave the camps to participate in agriculture, forage or earn wages to buy food, however, many of the educated Bhutanese work as teachers or nurses outside of the camps. Similar to the Burmese refugees, food is available in nearby markets; however, most do not have the resources to afford sufficient quantities of fruits and meats to complement the ration. Rather, the Bhutanese refugees receive a fairly nutritional complete ration of 2,100 calories including polished rice, as the cereal, two types of pulses, iodized salt, fortified oil and a fortified blended food; in addition, they receive fresh vegetables and condiments every 2 weeks. See Annex E for the complete Bhutanese ration compared to TBBC's and other rations.

Interestingly unlike most refugee contexts, particularly those in Africa, child anthropometric surveys of the Bhutanese refugees report low levels of global acute malnutrition (GAM), comparable to the results from surveys conducted with Burmese refugees along the Thai border. (See table below.) The levels of chronic malnutrition (stunting) and underweight are also comparable between the two settings. In addition, both camps suffered outbreaks of beri-beri in the 1990's and have had have high levels of anemia which continue to this day, particularly among the Burmese.

Table 1: Nutrition Survey Results 2007-2010
Bhutanese Refugees in Nepal and Burmese Refugees along the Thai Border

| Context | GAM 2007 to 2010 | Chronic Malnutrition % | | | | Underweight 2007 to 2010 | Anemia % | | | Clinical Assessment of Angular Stomatitis (Vitamin B2 Deficiency) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2007 | 2008 | 2009 | 2010 | | 2008 | 2009 | 2010 | |
| Bhutanese Refugees | 4.0-9.2% | 39.2 | 32.5 | 28.3 | 23.2 | 20.9-28.1 | 43.6 | 35.9 | 40.2 | 11.3% (2007) |
| Burmese Refugees | 2.7-3.5% | 34.3 | 36.2 | 36.5 | NA | 28.5-29% | NA | | | 1% (2008-2009) |

Starting in 1993 cases of beriberi (thiamin deficiency) was reported among the Bhutanese refugees and shortly after scurvy and pellagra were detected. One of the strategies implemented to the address micronutrient deficiencies included changes to the food basket. A FBF was added in 1994 and polished rice (the rice preferred by refugees) was changed to parboiled rice which is much higher in thiamin. Employing a nutritionist to provide education and advice on the rationale and importance of consuming parboiled rice and FBF was found to be crucial in gaining acceptance of the new foods and changing eating habits. One of the lessons drawn from this experience was the importance of not just considering food habits and cultural preference when selecting food basket items since some of the foods refugees previously relied on to provide micronutrients are often not included in the ration [Upadhyay, 1998]. Further, it was determined that caloric adequacy of a general ration does not automatically ensure that it meets micronutrient and other nutrition requirements.

Early in 1999, when FBF was withdrawn from the Bhutanese refugees' ration due to program constraints, the number of reported cases of angular stomatitis (AS) quickly increased six-fold to 29 percent with the greatest number of cases found in children and adolescents [Blanck, 2002]. The increased prevalence of AS demonstrates the precarious nutritional status of displaced populations and their vulnerability to minor changes in rations. This outbreak precipitated a micronutrient and anthropometric survey which found that 36 percent adolescents had low body mass indexes and could be considered to be underweight; 30 percent were vitamin A deficient, 24 percent were anemic and marginal levels of several B vitamins were commonly found [Woodruff, 1999 and 2005]. The study emphasized the importance of conducting micronutrient studies with refugees and including adolescents in addition to other groups more usually assessed [Woodruff, 2005]. The other researcher concluded that although riboflavin deficiency is rare, its appearance in food-aid dependent populations can be an indicator of other B-vitamin deficiencies [Blanck, 2002].

***Eritrean and Ethiopian Refugees in East Sudan***

The Eastern Sudan context is one of the longest protracted refugee situations in the world with refugees from Eritrea and Ethiopia fleeing conflicts, drought and famine over the years. The first camps were set-up in 1967. This context varies from the Burmese and Bhutanese settings, in that, the Eritrean and Ethiopian refugees are not confined to the camps and, in some locations have access to land and farm schemes and towns for employment. Overtime many refugees have been assimilated into local communities. Since 2004, UNHCR/WFP have embarked on the promotion of self-reliance and the gradual integration of the refugees into the local communities through consolidating camps and closing others. A 2008 census of the total population in the 8 remaining camps reported 62,307 refugees.

Similar to other African refugee contexts, the refugee children in Eastern Sudan have higher global acute malnutrition (GAM) levels than the Bhutanese or Burmese refugees in camps along the Thai border. The GAM levels in the 8 camps in East Sudan range from 6 to 26 percent and anaemia rates are high, ranging from 49 to 70 percent in the 8 camps among under 5 year olds [WFP/UNHCR/COR 2009]. Other anthropometric indicators, such as stunting are not available for comparison. See Table 2 for more information on GAM and anaemia levels from 2006 to 2009.

The current distributed WFP general food basket includes four commodities: a cereal (sorghum), a pulse (green split peas), fortified vegetable oil and iodized salt. See Annex E for more information on the specific quantities provided compared with rations from other refugee contexts. The ration, based on the 2006 Joint Assessment Mission (JAM) recommendations, was to also include sugar and a fortified blended food, which would have increased calories and enhanced its nutritional value. A more recent JAM (2009) found that the current ration did not meet minimum calorie and micronutrient standards and made recommendations to improve it.

The 2006 JAM also recommended targeting general food rations to vulnerable households while at the same time providing food assistance for non-vulnerable households through Food-for-Work (FFW) and Food-for-Training (FFT) programs. A Needs and Livelihood Assessment conducted in 2007, found that on average 43 percent of refugee households fell into the low dietary diversity group indicating an inadequate diet, with a range of 18 to 80 percent between camps. Based on results from this assessment, targeting criteria to determine household eligible to receive food were developed. Five major indicators were selected: (1) households without a breadwinner (no male between 25 and 55 years old); (2) single parent households (only one adult of working age between 18 to 59 years); (3) households with a chronically ill or disabled member; (4) households with three or more children under five; and (5) households with two adults of working age with five or more dependents (under 18 and over 59 years old). The vulnerable households targeted for food assistance received full rations during the traditional lean period (April-Sept.) and half rations after the harvest season (Oct-March). The more recent JAM determined that by definition most vulnerable households were not capable of meeting their own food needs; and as a result, they were equally vulnerable from one season to the next and thus, they found no justification for cutting their food ration for half the year.

The same JAM found that for many of the non-vulnerable households, not receiving food assistance, the very limited livelihood opportunities contributed to their food insecurity. How to support households that are not extremely vulnerable but are also not fully self-reliant was an identified issue; and they concluded that a large number of households, perhaps 30 to 50 percent, need assistance because they are food insecure, at least for a large part of the year, but do meet the vulnerability criteria. They also identified a critical need to provide access to employment through livelihood development, land, IGAs, loans or access to food through FFW or FFT programs.

Table 2: Nutrition Survey Results from the Eastern Sudan Refugee Camps (2006-2009)

| Camp | % Global Acute Malnutrition (GAM) Sept. 2006 (end of lean period) | Percent GAM Jan./Feb. 2009 (during harvest season) | Percent Anemia Jan./Feb. 2009 |
|---|---|---|---|
| Wad Sherifey | 15.5 | 15.5 | 59.0 |
| Um Gargour | 12.5 (not comparable) | 25.5 | 65.9 |
| Shargarab | 10.9 | 20.1 | 50.9 |
| Girba | 9.7 | 16.1 | 56.2 |
| Kilo 26 | 10.3 | 14.2 | 60.0 |
| Abuda | 8.1 | 13.6 | 49.0 |
| Fau 5 | 9.6 | 8.3 | 53.3 |
| Suki | 13.6 | 6 | 70.0 |

From the available nutrition survey data (see table 2), one could surmise that removing households not identified as vulnerable from rations and reducing the rations of vulnerable households by half for 6 months of the year contributed to the dramatic increases in GAM between late 2006 and early 2009 found in five of the eight camps. Considering the seasonality of the timing of the surveys, lower levels of GAM would be expected in 2009 surveys carried out during the harvest period when compared to the 2006 surveys that were conducted at the end of the lean period, however the opposite was found. The levels of acute malnutrition in 2006 were cause for concern and the increases of 5 to 10 percent, alarming, indicating a serious to critical situation in six of the eight camps. A more in-depth understanding of why acute malnutrition increased over this time period is not possible given that 2007 and 2008 nutrition survey data is not available or comparable.

Some lessons can be drawn from this experience. ***The importance of slowly reducing food rations based on food security data, including coping capacity, and realistic assumptions of the contribution of livelihood activities for both vulnerable and less vulnerable households should not be underestimated.*** Developing criteria to target vulnerable households is not always straight forward; and variations in the degree of households' vulnerability require ongoing assessment and monitoring in order to detect problems and systematically make adjustments to eligibility criteria or rations. Given the different sites and populations of refugee camps and the range of opportunities offered by surrounding communities, as well as, the skills of camps' residents and composition of households, varying levels of vulnerability are more likely than not to exist and the capacity to absorb reductions in food assistance will vary between camps as shown by the 2009 nutrition survey results. Thus, comprehensive programming to enhance livelihoods and food security with extensive coverage and adapted to the various camp contexts are needed when rations are reduced. And, implementing surveillance and monitoring systems to closely track and monitor changes in coping strategies, food security and nutrition indicators is critical to quickly detect changes in food security that could negatively impact livelihoods and the nutrition status of refugees.

B. Examples of Nutrition Programs in Refugee Camps to Address Micronutrient Deficiencies and Poor Infant and Young Child Feeding Practices

**Micronutrient Powder Pilot Project in Damak Camps in Nepal**

In partnership with DSM, WFP is piloting micronutrient powder (MNP) or "sprinkles" projects with high-risk groups in settings where elevated levels of micronutrient deficiencies have been detected, primarily in refugee camps. In 2008 in the Bhutanese camps in Nepal, such an intervention with young children was initiated with extensive sensitization, nutrition education and preparation demonstrations. Between 2008 and 2009 (see table 1) a significant decrease in anemia among this age group was found. However, this was not repeated in the second year of intervention though compliance remained high; actually an increase in the overall level of anemia was detected. Interestingly, this increase was found only in mild anemia, which has much less negative effect on health, growth or development than moderate or severe anemia.

Over the course of the 2 year intervention, a decrease in the overall prevalence of anemia among the 6 to 23 month age group and in moderate anemia among all age groups was detected, however, an overall decrease in anemia among all age groups was not found [Husain, 2010]. Interpreting these results has proven difficult given the limited experience with such interventions in refugee camps. Although a similar pattern, of an improvement in anemia after initiating a MNP intervention, followed by a reversion in the second year, was recently found in the Bangladesh camps [personal communication, Caroline Wilkinson]. The rather significant decrease in stunting (40%; see table 1) over this same time period is worth noting; this was in part attributed to the MNP intervention [Husain, 2010]. Lastly, despite the recent anemia results, continuing the MNP intervention was recommended along with further research to investigate the underlying causes on anemia and malnutrition.

**UNHCR/CARE International IYCF and "Baby" Gardens Pilot Project in Dadaab Camps in Kenya**

Several years ago as part of a privately funded initiative to improve infant and young child feeding (IYCF), CARE started a collaboration with UNHCR in the Dadaab Camps to integrate counseling to improve infant feeding at the community level, in health centers and at the hospital through providing training and ongoing technical support for health workers on this topic. Health worker training and support includes: (1) orientation of all health and non-health staff on infant feeding in emergencies; (2) training of breastfeeding counselors; and (3) production of use friendly and culturally appropriate counseling cards and job aids for use by the counselors. In addition, participatory vides are shown regularly and health talks regularly occur at the maternity and ANC clinics. Activities to engage secondary targets, such as, men, religious leaders and grandmothers are also carried out.

At the community level, mother-to-mother (M2M) support groups have been formed with trained mother support group leaders. M2M support groups with 8 to 12 women per group meet regularly to discuss complementary feeding issues and to provide breastfeeding support. Mentorship is provided by trained IYCF counselors, who promote the formation of new groups and train new leaders. (See Annex H for further information on M2M support groups.) Results from this project include a significant increase in the rate of exclusive breastfeeding at 6 months from 4 to 40 percent and also in the early initiation of breastfeeding (within one hour of birth) from 65 percent to a range of 68 to 93 percent in the various hospitals from 2005 to 2010 [Shoham, 2010; personal communication, Gloria Kissia]. Easily adaptable counseling tools, a breastfeeding curriculum, other training materials and other materials are available from this program.

Another project to support improved complementary feeding is the "Baby" garden program. These are small space, backyard or multi-storey gardens targeted to households with malnourished or anemic children who have an interest in gardening. Training, inputs and support from extension workers is provided. Another pilot project from this camp involves food vouchers and is covered in section IV of the report, the section covering new food assistance tools.

C. UNHCR/WFP/WHO Strategies and Pilot Projects to Address Malnutrition in Protracted Refugee Situations

During the 1990's frequent outbreaks of micronutrient deficiencies among displaced populations increased the international community's knowledge and experience in the prevention and treatment. It also fostered outcry and advocacy, which in turn, has increased resources for improving food rations. However, even after improving refugee food rations by adding FBF, although fewer outbreaks occur, micronutrient deficiencies remain a significant public health problem [Seal, 2007]. This has motivated further advocacy and efforts to strengthen nutrition and public health programs coupled with the promotion of gardens, increasing access to markets and fresh foods and efforts to improve livelihoods. It has also contributed to increasing more explicit approaches to increase micronutrient intakes, such as, the fortification of the cereals included in general food rations, piloting MNP interventions, FBF and ready-to-use-food distribution to vulnerable groups and the provision of micronutrient supplements [WFP, 2006; WFP/UNHCR, 2008; Seal, 2007] and lead WHO to call for establishing micronutrient surveillance systems in emergency settings [WHO, 2002]. A recent review pointed out the limited evidence on interventions to reduce micronutrient deficiencies in refugee populations and recommended that such interventions be more widely implemented and evaluated to develop good practice [Dye, 2007].

**Acute Malnutrition in Protracted Refugee Situations: A Global Strategy--UNHCR/WFP**

In recent years, in an effort to address micronutrient deficiencies and other problems, UN Agencies have developed appropriate strategies. For example, WFP and UNHCR developed a joint global strategy to address the high levels of acute malnutrition and micronutrient deficiencies found in protracted refugee situations [WFP, UNHCR 2006]. Several of the proposed activities are relevant to TBBC's nutrition programming, such as, developing consistent nutrition surveillance and monitoring capacity, standardizing information and training in infant and young child feeding (IYCF) practices by initiating a Training of Trainers (ToT) program for refugee health providers, reducing anemia rates by systematizing iron and folate supplementation and improving refugees diets' through providing food sources of iron and vitamin C. Their strategy also includes improving the nutritional adequacy of the ration by increasing the quantity and diversifying the foods provided and implementing them with information campaigns on the use and value of new commodities.

**UNHCR Strategic Plan and Interventions for Anemia Prevention, Control and Reduction**

In addition, UNHCR has developed a strategic plan for anemia prevention, control and reduction which includes the prevention and control of micronutrient deficiencies (UNHCR 2008). The strategy is considered an interim measure until all micronutrients can be provided to refugees (by WFP, UNHCR and other organizations) through a more diversified diet containing animal source foods, fortified foods and/or programs to promote greater food security and access to livelihoods. Refugee camps with high anemia levels in 7 priority countries, including Nepal and Bangladesh in the Asia region, were selected for interventions that began in 2009/2009; and camps in 4 additional countries are in the process of initiating activities this year and next. UNHCR in partnership with WFP and other partners, such as, DSM

and Nutriset, a French company which produces specialized food products, such as, ready-to-use foods, are jointly implementing these pilot projects. High levels of anemia have been associated with concurrent multiple micronutrient deficiencies; for this reason and also due to the difficulty and added expense in assessing multiple micronutrients, to date, only anemia testing has been added to UNHCR yearly nutrition surveys in camps to establish baselines and monitor program progress [personal communication, Caroline Wilkinson].

Interventions include the introduction of preventive blanket micronutrient powder provided at a special program distributed with community/health agency-based education and instruction on individual dosage for vulnerable groups, such as, under 5 year olds, pregnant/lactating women and adolescent girls. Targeted use of ready-to-use foods, such as, lipid nutrient spreads (LNS) or fortified blended foods (FBF), in blanket feeding of young children ages 6 to 24 months , in settings where anemia and stunting levels are high, has also been piloted sometimes coupled with nutrition education focused on improving infant and young child feeding practices. These food products are also being used to recuperate the moderately malnourished. LNS have been shown to improve growth, motor development and iron status [Lopriore, 2004; Adu-Afarwuah, 2008 and 2009]. Research on the newer formulations of FBF, which include improved micronutrient formulation and dried skim milk, and their affect on growth and iron status in young children compared to LNS is currently underway [WFP, 2010; UNICEF, 2009].

The strategy includes an emphasis on anemia preventive and in some settings, pregnant and lactating women are provided calcium in addition to the usual iron and folic acid supplementation. Women of reproductive age and adolescent girls are also targeted in some of the pilot projects with iron supplements or nutritious foods. Vouchers for fresh foods, such as, vegetables, fruits and eggs targeted to vulnerable groups are also being piloted, as well as, programming to increase access to vegetables, fruits and nutritious leaves, such as, intensive and multi-storey gardening projects and the planting and care of Moringa trees. The strategy also calls for improved treatment of anemia and acute malnutrition and strengthening the public health programs that relate to the causes of anemia.

Each of the refugee settings has a different mix of pilot interventions that are designed based on nutrition and anemia survey results, other health and nutrition program data, health problems and available public health services; they also consider other factors, such as, the context and available resources on the ground. Sometimes more than one intervention may target a specific group, however, overall project design considers the micronutrient composition of the ration, other available foods as well as the food supplement product introduced to ensure that the total micronutrient content is not above recommended levels. Recently, UNHCR released draft operational guidance on the planning, implementing and monitoring the use of food supplementation products. It delineates a process for assessing the risks and challenges in designing and carrying out such interventions along with guidance on how to minimize risks, implement selected interventions, monitor and evaluate them in camp settings [UNHCR, 2010].

## *III. Current Burmese Refugee Nutrition, Health and Food Security Situation*

### A. Results of Recent Nutrition Surveys and Maternal Health and Nutrition

In 2002 the first nutrition surveys were carried out in 3 camps and yearly border-wide nutrition surveys were conducted between 2003 and 2009. Border-wide global acute malnutrition rates (or GAM, defined as WHZ<-2) are stable and have remained below WHO rates of concern with rates of 3.3% in 2003 and

3.1% in 2009 [TBBC, 2003 and 2009]. (Annex F provides a graph of the malnutrition rates in the Thai border camps between 2002 and 2009.) These low rates, in a setting where camp residents are highly dependent on food assistance, demonstrate the success of TBBC's intervention at preventing acute malnutrition or wasting. This finding was also noted by the ECHO 2009 evaluation and the recent CDC study. Interestingly the Burmese refugee (in Thailand) GAM rates are lower, but comparable to GAM rates in Thailand (5%) and lower than the same rates in Myanmar (11%) [UNICEF, 2009].

One nutrition survey conducted in May of this year in Site 2 camp reported a GAM rate of 7.5%; this is higher than any other GAM rate previously found in all border-wide surveys conducted since 2003. Seasonality, as the survey was carried out at the end of the hot dry or lean season when acquired food sources are less and water supplies strained versus later on in the rainy season when surveys have been conducted in the past. A high number of new arrival children who were determined to have a higher rate of acute malnutrition was another factor. Unfortunately little additional information on household food security, water availability, IYCF or child illness has been collected with the anthropometric information thus it's not possible to identify the factors related to acute malnutrition.

Chronic malnutrition (or stunting) on the other hand has been and remains high. In 2002, surveys from 3 camps reported stunting levels from 35 to 53 percent and border-wide annual nutrition surveys between 2003 and 2009 report rates from 34 to 39 percent with no consistent decline. According to WHO classification chronic malnutrition is considered high (at over 30%) for 6 camps and over 40%, and considered very high, in 3 camps (MRML, MLO, DY) [TBBC, 2009]. An alarming 50 percent of children are stunted by age 5 [TBBC, 2009]. When compared to Thailand (16% stunting), Burmese refugees have more than twice their level of stunting; their rates of stunting are comparable to those in Myanmar (41%) [UNICEF, 2009]. Stunting has both short and long term effects. Stunted children have poorer health and survival; they are also less apt to enroll and regularly attend in school and ones that do have poorer performance. The longer term effects include higher risk for women of birth complications and smaller infants and increased risk for overweight/obesity and chronic diseases (for both sexes), such as, heart disease and diabetes.

The high levels of chronic malnutrition have been associated with poor infant and young child feeding (IYCF) practices, such as, low levels of exclusive breastfeeding, late introduction of solid foods with low nutrient density and too few daily meals [Carrara, 2010]. Data on IYCF is not available for the Burmese refugees, however, exclusively breastfed rates are low in Thailand (5%) and Myanmar (15%) and the percent of infants receiving complementary foods in addition to breastmilk at 6 months is also low in both countries: 43% in Thailand and 66% in Myanmar [UNICEF, 2009]. The 2003 ECHO evaluation stressed the importance of integrating strategies that addressed chronic malnutrition with those addressing acute malnutrition and noted that poor food quality as well as feeding and care practices are associated with stunting [Schuftan, 2003]. Since little information was available on IYCF practices, the same study recommended a study of this topic—to date this has not occurred. In addition little is known about refugees' knowledge, attitudes and practices that relate to health, nutrition and food consumption; only one such study that focused on health practices was carried out in one camp [IRC, 2000]. It was hoped that the FBF would be used as a complementary food and thus improve the quality and quantity of food provided to young children, and in turn, improve growth. This may have occurred more readily when FBF was first introduced along with nutrition education in 2005, but with the reductions in FBF in 2006 and 2008, AM is more often prepared as a snack food for all family members and in most camps is inconsistently used as a complementary food (porridge) for young children.

Some of the nutrition services available in a camp environment, such as, the provision of infant formula for the rare situations when an infant cannot be breastfed can increase the risks associated with infant feeding, in particular, when infant formula is provided inappropriately and families feeding with infant formula are not regularly followed-up and supported properly. Included in TBBC's SFP protocols are guidelines on the provision of breast milk substitutes, however, they do not specify the necessary case management plan for formula fed infants nor the periodicity and type of required follow-up. Further, there is insufficient information provided on the complementary foods required from 6 months; this information should reflect the WHO guidance on feeding non-breastfed infants and young children [WHO, 2005]. In addition, the protocols should be updated to reflect changes made by the Infant and Young Child Feeding in Emergencies Core Group operational guidance [IFE, 2007, 2010]. The Mae Lae study which followed pregnant women and their infants found that 20 percent of infant deaths were caused by improper bottle feeding practices [Cararra, 2010].

Information on the health and nutrition status of pregnant and lactating women is not systematically collected. However, maternal nutritional status, which begins before pregnancy and includes intergenerational stunting, contributes to chronic malnutrition. A study in three camps reported 17% low birth weight and found a correlation between stunting, low reported birth weight and short maternal stature [Faraj, 2005]. When comparing Faraj's results with the LBW data collected in TBBC's nutrition surveys (2008: 10%, 2009: 8%), LBW rates appear to have declined [TBBC, 2008, 2009]. A study from Mae La camp confirms this and also concludes that despite persistent anemia and other micronutrient deficiencies in pregnancy, such as, zinc and beta carotene, others have been drastically reduced (thiamine) or virtually eliminated (vitamin E) between 1996 and 2006 [Carrara, 2010]. It also reported that women's overall health has improved; less women smoke during pregnancy, pregnancy weight gains are larger, malaria has been reduced and acute malnutrition is rare. They attribute these improvements to a combination of factors, including the improvements to the food ration over this time.

B. Micronutrient Deficiencies

The prevalence of micronutrient deficiencies among displaced populations has lead to calling it the "silent emergency" or "silent malnutrition" since clinical signs are often not manifested. In the Thailand Burma border camps, the micronutrient status is not well understood. A number of small-scale studies of thiamin deficiency have been conducted, and success was achieved in the reduction of beriberi through thiamine supplementation for pregnant women [Schuftan, 2003]. Even so, thiamin deficiency still exists and thiamin supplementation dosages for pregnant women vary widely between camps [Schuftan, 2003]; thiamin deficiency was found in 10 percent of pregnant women, according to a study in Mae La camp [Carrara, 2010].

A number of anemia studies have also been conducted. One in the early 2000's detected very high levels of anemia in 5 camps; 72 percent in children under 5 and 88 percent in young children between 6 and 24 months [Kemmer, 2001]. At about this same time, a study of long-term African refugees in five settings, found that anemia levels in the worse affected camps were surprisingly comparable to the Burmese setting [Seal, 2005]. According to a baseline (2004) and follow-up study of anemia (2006) conducted in one camp, Umpiem Mai, anemia decreased significantly from 41 to 32 percent; this was partially attributed to the introduction of FBF during this time period [Talley, 2006]. This same study also measured anemia in women and found it to be lower as expected than in young children, but common in both pregnant and non-pregnant women with reductions occurring between 2004 and 2006 [Talley, 2006]. (See Annex G for a table of the results of border-wide micronutrient studies.) A recent

study in Mae La camp found a higher level of anemia, 39 percent, in pregnant women [Carrara, 2010]. A more recent lead and anemia study in 3 camps which included Umpiem Mai, found that an alarming 55 percent of children under 5 had anemia and 70 percent of children under 2 and that lead poisoning was significantly associated with anemia [Mitchell, 2009]. Although the second anemia study only overlapped with one of the three camps from the first survey, one could surmise that anemia rates have increased since 2006 and that the reductions in FBF between 2006 and 2008 contributed to this.

The recent CDC review noted that there is no routine monitoring of anemia except for pregnant women and malnourished SFP beneficiaries and that although they are provided iron supplements, protocols are not consistently followed between camps. Deworming which helps to address anaemia, also varied widely between camps. The recent CDC review and the two ECHO evaluation reports have expressed concern about the rates of anemia among young children and other groups and identified it as a moderate to severe public health problem based on WHO criteria [Hilmers, 2010; Schfutan, 2003; ECHO, 2009].

During annual nutrition surveys clinical assessments of riboflavin deficiency (vitamin B2) are conducted; recent nutrition surveys detected such signs in 1 percent of children compared to earlier in this decade when studies found 5 to 21 percent of children with active lesions [TBBC, 2008, 2009; Faraj, 2002]. Regarding vitamin A deficiency, clinical assessments have yielded few cases, on the other hand, studies of pregnant/lactating women report low vitamin A levels (33%), vitamin A deficiency (5%), lacking Beta-carotene (66%) [Carrara, 2010] and vitamin A deficient breastmilk (15.6%) [McGready, 2003]. Vitamin A supplementation is provided border-wide with coverage rates for children above 95 percent until 2007 when UNICEF stopped supplying the vitamin A. At this time coverage dropped to 25 percent and has been steadily increasing since with 63 percent coverage of under 5 year olds reported in 2009 and over 70 percent coverage in postnatal women--still far below the targets of 95 and 90 percent [TBBC, 2009; HIS, 2010]. It was noted in the recent CDC review that the vitamin A protocol were not entirely consistent with international guidance. Health agencies individual procure of micronutrient supplements, as well as, a lack of standardization of Reproductive and Child Health protocols contributes to inconsistent micronutrient supplementation and administration of deworming medications between camps.

Since the ration foods (including AM) lack vitamin D fortification and most foods purchased to supplement the ration are also poor sources of this nutrient, it is likely that refugees are at risk for this deficiency as well. Calcium levels may also be deficient, particularly among adolescents and adults, though one ration food, fish paste contribute calcium to the diet. Both the INMU (2001) assessment and a TBBC report (2003) noted that the ration was calcium deficient. Cases of goiter were identified in the past (INMU, 2001), more recent clinical assessment of goiter have not been carried out. However, the ration has included iodized salt since 1993 and TBBC regularly spot-checks the level of iodization in the salt purchased for the ration. Zinc deficiency was found in 31 percent of pregnant women in a study from Mae La camp [Carrara, 2010]. Other important micronutrients include folate, vitamin C and phosphorus, but it's not known if deficiencies of these micronutrients exist in the Burmese camps.

C. Burmese Refugees Nutrition Related Health Problems

The diet and lifestyle of Burmese refugees in the camps along the Thai Burma border is quite different from how they or their parents and ancestors formerly lived. For the most part, they were farmers who raised their own rice and through pounding produced, a type of brown rice, with more micronutrients than the polished white rice they currently consume. Rice was the mainstay of their diets, but there was

far more diversity when compared to their current diets. They also consumed high sodium foods, such as, fish paste and salt, but since they also grew a variety of vegetables, raised livestock and regularly foraged for wild foods, most likely they ate less salt and high sodium foods. Further, their rural farming lifestyles were very physically active—adult overweight and obesity reportedly were not seen.

As mentioned, populations, such as the Burmese refugees, with high levels of stunting are more at risk for overweight/obesity and chronic disease, such as, hypertension. Little information from the camps exists on this subject, though a study of pregnant women from Mae La camp, found that 22 percent were overweight [Carrara, 2010]. From this information, one could infer that overweight exists among adults and is even more common among older women than younger pregnant ones. The same study found that 24 percent of pregnant women smoke indicating that smoking may also be a problem in the camps [Carrara, 2010]. Interestingly, this population with its increased risk for hypertension and cardiovascular most likely also has other risk factors, such as stress, overweight, smoking and sedentary lifestyle, which increase the risk for chronic diseases. Health agency staff reports that conditions such as hypertension and cerebrovasclar disease (CVD) or strokes are common among adult camp residents. In the last two years, UNHCR's Health Information System in the camps has started to include CVD and chronic obstructive pulmonary disease (COPD) among its causes of mortality. Improvements are still being made to the quality of the HIS data and reports, however, this year's reports have improved markedly and considered to be fairly accurate [personal communication, Christine Petrie]. On average for the first months of this year, 14 percent of reported deaths in the camps were caused by CVD and 5 percent by COPD with 15 percent of the causes of death unknown [HIS, 2010].

Over the last five years with the resettlement program over 60,000 Burmese refugees have resettled in third countries. More of the younger and better-off refugees and those with more education and job skills chose to resettle leaving an older, less educated and potentially less healthy population behind. This coupled with the fact that the current census is similar to the population when resettlement started due to a continuous stream of new arrivals contributes to a less healthy refugee population.

D. Reducing Refugee Vulnerability: Food Security, Gardening and Income Generation Activities

TBBC's historical approach (Part I, I. A), to food security includes information on its gardening and income generation activities. Accordingly this section will present additional information from the ECHO vulnerability study and present some of the information available on current agriculture, gardening and livelihood activities implemented by TBBC and NGOs border-wide.

The ECHO vulnerability study conducted in 2009 found that the largest percent of households (42%) identified casual labor as their income source, fixed employment or stipend NGO workers was reported by 32 percent of households, remittances were reported by 25 percent of households (frequency and amounts not quantified) and 10 percent owned shops or engaged in trade. One of the conclusions of the study was the need to increase refugees' opportunities to earn cash. A number of income generation programs including agriculture production, labor market opportunities and small businesses appropriate to the camps were recommended. The RTG containment policy, overall lack of job skills and also, insufficient Thai language skills were identified as constraints to improving refugee income.

Information on agriculture production and gardening was also included in the ECHO vulnerability study. In the four camps 18 percent of households have vegetable gardens; close to one-third have fruit trees, one-quarter raise pigs and 24 percent own poultry. The percent of households with vegetable gardens, fruit trees and animals varied between camps since this depends on the amount of land around houses

and available outside of camps, as well as, the availability of other livelihoods, such as, casual labor. In one camp, Tham Him, no households reported owning livestock since the RTG regulation prohibiting refugees from possessing livestock is strictly enforced. Gardening improves household vegetable consumption and saves between 100 to 200 baht per month according to CAN program beneficiaries [personal communication, Dave Brown]. One strategy which TBBC and other NGOs engage in--securing more agricultural land in the vicinity of camps--was recommended by the study. Local negotiation of land with villagers seems a viable and important strategy to strengthen the relationship between refugees and Thai villages, which could support the development of other livelihoods as well as improve land access over time.

Gardening, agriculture and other livelihood programs and activities have been expanding in the camps in recent years though the focus has been much more on gardening and agriculture with 7,500 (29%) of households receiving seeds (CAN), 4,800 (18%) receiving training and inputs (COERR, CAN, Solidarités International (SI), Netherlands Refugee Care (ZOA)) and additional 900 receiving gardening toolkits and fencing (CAN). All camps have gardening programs; COERR is active in all camps, whereas the other NGOs are focused on the Mae Sot and Mae Sariang camps where the populations are higher.

In comparing the Livelihood Working Group's information (2010) to the vulnerability study gardening data (2009), the percent of households reporting having a garden (18%) is the same as the percent reporting having had training (18%); much lower than what might be expected given the seed distribution to additional households. This could be potentially explained by a large increase in gardening this year, refugees not always using the distributed seeds or the fact that refugees don't count a small plot near their house as a garden. Strengthening monitoring and evaluation of these programs is critical so that use of inputs is known and valuable program information, such as, what program strategies work and changes in vegetable consumption and income can be captured and shared. This is particularly important when planning scale-up.

The reported livelihood programs are fewer and smaller, and as a result, not widely available. Recently a CCSDPT Livelihoods sub-committee convened; they are drafting a strategy and recently completed a Livelihoods Resource Directory which provides information, such as, program sites, numbers of beneficiaries and funding levels of agriculture, gardening and livelihoods programs currently operational.

**SECTION II: Improving and Protecting Nutrition and Saving Food Costs**

This section provides extensive information for improving nutrition through gathering data to better address micronutrient deficiencies, revising out of date nutrition program and micronutrient supplement protocols, introducing a nutrition program for young children, strengthening nutrition education, modifying and substituting ration foods and implementing improved food procurement practices.

## *I. Improving and Protecting Nutritional Status*

A. Improving Micronutrient Status

- Conduct a Border-wide Micronutrient Study and Develop a Strategy to Address Micronutrient Deficiencies

As outlined in previous sections, the micronutrient status of the refugees along the Thailand Burma border is not well understood. Further, the reductions in AM in 2006 and 2008 have significantly decreased the micronutrient content of the ration placing an increased number of refugees at risk for micronutrient deficiencies. Recent small studies demonstrate that anemia and other micronutrient deficiencies are still common and may be increasing. Given that micronutrient deficiencies are often inter-related prior to planning such interventions, establishing a baseline and gathering more data about the specific deficiencies among population groups is necessary. For these reasons, and in particular now when ration reductions are planned, it is critical that a border-wide micronutrient survey be carried out as soon a possible.

Therefore, it is recommended that TBBC make such a request to the CDC Immigrant, Refugee and Migrant Health Branch as soon as possible. Mahidol University Institute of Nutrition may be interested in collaborating with CDC and TBBC on this. The results of this survey could then be used to develop a strategy to address micronutrient deficiencies and plan interventions integrated with ongoing health, education and nutrition programs.

- Update and Standardize Micronutrient Protocols

Although some protocols for the supplementation with micronutrients are directly under TBBC's control, such as, those included in the SFP and Therapeutic Feeding Program (TFP) for malnourished individuals and the vitamin A protocols others, like iron supplementation during pregnancy are embedded in Reproductive and Child Health (RCH) protocols which vary between health agency. It is advised that when the SFP and TFP guidelines are updated that the micronutrient supplement components be reviewed with international guidance to ensure they are consistent. The recent CDC review reported that the vitamin A protocols are not entirely consistent with WHO's and that deworming protocols vary between agencies so these should be reviewed in collaboration with the Health Subcommittee and Nutrition Task Force (NTF), a task force of CCSDPT's Health Subcommittee. Similarly, the micronutrient guidelines included in the RCH protocols should be reviewed in light of international guidance, updated and adopted by the Health Subcommittee. Identifying one health agency to purchase all the micronutrient supplements and deworming medications and to distribute them to all health agencies is also recommended.

B. The Supplemental Feeding Program (SFP) and other Safety Net Programs

- Integrate a Food incentive and an IYCF, nutrition and health education component to the Growth Monitoring Program for children 6-24/36 months

As mentioned, chronic malnutrition or stunting is quite common in the Burmese refugee camps. Poor infant and young child feeding practices, including complementary foods of poor quality, have been closely associated with stunting in this setting and in others. In addition, little is known about the cultural influences on infant feeding, care practices and the barriers to improving infant feeding practices. The recent ECHO evaluation pointed out that although other vulnerable groups, such as, pregnant and lactating women received supplemental foods, infants from 6 to 36 months, also a very vulnerable group, do not; the study recommended topping-up their ration through providing AM as an incentive to attend Growth Monitoring (GM). Potentially this would increase participation in GM sessions as well as improve the diets of infants and young children. In recent years more Maternal and Child Health and Nutrition programs are including such components, because the "window of opportunity" for improving nutrition is small—before pregnancy through the first 2 years of life--and the damage to physical growth, brain development and human capital formation that occurs during this time is extensive and largely irreversible [World Bank, 2006]. A current study supports this approach. It compared a preventive approach of providing a blanket FBF to young children between 6 and 24 months along with complementary nutrition/health education and health services to a recuperative one which only treated similarly aged children with acute malnutrition while providing the same complementary services; it was found not only to be cost-effective, but also to lower rates of stunting, wasting and underweight while the recuperative approach did not [Menon, 2007]. WFP guidance and a recent analysis of specially formulated foods to prevent malnutrition in young children also supports blanket feeding for 6 to 24 months old children with FBF or LNS who exhibit similar nutritional problems (high levels of stunting, underweight and micronutrient deficiencies) and risks [de Pee, 2009; WFP, 2010].

Therefore, it is recommended that formative research be conducted in order to support the design and implementation of a pilot community-based GM program with an IYCF focus and FBF or LNS incentive. See Annex H for a description of formative research and the CARE Group Model, a community-based nutrition and health approach that is applicable to the refugee camps and has been shown to be effective in improving IYCF and health practices. It is also suggested that once the results of the pilot project are available that the lesson learned be identified and the pilot expanded border-wide. In addition, the proposed micronutrient strategy should be expanded to include chronic malnutrition and the GM program. World Vision Thailand is currently integrating the promotion of improved IYCF practices in its Area Development Programs (ADP) in Northern Thailand and Kanchanaburi. Their target groups overlap since they plan to target pregnant women and young children from birth to 2 years; they also plan to target vulnerable groups, such as, the displaced and migrants. They may be developing some appropriate materials and be willing to share experience or even support work in overlapping geographical areas. In addition, UNHCR's senior nutrition advisor is interested in providing initial and ongoing technical assistance for such a pilot and UNICEF Thailand may also be interested in this project since it fits with their focus on addressing poor IYCF.

- Update the SFP Program

The 2003 and 2009 ECHO evaluations called for discontinuing the foods other than FBF and premix items from the SFP. The Nutrition Task Force (NTF) of the CCSDPT Health Subcommittee has agreed to this as

well. Doing so will make the program more consistent with international guidance, save money and help eliminate disincentives for program graduation. Updating the SFP guidelines so that beneficiary groups, eligibility criteria and maximum length of stay are consistent with international guidance and standardized between camps is also needed. For example, this would include integrating the use of the WHO growth charts from 2006 which identify higher numbers of younger children with acute malnutrition. SFP guideline revision should be developed with the NTF and Health Subcommittee participation so that health agency staff input is considered and to ensure buy-in. In a previous section, the problem of improper bottle feeding and the need to update the guidelines for breast milk substitutes included in the SFP protocols was discussed; this should be a priority. The new guidelines should be introduced with training followed by regular nutrition officer monitoring. Program monitoring has been insufficient in the past, thus a mechanism to identify and resolve problems was lacking; for the program to be standardized and improved ongoing monitoring is critical.

Phasing out supplementary feeding for malnourished children under 5 was considered, given the low numbers of yearly new admissions, however, the program was seen as important to some health agency staff since the camps continue to admit new arrivals who have higher levels of acute malnutrition. In the future, if FBF is included in the GM program, SFP for malnourished children should be phased out for children under 2/3 as both programs provide similar commodities. Health agencies have just received SFP training (October 2010) which should improve beneficiary tracking and provide reliable information on program indicators, such as, new admissions, readmissions, length of stay, etc. Further, when updated guidelines are introduced, there will be fewer overall beneficiaries and with simplifications of foods provided, foods will no longer be purchased by the health agencies and reimbursed by TBBC. Over time this will save money and require much less administrative work on the part of health agency and TBBC staff. It may also be possible with the new FBF products (see next sections) to eliminate pre-mixing of the supplemental foods as indicated in the proposed program beneficiaries and budget in Annex H. Consideration could also be given to importing ready-to-use supplemental (RUSF) and therapeutic foods (RUTF) for individuals with moderate and severe acute malnutrition. MSF when they worked along the border brought in RUTF; it allows for community/home-based treatment and has been shown to be as effective as in-patient treatment. Importing RUSF to treatment moderate acute malnutrition could also be considered as it has been shown to shorten recovery time and is easier to manage as a commodity.

A proposed SFP budget with the recommended beneficiary groups, rations and estimated caseload was developed with the nutrition manager; a copy is included in Annex I. Significant savings were identified and used to develop the proposed budget, however, the savings will only be realized if the recommendations are implemented and the anticipated savings will be offset when the FBF incentive is added to the GM program. The groups of SFP beneficiaries include: (1) the malnourished who receive recuperative feeding; (2) individuals with chronic diseases or special health needs who receive supplemental food; (3) infants unable to breast feed who receive infant formula; and (4) a preventive safety net component which includes pregnant and lactating women, 6 to 24/36 months old young children (as recommended) and the nursery school lunch and snack program for 3 to 5 year old children. For the nursery school program, cost savings, more consistency in the provision of meals and snacks between sites and greater nutritional impact could be achieved through bulk food buying of fresh foods, distribution of food commodities (FBF, beans and oil), standardization of recipes and additional program monitoring and training. This program also provides an opportunity to support micronutrient nutrition through incorporating a micronutrient powder in the meals served and/or distribution of the micronutrient powder sachets to families. Prior to considering this, a micronutrient survey is needed

and the results analyzed and considered with the ration and other food sources when planning interventions.

- Other Safety Net Programs

Other groups included in the SFP are hospital in-patients and patient houses where refugees seeking health care outside of camp stay. The monitoring that has lead to the standardization and reductions of the in-patient feeding across sites should be continued and these two groups should be moved to another part of the budget since this program provides a general food ration rather than a supplemental one.

Another safety net program, is the Boarding House student ration (for children over age 5 up to young adults), which provides a ration similar to the adult ration, but with the quantity of AM (1 kg.) provided to children under 5. Currently a survey of Boarding Houses is being undertaken to understand more about the program, its many sponsors and the children living in them. From visiting several Boarding Houses (BHs) located in camps along the border and visiting homes, it became evident that in some, children living in BHs have parents residing in the same camp. Several reasons were given for this: (1) single parents cannot always care for and manage their children; (2) poverty—the BH provides a better environment than some homes; (3) the camp setting where impressible children are influenced by teenagers who have dropped out of school; and (4) for new arrival families, the BH provides a ration, for the children. In light of this, TBBC's BH ration should be set so that it supports families living together and doesn't attract students with parents in camps to Boarding Houses. Other issues were also identified, such as, food storage. In most BHs visited the food was not stored properly and in some BHs visited food items, such as, tinned fish were in lower supply than expected. Thus, it is recommended that BH caretakers and students be trained in food storage and management and that nutrition officers monitor them regularly.

The elderly, aged over 65 years is another vulnerable group, given their increased micronutrient and protein needs and high risk for disability, psychosocial stress and poverty. COERR's programs for the extremely vulnerable target older people. An assessment may be needed to determine if the nutritional needs of the elderly are being addressed.

C. Nutrition Education: The Mostly Missed Opportunity

Nutrition education is offered to camp residents by the health agencies through health workers, such as, RCH staff and community health workers (CHW). From camp visits and interviews with health workers, it appears that nutrition education is primarily extended during SFP clinics for malnourished patients where cooking AM demonstrations are often featured as is strongly requested by TBBC [TBBC, 2008]. Though food demonstrations do not seem to be offered in all SFP clinics, but where it is offered, health workers feel it has been very helpful in improving beneficiaries' intake of supplemental foods [personal communication, IRC health staff Tham Hin and MI health staff MRML]. Further, TBBC's longest serving food security officer and former nutritionist report that the nutrition education campaign to introduce AM which included food demonstrations, videos, recipes and information on the importance of eating AM was effective in gaining acceptance and increasing consumption initially. Some of these recipes are the same ones used in SFP cooking demonstrations today. The problem was more that the campaign didn't continue or wasn't updated and reintroduced [personal communication, Andrea Menefee, TBBC nutritionist 2000-2007].

When the consultant visited Umpiem Mai camp, she spoke with CHW who provide nutrition education as part of their regular home visits. Although they have some patient education materials, it didn't appear that they had a systematic approach to providing information on age-related nutrition topics, such as, exclusive breastfeeding for infant under 6 months, when to start complementary foods and appropriate recipes, etc. They also reported that they now have half as many CHW and thus with fewer visits that focus on more critical information such as disease outbreaks. One of the SPHERE general nutrition support standards requires that appropriate nutritional information, education and training is given to relevant professionals, care givers and organizations on IYCF practices so that education on these topics is effectively transferred to households with infants and young children [SPHERE, 2004].

Only in half of the camps visited was the consultant able to confirm that households with malnourished children are visited and a systematic linking of households with malnourished individuals to CHW home visits is not apparent border-wide. This may be due to fewer CHW, but it may also reflect the lack of integration and training in nutrition programming and the lower priority it appears to receive from some health agency staff.

The 2001 INMU and the 2002 Faraj assessment called for the initiation of nutrition education by the community health workers and the 2003 ECHO evaluation recommended that the nutrition education provided be strengthened. CHW currently have no nutrition education curriculum, so obviously they need tools (and training with them) so that the education they provide is age-related, appropriate and focused on behavior change. Ideally the nutrition problems to address should be prioritized using assessment information, such as, the results of nutrition surveys and studies. And it should be based on formative research which identifies the problematic behaviors, such as, poor quality complementary food; and determines the barriers to change and how to overcome them. The next steps would include digesting this information into messages, practical guidance and CHW tools, pilot testing and finalizing the materials, then staff training and implementation and lastly, regular monitoring and evaluation.

With fewer CHW, training peer educators or volunteer women and men to give some of the nutrition information should be considered. This fits with the proposed CARE Group model to be implemented with community-based GM, in this approach, "volunteer" mother group leaders are identified and trained to lead monthly nutrition sessions with between 10 to 15 mothers. Their responsibilities include weighing children, maintaining minimal data, home visiting between 10-15 households monthly, and attending monthly training and sharing meetings with other mother group leaders and their CHW supervisor. A similar process including formative research would be recommended to develop the messages and education tools for this nutrition and health education program. (For more information on formative research and the CARE Group Model see Annex I.)

Nutrition education can be a powerful and effective tool in supporting behavior change and has been shown to be effective with refugees in gaining acceptance for new foods in this context and others. However, it needs to be well designed and implemented and often repeated. In supporting refugees' nutrition, an integrated approach of cultural preference integrated with nutrition can help bridge the gap between preferences and improved (or necessary) food choices in their new environment. It is advised that TBBC include a strong nutrition education component focused on behavior change and prioritizing specific issues, such as, IYCF and micronutrient rich food intake based on problems identified through assessment in their nutrition programming. This should be included in the border-wide nutrition strategy (and the health one as well) and funding should be sought so that this approach can be adequately implemented since this is even more important with the planned ration changes.

D. Complementary Programming: Expanding the Reach and Integrating Nutrition to Enhance the Impact of CAN and Livelihoods Programs

It's beyond the scope of this study to recommend how to expand the reach and intensify CAN's programming so that its methods spread and that most refugees who would like to garden, raise small livestock or farm on a small scale are able to do so. However, as noted in the recent CAN evaluation, TBBC has played a critical role in promoting low-input intensive gardening and that there are still significant unmet needs that could be addressed through intensifying and implementing activities as part of a community development approach that TBBC's other programs, such as, the proposed community-based GM and nutrition education could build on. As the ration is reduced, it is anticipated that demand for land and inputs for gardens will increase. Integrating the proposed CARE groups with CAN gardening activities when (and where appropriate) is also advised as has been done in other refugee contexts to improve the diets of a particularly vulnerable group. Applying formative research methods with such groups could support the design as would carrying-out pilot projects. It may turn out that families with very young children have limited time so that only certain gardening activities will work.

It is advised that TBBC's Agriculture and IGA Managers begin planning for this in coordination with the LWG, through developing individual livelihood strategies for each camp based on the specific camp context, assessments of livelihood programming in the 9 camps, program monitoring and evaluation results and the overall border-wide strategy under development. Following this, to raise the funds to support more multi-year livelihood programming, the list of potential donors should be broadened, and proposals developed and submitted. In particular, building on TBBC recent successes in facilitating land negotiations between refugees and Thai villagers is also recommended; and where such opportunities exist, this activity should be expanded, particularly for joint refugee/Thai villager agricultural projects.

Home gardens increase vegetable availability and consumption and save food costs, they also can increase household income through sales [World Bank, 2007]. In other settings, homestead food production which provides training, nutrition education and inputs for raising small livestock and vegetables has been shown to improve beneficiaries' intake of vegetables, liver and eggs, and in turn, improve their iron and vitamin A status [HKI 2007, 2010]. It was also shown to contribute to women's self-esteem and empowerment [HKI 2010] and in the Burmese refugee context it could contribute to increasing the level of exercise for a rather sedentary population and help decrease chronic disease risk.

Not until Helen Keller International (HKI) integrated small livestock with their activities (and increased animal product consumption) were they able to demonstrate actual improvements in micronutrient status among beneficiaries; their approach focuses on women, incorporates a model farm/farmer and a community marketing approach. Four factors have been identified as critical for the success of homestead gardening programs to improve nutrition impact: the inclusion of nutrition education and promotion; gender sensitive initiatives; adaptability to local conditions; and monitoring and evaluation [Berti 2004]. A review of HKI HFP programs identified three additional factors: an initial pilot project, easy access to gardening inputs and active community participation [Taluker, 2006]. Monitoring and evaluation needs additional emphasis since little is known about the role of gardening or homestead food production in addressing micronutrient deficiencies in the refugee context [Dye, 2007].

Given the potential for improving micronutrient status, CAN should consider integrating small livestock production component where possible or partner with an NGO with expertise in this area. It is also advised that CAN enlarge its nutrition component so that the vegetables promoted are high in the

micronutrients lacking in refugee diets and that participants are aware of which vegetables are high in particular nutrients, such as, iron, calcium and vitamin A; and, in addition, information should be provided on the quantities of vegetables to grow and consume (along with recipes and portion sizes) to ensure adequate nutrition according to their household size. Developing this information initially should focus on the most vulnerable groups, such as, very young children and pregnant and lactating women.

Livelihood initiatives, such as, TBBC's pilot program on entrepreneurship development have the potential to increase refugees' incomes and support their self-reliance. It is suggested that when planning such activities in camps that assessments with refugees to determine any unmet needs for products or services be conducted so that the small businesses started may have more support. After the pilot currently underway is completed, it is advised that the lesson learned be applied to expanding and replicating the project. The current study that TBBC is undertaking on urban markets for refugee woven items will provide valuable information on further developing weaving as a livelihood for refugees. It is recommended that this and the work undertaken on developing refugee livelihoods through fabricating shelter materials be aggressively pursued. Lastly, a community saving and loan program is planned for the camps. It is advised that this be rolled out as soon as feasible, given that most households incomes are from casual labor which is seasonal and the fact that remittances are received by one-quarter of households, families would benefit from opportunities to save money; and, on the other hand, they would also benefit from opportunities to borrow money at lower interest rates which could also support entrepreneurs. Even though it may be more difficult to save as the ration is reduced, the importance of saving money, even small amounts, increases.

## *II. Modifying, Substituting and Changing Quantities of Ration Foods*

### A. Modify or Substitute Ration Foods to Improve Nutritional Content and Quality

Substituting more nutritious foods for some of the foods currently offered in the ration could improve the overall nutrition content of the ration. The following section discusses some of the cost-effective options to do this. To set the context, it begins with a review of the ration initially planned for 2011.

- Review of the food ration initially planned for 2011

The nutritional review of TBBC's food basket prior to the 2010 bean cut confirmed, the high carbohydrate and low fat content, and the poor quality of the protein (primarily from rice) complemented by an insufficient quantity of protein from beans, thus less of the protein is useable. In addition, due to the low level of fortified blended food (FBF), the ration is deficient in micronutrients, particularly for beneficiaries over age 5. The level of sodium in all rations is high due to the high provision of iodized salt on top of the sodium-rich fish paste provided as a condiment. The soybean oil provided is not fortified with vitamin A and D and is higher than the amount usually provided by WFP. Due to cultural preference, the larger than usually provided quantity of cereal is white rice that is not fortified or parboiled. When compared to the SPHERE general nutrition requirements, it is lower than the recommended percentage of calories provided by protein and fat and does not ensure adequate micronutrient intake through fresh or fortified foods [SPHERE, 2004]. See Annex J for a nutritional comparison of the three TBBC general food rations (child < 5, adult and BH student) provided in 2009 and first half of 2010. These rations were planned for 2011 prior to planning for a lower budget and considering ration reductions.

- Rice

To improve the quality of the rice provided and, in turn, to increase the quantity consumed by refugees, substituting 25 percent for the 35 percent broken rice currently purchased is recommended. The prices are similar; during the first week of October of this year, the prices for 25 and 35 percent broken rice were $420 and $437 per metric ton (MT), respectively. Twenty-five percent broken rice has 28% broken pieces compared to 40% percent found in 35 percent broken rice, this, in turn, increases the quantity of rice available for refugee consumption since the smaller broken pieces cannot be eaten. Substituting brown rice (cargo rice 12% broken) for one-half of the white rice provided is also suggested; since its cost ($400 MT, 10/2010) is similar to 25/35% broken rice and the quality higher. Brown rice is higher in protein, fiber, fat, B vitamins and minerals, such as, calcium, zinc and iron compared to the polished white rice TBBC provides. Polished rice has been processed which removes significant amounts of the vitamins and minerals—and it is not fortified. Given its low levels of thiamin, its consumption as a dietary staple has long been linked with beri-beri in refugee and non-refugee populations [WHO, 1999]. See Annex K for a table with the nutritional composition of polished white and brown rice for more specific information.

As mentioned the Burmese refugees consumed rice similar to brown rice when they lived Burma. During meetings with refugees in several camps, they quickly understood the importance of the nutritional benefits of brown rice and expressed interest in trying it. To that end, piloting a mixture of brown and white rice along with nutrition and cooking information and cooking demonstrations is recommended in as many of the camps as possible. It may turn out that some camps accept brown rice and other do not; or that a different mixture of brown to white rice is preferred. And if possible over time increasing the amount of brown rice is recommended.

Another option that could improve its nutritional contribution of rice to the diet would be to provide fortified rice. According to WFP this technology will soon be available in Thailand, but this would add an estimated $50 per MT to the cost [personal communication, Shane Prigge]. And, in addition, it may not be possible to fortify the form of broken rice that TBBC purchases. Introducing fortified rice would also require extensive sensitization and education since the “fortificants” are actually included in the rice as small pieces that could be “winnowed” out and, thus, not consumed. As yet, WHO has not developed nutrition specifications for fortified rice; and they are not expected in the near future, however, the main vitamins and minerals included are vitamin A, vitamin B1, folic acid, vitamin B12, iron and zinc [personal communication, Shane Prigge]. For a rough comparison of fortified rice to other available types of rice, the nutritional composition of rice enriched in the United States is included in Annex K, though fortified and enriched rice products are not the same. Another similarly priced option, parboiled rice, is currently available in Thailand; its price was $525 MT compared to $455 MT for 25% broken rice [WFP 10/2010]. As mentioned, parboiled rice has been used in other refugee settings, such as, the Bhutanese camps in Nepal. And, introducing it would necessitate extensive nutrition education. As its name suggests, parboiled rice is boiled in its husks prior to milling which improves the nutritional profile. See Annex K for a table with the nutritional composition of parboiled rice.

To summarize, both fortified or parboiled rice would improve the nutritional contribution of rice to the food ration; and given the large amount of rice (cereal) provided this could significantly improve intakes of many micronutrients that are marginal or deficient in Burmese refugees diets—but, unfortunately with a higher cost of 12 to 15 percent. Therefore, if brown rice is not accepted it may be worth investigating the availability and prices of fortified or parboiled rice. It’s not just a cost issue, refugee consumption of brown rice would be preferred, because when rice is fortified not everything removed in

the milling process, such as, protein, fiber, fat and some micronutrients can be added back, although it may be higher in some specific micronutrients. Likewise, brown rice would be preferred to parboiled rice because not all micronutrients are preserved through the parboiling process, and similar to polished rice, the bran and endosperm are removed during the milling of parboiled rice which reduces its fiber, fat and protein content.

- Fortified Blended Food (FBF)

Over the past few years, WFP food technologists have worked with researchers to develop better FBF products that have improved formulations and micronutrient compositions that are more bioavailable. In addition, phytates, the substances found in plants that interfere with micronutrient absorption have been decreased. Annex K includes a table with the nutritional composition of Asia Mix and Rice Soy Blend+ (RSB) for comparison. In addition, they are processed so that when the foods are prepared they absorb less water, cook more quickly and are more nutrient dense. Actually two types of products have been developed: FBF+ and a FBF++. The "++" version is formulated for young children between 6 and 24 months and includes dried skim milk powder, whereas, the "+" version has an improved micronutrient composition compared to the traditional FBF without the dried skim powder (DSM) and is designed for older children and adults. Animal protein has been shown to more readily improve growth in young children when compared to vegetable protein sources. Between 6 and 24 months infants and young children have high growth velocity, during this time in addition to breastmilk they require nutrient and protein dense complementary foods; this is why DSM is included in FBF++ product. The nutrition composition of Corn Soy Blend ++ (CSB++) is also included in Annex K.

Recently a company, Mekong Valley Foods, which was supported by WFP when it started operation in Laos, moved to Northern Thailand. They make both FBFs in a rice-soy blend called RSB according to WFP specifications. Their current prices (10/10) excluding transportation are: RSB+ w/o sugar- $703.32 MT; RSB++ with sugar- $788.68 MT; and RSB++- $1,075.45 MT. They compare favorable to the current price TBBC pays for AM is: $1170.00 MT including transportation.

The RSB++ is recommended for the 6 to 24/36 months old children participating in the GM program. RSB+ without sugar has been piloted in Mae La camp with good acceptability. It is recommended that it be more widely piloted to determine the acceptability of RSB+ with sugar and without so that the appropriate product can be targeted to beneficiary groups. For example, the RSB+ with sugar may be appropriate for children over age 2 so that it easily can be prepared as porridge. As noted below sugar as a separate ration item will be eliminated.

- Vegetable Oil Fortified with Vitamins A and D

Since TBBC started to provide oil only unfortified vegetable oil has been available in Thailand. Because most typical ration foods are not good sources of vitamins A and D, WFP's policy for a number of years has been to distribute fortified vegetable oil. In light of this, a faculty member of Mahidol University Institute of Nutrition was asked to inform TBBC of their progress in developing a fortified oil product and the potential for Thai oil processors to fortify oil in the present and near future. Oil fortified to WFP specifications provides about half the daily RDA for vitamin A. Depending on what is learned regarding the availability and cost-effectiveness of purchasing fortified oil in Thailand a decision should be taken and appropriately and followed-up. If it is not possible to purchase fortified oil in Thailand investigating international procurement is recommended. In October of this year, fortified soybean oil was available from Turkey at a significantly lower price than what TBBC pays for oil in Thailand.

TBBC procurement staff was provided WFP regional office contacts and a copy of the prices of food commodities available on the international market. The recommended micronutrient survey would include assessment of vitamin A; these results if timely could inform the urgency of including fortified oil in the food ration. Further, given the low coverage of vitamin A supplementation, particularly, in under 5 year olds and the ongoing numbers of new arrivals over the last few years, providing vitamin A and D fortified oil is even more important.

- Improve the Nutritional Content of Foods Substituted for Beans and AM in the Four Stock Pile Camps

Four of the nine refugee camps stock pile food at the beginning of the rainy season, some for 6 months and others for 7 to 8 months depending on locations and road conditions. AM and also RSB products have an average shelf life of 6 months as do the mung beans currently distributed. For the 7$^{th}$ and 8$^{th}$ months, tinned fish in tomato sauce and rice are substituted for beans and AM respectively. Although these foods are preferred by refugees, when nutritional composition is considered, the substituted foods are not comparable. Therefore, finding more nutritious substitutions is advised. For example, canned mackerel in water or oil is higher in protein and lower in sodium than tinned fish in tomato sauce. The price to purchase this product in bulk is being investigated. Earlier this year a new supplier of mung beans provided them double-bagged which increased their shelf life so they may last for 7 to 8 months without molding. Another option mentioned below is procuring beans on the international market such beans have a longer shelf life, i.e. 1 year. Regarding the FBF, it is advised to maintain a dialogue with Mekong Valley Foods; if they are able to lower the moisture content of the RSB products their shelf life may be lengthened. If not, additional canned mackerel would be a better substitute for AM than rice.

- Substituting Less Expensive Forms of Protein for Mung Beans

As mentioned it was the skyrocketing price of beans that forced TBBC to suspend beans from the ration earlier this year. During this consultancy potentially less expensive protein-rich foods available in Thailand were researched with little success. There are not many varieties of smaller sized dried beans found on the Thai market; and larger sized beans would require too much fuel to cook. Initially other beans, such as, green whole mung beans were priced, however, given that the yellow mung beans are made from the whole green ones there wasn't much price difference. Yellow split soy beans were investigated; the price is a bit lower, but the longer cooking time to prepare them as soy milk is not feasible at the household level and they were considered a poor substitute for mung beans. However, it was felt that they might be a good commodity for the nursery school program. Dried fish was discussed, but staff felt that quality control would be an issue and that with the fish paste and canned fish used in 4 camps, there is quite a bit of fish already in the ration. Even fresh eggs were considered as a potential substitute for beans when their price increases, however, the number required providing a similar amount of protein as beans makes them cost prohibitive not to mention the risk of breakage and transportation issues. The only potential option found was international purchase; this is described later in the report in Part II, II of this section. Finding a way to include an appropriate quantity of small dried bean or a suitable protein substitute in the food ration cannot be over emphasized given its role in complementing the protein provided by the rice and its high levels of B vitamins. (See Annex K for the nutritional composition of mung beans.)

- Suggestion to Improve the Consumption of Ration Foods

Some of the ration foods that are provided in smaller quantities, such as, salt, sugar and chilies are distributed bi-monthly or quarterly. It is suggested that when the recommended reduction of salt is implemented, that the same periodicity of distribution (every 3 months) is continued so that refugees are familiar with the length of time the salt should last. Providing food in shorter intervals helps refugee households plan and manage the ration foods. In one of the stock pile camps visited, MRML, three month supplies of beans are regularly distributed. The Field Coordinator mentioned that around distribution times, beans are sold to an outside trader. It is felt that distributing the 3-month supply verses monthly supplies contributes to refugees selling beans or at least selling more of their beans. Thus monthly distribution and nutrition education regarding the importance of eating beans with rice to complement the protein and on the importance of protein may be needed.

B. Reduce or Eliminate Specific Ration Foods

- Eliminate sugar as a separate food item

Sugar was added to the ration following the addition of AM in order to improve its acceptability. As mentioned earlier the new FBF products, RSB+ with and without sugar will be piloted in the camps to select the appropriate product for adults and children and RSB++ is only produced with sugar. Thus if sugar is deemed necessary to support consumption of FBF it will be included in the product. This saves over $250,000.00 per year and facilitates procurement, camp storage and distribution. Sugar contains calories but minimal nutrients so little nutritional impact is expected, particularly because the amount provided in the ration is small and it is anticipated that refugees will select the sweetened RSB+ product. Information on why sugar, as a separate food item, was removed from the ration should be included in the planned sensitization prior to the ration changes.

- Eliminate Dry Chilies

A small quantity of dry chilies (120 gm.) is provided every 3 months as a condiment. They were added to the ration 8 eight years ago, but were only provided in a larger amount for 3 years. Currently chilies provide 40 calories daily or 1.8 percent of calories in the adult ration and 2.4 percent of beneficiaries' vitamin A requirement. Thus eliminating them from the ration entirely will not significantly impact the rations nutritional value. In the ECHO 2009 evaluation, it was also recommended that the chilies be eliminated. One camp has already suggested that they be eliminated from the ration. The estimated yearly savings are $168,000; and similar to eliminating sugar, fewer commodities will facilitate procurement, transportation and distribution.

- Reduce the amount of iodized salt provided

The sodium content of the ration is two and one-half higher than what is recommended in the WHO/FAO guidelines. Not only is the iodized salt ration more than twice the amount usually recommended, but the fish paste provided is also high in sodium. Further, health agency staff and HIS reports document high blood pressure, stroke and COPD as health problems among refugees—high sodium intakes increase the risk for these disorders. After the salt ration is reduced more attention should be paid to monitoring of the level of iodine in the salt TBBC purchases. Also decreasing the salt by one-half will require extensive sensitization and suggestions for using less salt so that refugees

understand why the salt was decreased and know how to make food palatable without it. The estimated savings are $65,000.00 per year.

- Reduce the quantity of rice

Nearly the same quantity of rice has been provided per beneficiary since the mid-1980's whereas over this time period other food items, such as, beans, oil and AM have been added to the ration. Although rice may be the preferred cereal by the refugees as mentioned, it is low in macro and micronutrients when compared to grains and other foods provided in the ration, such as, AM and mung beans. For specific information on the nutrition composition of AM, mung beans and rice see Annex K. Further, when comparing TBBC's rations to a prototype UN ration or to specific UN rations provided in this region, i.e. to Burmese refugees in Bangladesh or the Bhutanese refugees in Nepal, the quantity of rice provided by TBBC is 20 percent higher than the others as shown in Annex E. At this point, given that mung beans and AM have already been reduced, the amount of protein in the 2010 ration (prior to the bean suspension) just meets the recommended level and that the quantities provided are lower than what is recommended (and provided) by the UN, thus, it is not advised to make further reductions in beans and AM. Further, one of the SPHERE general nutrition support standards requires implementing agencies to ensure access to additional sources of thiamin, such as beans, eggs and FBF when polished rice is the staple food [SPHERE, 2004]. Lastly, the recent ECHO evaluation (2009) recommended reductions to the rice and increases in the beans and AM provided in order to address the micronutrient deficiencies in the ration.

In the preferred ration reduction plan, a 7 percent reduction of rice (for children under 5 years old) and vulnerable adult rations and a 10 percent reduction in the adult ration is recommended. This would be implemented along with an improvement in the quality of the rice (and if accepted a half ration of brown rice) which would yield more edible rice. The estimated yearly savings from this reduction in rice rations is $1,077,300.00. The nutrition impact on the adult ration includes an 8% reduction in calories and a reduction in protein from covering 100% of need to 93% of need; white rice isn't a good source of micronutrients and with the small reductions proposed there is little impact. On the other hand, if brown rice is accepted and provided as a half ration, protein, fat, fiber and micronutrients will increase.

- Reduce the Amount of Vegetable Oil in Adult and Older Children Rations

Although the overall fat content of the ration is below the recommended level, the quantity of oil in the ration is higher by 30 percent when compared to UN recommended rations. Actually oil and salt are the only items in the ration that weren't reduced previously. In addition, among adults living in the camps, overweight and obesity are common, decreasing the calorically dense oil and providing information on food preparation with less fat could help address this. For the actual method proposed for reducing beneficiaries' oil ration seeing section III. Included therein is a ration for vulnerable adults that does not reduce oil and to protect young children and facilitate distribution, the oil ration for children under 5 is increased to the older child/adult level prior to the reduction for a net increase. Regarding impact this approach assumes that households that are not vulnerable, can manage with slightly less oil, particularly larger ones, or they can potentially afford to purchase additional oil if needed. In terms of nutritional impact, in the adult ration, total quantity of fat is reduced by 5 grams or 15 percent and calories are reduced by 2 percent. The estimated savings from this change is $280,000.00 per year. Given this population's increased risk for heart disease and the protracted situation, switching to a more saturated oil, like palm oil, although it might save money, is not recommended.

### *III. Improving Food Management and Procurement Practices*

The recommendations in this section are especially important since any food costs saved by improved food management and procurement practices translate into increased budget dollars that can be spent to improve the food ration.

A. Improve Beneficiary Verification and Food Management Practices

Improving beneficiary verification through the active monitoring of TBBC supply officers would build camp staff's capacity and decrease the monthly feeding figure. More closely monitoring of feeding caseload also promotes stability in the camps and cuts down on food leakage. This year TBBC starting tracking monthly feeding figures (FF) as a percent of caseload. In the near future it should be possible for each field coordinator with management to set a percent of caseload as a FF target for their camps. And from this a border-wide FF as percent of caseload can be set. For each one percent reduction in the FF, $180,000 per year is saved.

It is also recommended that Field Coordinators more regularly (and closely) review camp management committee food store records with their food distribution records and compare these with TBBC's food delivery reports to build capacity and prevent food leakage. This fosters transparency and build camp staff capacity—it is even more critical when decreased funding levels require ration reductions.

B. Standardize, Reduce and Monitor the "Extra" Food Needs Budget

The quantity of the "extra" food needs budget used to support camp activities, such as, meeting, short trainings, festivals, funerals, road repair and other activities related to camp management budget varies between camps. It is recommended that the food budgeted per camp be standardized based on camp populations and that the overall quantity of food be decreased to reflect the percent of food budget decrease applied to the General Food Ration (GFR), for example, if Plan A is adopted that would mean cutting this budget by a minimum of 7.6%. In other refugee contexts, foods are not allocated to support these activities. Further, it is reasonable to cut amounts of these foods similarly (if not more) when the GFR is reduced. It is recommended that TBBC with representatives of camp management committees, develop guidelines for the use of "extra" needs foods to promote standardization between camps. Increasing monitoring of this program to foster accountability and manage leakage which potentially will increase with ration reductions is also suggested.

C. Improve Procurement Policies and Practices

Currently all TBBC tenders are advertized internationally and within Thailand, but the few bids received are only from local producers and transporters. With the dramatic price increase in mung beans over the last year, it has become apparent that the international market for beans provides similar products at much lower prices, for example, this October yellow beans were available from Europe for $.39 compared to $1.80 kg. for Thailand mung beans. It is understood that additional planning is required, because the overall process is more complex, and, in addition, there are others costs associated with international tendering, such as, shipping, import tax (7%) and potentially warehousing. However, it is recommended that international tendering be researched with WFP's technical support to see if it is feasible for TBBC and worth the extra effort. In addition to yellow beans, which may also be available

from Myanmar, fortified soybean oil is available from Turkey at a significantly lower price than unfortified soybean oil in Thailand.

If TBBC received more bids on commodities it would strengthen their negotiating position with commodity suppliers and transporters. Thus it is advised to research the availability of commodity transporters and producers in Thailand and how to attract their bids. WFP has a list of transporters they use to transport food from the port to the Laos border. They would also have suggestions on how to identify and attract transporters capable of transporting to the more remote camps. If sufficient transporters can be recruited, it is advised to separate the tendering process into commodity and transport tenders in order to encourage more producers to bid. For international bidding this would be essential. If TBBC were able to manage the suppliers and transporters individually versus their working together or being the same business, TBBC would have more leverage. Some of the recommended changes in commodities, such as, 25% broken rice, brown rice and RSB may support this by requiring separate transporters and, in turn, increase bidders.

All along the border, the consultant listened to complaints from refugees about the commodities TBBC provides, primarily about the quality of rice and charcoal. When this was discussed with Field Coordinators and supply officers, similar events surrounding TBBC procedures for rejecting substandard commodity shipments and why they are not followed were shared; and then confirmed in meetings with TBBC HQ staff. Food that does not pass inspection is accepted unless it is of very low quality because Field Coordinators cannot count on a timely resupply of food that would be of higher quality. So instead of having to replace the substandard food, the producer pays a small penalty that is likely to be significantly less than the additional cost of a higher quality food product. TBBC management has been reluctant to adopt stiffer financial penalties or to blacklist suppliers who continue to provide substandard product since few bids are received. With the new Supply Chain Director, more attention will be paid to these issues and as advised above, increasing the number of bidders will strengthen TBBC's position with suppliers and, in turn, support the delivery of acceptable commodities, potentially save money, as well as, support abiding by TBBC's procedures for rejecting commodities and developing (and enforcing) stiffer penalties.

**SECTION III: Ration Reduction Plans with Rationale, Impact and Implementation Strategy**

### *I. Overall Strategy for Ration Reductions*

The strategy proposed for reducing rations assumes that nearly all households have a source of income and that most can afford to purchase some foods [ECHO, 2009], in addition to, the foods currently acquired to complement the ration, in order to compensate for a smaller food basket. This comes at a time when the cash economy in the camps has grown through expanding the number of workers receiving stipends, casual labor which provides daily wages is common and remittances received from the Burmese refugees resettled in third countries started in the last few years [ECHO, 2009]. TBBC began paying stipends in 2004 in recognition of the significant responsibilities of the camp committee members and food distribution workers; by this time, health agencies were already paying health workers in order to retain their services. Border wide there are now almost 9,500 stipend staff supported by NGOS to carry out the services essential for the day to day running and maintenance of the camps. However, stipend levels are low; they are actually an incentive payment versus a salary with the average monthly stipend of 900 -1,000 baht or an estimated $1 per day.

Reducing rations represents a shift in policy for TBBC who up until now has provided a food basket with an average of 2100 calories to ensure that all those eligible have sufficient food to meet caloric requirements. This approach is actually more consistent with the CCSDPT Strategic Framework. One of its strategies focuses on moving toward more targeted food assistance (TFA) for the most vulnerable as self-reliance increases. Though Targeted Food Assistance is not traditionally carried out in refugee contexts, it suits the camp committee, food distribution and CBO structures that are well established in the camps as well as the social cohesion that exists particularly in the smaller camps. In that, better-off refugees, especially those who are members of camp committees and CBOs are aware of the vulnerable families and cognizant of their financial and other stresses. In discussions they quickly understood how such an approach would work and, for the most part, favored this even while realizing their rations would potentially be reduced more.

But how to begin, when and with whom to start TFA: without a baseline and regular assessment it is difficult to define and measure changes in self-reliance, and to know when to start drawing down rations for most while, at the same time, targeting the vulnerable in order to maintain their level of assistance. Therefore, the recommended approach is to gradually reduce the ration while protecting vulnerable groups (pregnant/lactating women, young children, SFP beneficiaries and households identified as vulnerable) through initiating a vulnerable adult ration, increasing and improving safety net programs and linking with other programs targeting the vulnerable, such as COERR. At the same time, complementary programming, such as CAN/COERR/ZOA's gardening activities should be expanded so that refugees' intake of vegetable increases and small savings can be realized to offset newly required food purchases. Increased funding to expand livelihood initiatives, as planned is also needed.

In order to understand more about household food economy, dietary adequacy, coping strategies and to develop criteria to identify vulnerable households, vulnerability studies similar to the one undertaken by ECHO consultants last year are proposed for each camp to be conducted as soon as possible. Although such studies were carried out in four camps last year, sample sizes were inadequate to interpret results by camp or, likewise, to compare results between camps; and further due to time constraints refugees coping strategies weren't assessed and, in some cases, sampling frames weren't implemented properly. It is also recommended that a component of the vulnerability study include a food procurement and dietary intake survey so that more is learned about refugee food intake, dietary

adequacy and what foods (the frequency and quantities of them), in addition, to the ration foods are consumed. Studies similar to the ones conducted by INMU and TBBC in 2001 are envisioned and could be nested in the vulnerability studies preferably or carried out with the nutrition surveys planned in 2011. Mahidol University may be interested in providing technical assistance for the food intake studies as they did previously. In addition to monitor nutrition indicators, an enhanced nutrition surveillance system is proposed that would compile and report on data already collected; and to collect information on how households are responding to the ration changes in a timely way enhancing the current BCM system is needed.

Although this approach incurs upfront costs, given the level of vulnerability established through the recent ECHO study, the high level of stunting and the potentially worsening micronutrient situation coupled with the livelihood constraints and problems experienced in other contexts when rations have been reduced, it is warranted. Following this systematic approach, as it calls for extensive sensitization and nutrition education, protects vulnerable groups and slowly reduces rations while at the same time monitoring the situation, will minimize the risk of increasing malnutrition and unrest in the camps. It also builds a monitoring system that will provide ongoing food security, nutrition and livelihood information on which future ration reductions can be based. Simply put, the increased short term (and ongoing) costs will help to protect the health, nutrition and food security of the refugees, while at the same time, preserve the stability and peace in the camps, while contributing to longer term savings.

### *II. The Ration Reducing Plans: A, B and C*

Three ration reducing scenarios (Plans A, B and C) were developed with decreasing total budgets. A previous section details the foods to be eliminated or reduced with the rationale. The overall focus is to eliminate and/or reduce the food that are less nutrient dense and thus contribute less to the overall nutritional composition of the food ration. TBBC currently provides 3 different rations to beneficiaries: (1) child < 5 years old, (2) boarding house student and (3) adult. In order to provide more FBF to all children while not unnecessarily providing a full ration to children under 5 and to protect the nutritional status of vulnerable adults, the proposed plans include 4 rations: (1) children under 5, (2) children > 5 and < 18, (3) adult and (4) vulnerable adult. A separate Boarding House Student (BHS) ration is not proposed instead all children between 5 and 18 will receive additional FBF. Initially the boarding house students were included with vulnerable adults, however, this was seen as a potential incentive for children with parents/relatives living in the same camp to enter Boarding Schools. If a future assessment determines that the Boarding Schools which receive less support from their sponsors need additional food this could be accommodated similarly to how the nursery schools are provided AM. However, this should be approached extremely carefully in order to preserve family unification.

To the extent possible the rations are designed to ease and facilitate distribution, for example, the children > 5 ration is the same as the adult ration except for the quantity of FBF and the oil ration is the same for all beneficiaries except vulnerable adults. See Annex L for tables including the proposed rations for the 3 plans and Table 2 for a nutrition and household cost comparison of the Plans A, B and C. All three plans include a phased approach and start with similar small overall reductions to take place during the first quarter of 2011, though plans B and C include a reduction in the rice ration at that time too. This would allow for the results of vulnerability studies, enhanced BCM and nutrition surveillance to inform the development of criteria to identify vulnerable households, track initial impact of reductions and to plan the second reductions (all plans: rice and oil) and a third reduction (Plan C: fish paste-.25 kg., rice- 1 additional kg. and a 5% additional oil cut). Plan A, B and C initial reductions include

eliminating chilies and sugar and reducing salt. Plans A and B are both implemented in two phases and include rice and oil reductions in the 2nd phase—Plan A includes a 10% rice reduction and plan B a 20% rice reduction. Both include a 20% oil reduction that protects children and vulnerable adults, implemented through a household oil ration based on the number of members. Plan C is implemented in 3 phases and includes a slightly larger rice reduction, an increased oil reduction, and reduction of fish paste. In all plans, children and vulnerable adult rations are protected, though the effect of this is questionable particularly in Plans B and C given intra-family sharing.

Table 3: Nutrition and Household Cost Comparison for Adult and Child Rations for Plans A, B and C

| | 2009-first half of 2010 ration | | Plan A | | Plan B | | Plan C | |
|---|---|---|---|---|---|---|---|---|
| | Child <5 | Adult | Child <5[1] | Adult | Child <5 | Adult | Child <5[2] | Adult |
| Calories/% RDA | 1265 | 2245 | 1234 | 1973 | 1115 | 1795 | 1176 | 1656 |
| % Protein | 109% | 100% | 100% | 92% | 92% | 85% | 105% | 78% |
| % Fat | 14% | 14% | 19%[3] | 12% | 21% | 13% | 16% | 14% |
| # of Micronutrients > 2/3 RDA (total of 8 micronutrients) | 5 | 1 | 5 | 1 | 5 | 0 | 6 | 0 |
| Sodium | 246% | 246% | 106% | 150% | 106% | 150% | 100% | 128% |
| Average Household cost to replace reduced foods[4] | NA | NA | 200-220 baht/month | | 320-350 baht/month | | 490-520 baht/month | |

Annex L includes additional nutritional information on each of the 4 rations included in Plans A, B and C

TBBC's estimated yearly food cost savings are as follows: Plan A- 7.6% of the food budget or $1.6 million, Plan B- 12.4% or $2.5 million and Plan C-17% or $3.5 million, with the delayed start and phased reductions savings will be smaller for the first year. Savings are based on projected food costs for 2011 and estimated totals of refugee demographic groups.

### *III. The Proposed Intervention Strategy*

A. Initial Planning Activities

To prepare for the ration reductions, initial activities, which include planning, pilot testing and sensitization and nutrition education need to be carried out between November of this year and February of next year. For example, RSB+ with and without sugar should be pilot tested in at least 3 camps with the various beneficiary groups (children over age 3, adults) as soon as feasible to determine which product works better with the two target groups. Another initial activity is to develop the terms of reference and contract with consultant(s) to conduct vulnerability and food consumption, procurement and dietary intake assessments in the 9 camps so that the assessments can be conducted

[1] Plans A and B include an additional 4 kg. month FBF ration provided as an incentive when infants/young children 6-24/36 months attend Growth Monitoring Sessions. The nutritional value of this top up ration is not included here.

[2] Plan C does not include the FBF incentive ration as it is not planned for instead a larger FBF ration is provided as part of the GFR that's why the micronutrient content of the child ration for Plan C appears better than for Plans A and B.

[3] Fat increases in the child 5 < ration since the oil ration was increased for children to make it easier to calculate the household oil ration. As most ration foods, oil is shared so it is doubtful that that the fat intake of young children will increase due to the slightly larger oil ration.

[4] The estimated cost to replace reduced food was calculated based on market surveys in Tham Hin, Mae La, MRML and Site 1 camps.

starting early in 2011. It is suggested that the stock pile camps are assessed first so that quantities of foods purchased reflect the number of vulnerable adults identified by the study.

B. Increase Staffing

**Field:** Update the job description and hire 1 additional Supply Officer in each camp to build capacity of camp staff, strengthen food distribution monitoring and management of feeding figure, support monthly review of TBBC food reports with camp management committees and to conduct the larger number of interviews required for the monthly BCM. A staff person may also be needed to increase the monitoring of the TBBC's Camp Management programs. Two additional nutrition officers would also be needed to train CHWs and volunteers to carry-out nutrition education, pilot new foods and to conduct additional monitoring of nutrition program; a total of 5 border-wide are recommended.

**Bangkok:** Hire a monitoring and evaluation advisor for the program unit that would oversee BCM, maintain a data base of vulnerability assessment studies data and link with program specialists in order to improve tracking of nutrition, CAN and livelihood program activities. In addition, a senior nutrition advisor is needed to ensure integration of a nutrition focus in all aspects of TBBC's programs including procurement, strategy and policy, training and CAN. The senior nutrition advisor will also mentor other nutrition staff and build capacity, represent TBBC on the health subcommittee and develop the border-wide nutrition strategy. He/she will liaise with outside institutions including the UN, INMU, CDC and link TBBC more closely with international nutrition programming and guidance. The person hired may also have significant experience in food security, and, if so could manage the vulnerability assessments. It is envisioned that the senior nutrition advisor would procure foundation and other donor funding for multi-year funding for nutrition education programming. Annex M includes a job description for this position.

The current nutrition manager position should be retained in order to continue their current job functions, such as, the provision of technical supervision and training for nutrition officers (increasing to 5), conducting biennial nutrition surveys, compile information for the nutrition surveillance system and to manage the nutrition programs: SFPs (malnourished, chronically ill, preventive) including the proposed community-based GM, IYCF focused nutrition education and RSB++ incentive, nursery school and boarding house feeding programs.

C. Further planning and Activities

Based on the results of the Vulnerability and Food Consumption Studies, an expanded BCM questionnaire needs to be developed to monitor changes in coping strategies, food consumption and other factors as the ration changes are implemented. Staff should be trained and the BCM questionnaire pilot tested. The sample size in each camp should be increased and the sampling frame designed to incorporate the various household types identified in the ECHO and TBBC vulnerability studies. As soon as decisions have been taken regarding the ration changes, the communication, sensitization and nutrition education strategy focused on the food basket changes should be developed and carried out with stakeholders (including Thai authorities) and all the camps. In addition, develop and produce nutrition education and sensitization materials based on new ration, for example, information on cooking with less oil and salt.

D. Implementing Phase 1 Food Basket Changes: February or March, 2011

Based on timing of funding commitments, and the anticipated time needed to make changes in commodity tenders and sensitization, determine when the first phase of food basket changes will start—February or March of 2011 is anticipated. The Phase 1 food basket changes include: (1) Removing sugar and chilies from ration; (2) replacing AM with RSB+ and increasing it in the child over 5 year old rations, and (3) decreasing salt by half. The salt should be distributed as .5 kg every 3 months except for children under 5 years old who will receive .25 kg every 3 months. Carrying out additional widespread sensitization just prior to distribution of the new food ration and staggering initial distributions so that TBBC staff can monitor and support camp staff is advised. In the same month as the new rations are distributed, the enhanced BCM should start.

E. Ongoing Monitoring and Planning for Phase 2 Food Basket Changes

In preparation for proposed changes in the rice and oil rations it is suggested that in consultation with camp women's organizations develop recipes and suggestions for food preparation with less oil and a recipe for cooking a mixture of 25% broken white rice and brown rice. Provide nutrition education including the improved nutritional value and how to cook a mixture of white and brown rice in at least 5 camps (all if possible) starting in March/April of 2011. By mid-May analyze the results from the pilot and decide what types of rice will be included in the ration after June 2011. Brown rice should only be provided to camps with successful pilots.

Using the results of the Vulnerability Assessments (VA) and BCM determine eligibility criteria for households to receive vulnerable adult rations along with the percent of vulnerable households and numbers per camp. An approach based on dependency ratios, which identifies the number of household members dependent on the other member(s) who work, and calculates a percentage, is recommended. For example if a household has 6 members and 1 works, the dependency ratio for that household would be 1/6. This system has been used successively in other contexts and is simpler than a scoring system based on vulnerabilities. Further, it eliminates the problem of identifying a household as vulnerable because it has, for example, adults with disabilities who work. The VA would determine the threshold dependency ratio under which households would be identified as vulnerable. Using the criteria of working over the last three months as done in the ECHO vulnerability study would appropriately categorize more households with casual laborers as non-vulnerable. The same eligibility criteria can be used to determine ration types for new arrivals. For this group vulnerability should be reassessed 6 months and 1 year following camp arrival. For others yearly updates of assessment should suffice.

F. Implementing Phase 2 Food Basket Changes: June or July, 2011

Based on the BCM reports and VA results the timing of the phase 2 ration reduction should be determined—June or July, 2011 is anticipated. The Phase 2 food basket change includes: (1) child < 5 rice ration decreased by .5 kg.; (2) adult and child > 5 rice ration decreased by 1.5 kg.; (3) vulnerable HH ration decreased by 1 kg.; and (4) reduce oil by 20% for adult and child > 5 rations. The oil ration will be calculated to the .5 liter and based on the number of household members providing more oil for smaller households and slightly less for larger households. See Annex N for a table of the proposed household oil rations. Through BCM monthly surveys monitor the capacity of vulnerable and non-vulnerable HHs to cope with the ration reductions.

G. Enhance the Nutrition Surveillance System

This year TBBC changed from annual to biennial nutrition surveys; and in addition to this information, data from the SFP is compiled and maintained in a database by the nutrition manager. It is recommended that other data already collected be added, such as, GM data for children under 5 and number of pregnant women identified with anemia each month. A simple form for collecting the monthly growth monitoring data (weight-for-age) for children 0 to 36 months at GM sessions should be developed; and volunteers, CHWs and health staff trained to complete and compile them. A similar form should also be developed to collect the growth information from children 3 to 5 years attending GM every four-six months. A TBBC simple format for collecting hct/hgb values for pregnant women at their initial visit (and month of pregnancy) should be developed and health staff trained to compile this data. This data will be collected and provided to TBBC monthly (or bi-annually for GM of 2-5 year olds) so that it can be entered into the database and monitored overtime so that seasonal trends can be tracked and other abnormal changes easily detected. A word of caution, most nutrition indicators are lag indicators meaning they do not change when, for example, food becomes less available. They are better used to understand trends overtime and to confirm a problem rather than provide early warning.

H. Complementary Programming

Complementary programming has the potential to lessen the impact of ration reductions, thus it is strongly encouraged as TBBC undertake ration reductions. In addition to the recommendations provided in Section II., I., F the following suggestions are offered. Once vulnerable households are identified a collaboration with COERR in each camp is suggested that would refer all vulnerable households unable to garden to COERR to receive a weekly supply of vegetables grown by other COERR beneficiaries. Linking eligible vulnerable household members to COERR's other programming is also recommended.

## *IV. Impact of Ration Reduction Plans*

The actual impact of the ration reductions is not possible to predict. That's why it is essential to implement the enhanced BCM, nutrition surveillance and vulnerability studies. However, the nutritional impact and household financial loss due to ration changes have been quantified. See Table 2 and Annexes L for this information provided for Plans A, B and C. As better-off households reallocate their food budget to cover rice and oil, it is likely that less meat, eggs and vegetables will be purchased resulting in poorer diet diversity and quality. Households that are in the middle, that is, not well-off or vulnerable are likely to suffer more as they have less income to spend on the food needed to compensate for the ration reductions. Although the child < 5 ration was not decreased much and safety nets should be strengthened, a result of the overall ration reductions may be more child malnutrition. Adults and older children may also be at an increased risk of malnutrition, particularly with the more drastic reductions proposed in Plans B and C.

Demand for gardening and livelihood programs among refugees that are physically able will likely increase. And there may be an increase in refugees starting small businesses in the camps and seeking any available work within camps. It is anticipated that sales of some foods, such as, rice and oil will increase—in some camps rice is not available for sale—presenting a new potential livelihood for TBBC to support. Some of the destructive environmental practices, such as, over foraging and cutting wood may increase as refugees seek additional sources of income. It is expected that more refugees may engage in

risky behavior, such as, seeking casual labor opportunities outside of camp. The ration reductions may also be interpreted as a sign of declining donor support encouraging more refugees to seek resettlement in third countries.

If the process of ration reductions is not managed well (and even if it is managed well) and done with sufficient sensitization and nutrition education, the risk of unrest in camps may increase. This will require more TBBC staff to carry out ongoing monitoring and camp staff capacity building. Cutting food rations may encourage more leakage of foods, such as, rice and oil, from camp stocks. It will also strain existing social networks and coping strategies, such as borrowing food from neighbors. It may also contribute to theft and violence threatening the peaceful camp environment. In the camps that are smaller and more cohesive and those with more engaged camp committees and CBOs it is anticipated that this process will go more smoothly. More staff attention will be needed in the camps with less responsive camp committees and in the larger camps, such as, Mae La.

***Although three ration scenarios are provided, Plan C is not supported and Plan B would only be recommended if phases 1 and 2 follow that of Plan A and that phase 3 only be implemented when the monitoring information indicates that households are coping well and could accommodate another food reduction.*** The large reduction in calories and protein provided in the revised rations for Plan C is carried out over too short a time not allowing for sufficient monitoring and analysis. For the average household replacing just the foods reduced, not including the foods needed to complement the ration, is nearly 500 baht, or about half of the average refugee household's monthly income—this represents too high a burden. For most families this will require that other essential household items and the fresh foods, high in micronutrient content and protein, such as, eggs, meats and vegetables needed to complement the ration be sacrificed. This is worrying, particularly with the high number of new arrivals, the overall poor quality diet consumed by the population for a number of years as well as the high levels of chronic malnutrition, micronutrient deficiencies and chronic diseases. Dramatic increases in the levels of acute malnutrition occurred after reducing rations by half for vulnerable refugees for half of the year and removing non-vulnerable households from rations in Eastern Sudan. Further, an outbreak of riboflavin deficiency occurred when FBF was removed from the Bhutanese refugee ration, these experiences underscore the fragile nutritional and micronutrient status of refugees in protracted situations, their dependence on ration foods as well as the slow pace and monitoring needed when making reductions to food rations.

UNHCR and WFP have incorporated lessons learned from reducing rations in refugee contexts within their current approach. Prior to considering ration reductions, WFP will quickly assess refugee access to land and other livelihoods; if access exists and appears widespread a comprehensive food security assessment is conducted. The food security assessment, results from nutrition and anemia surveys, past Joint Assessment Mission (JAM) reports, qualitative information and other secondary data are analyzed by a JAM team and decisions taken regarding potential ration reductions and the programming required to support these changes. UNHCR/WFP have successfully reduced refugee food rations, without negatively affecting nutrition status, in situations where there has been a high degree of integration of refugees with the local population and sufficient livelihood capacity. Sufficient livelihood capacity refers to access to land for agriculture not just for vegetable and fruit gardens or opportunities to work legally with skills adapted to the local labor market [personal communication, Caroline Wilkinson].

The Burmese refugees along the Thailand Burma border, do not have sufficient access to livelihoods. This constraint supports the recommended vulnerability assessments and gradual reductions in the

ration accompanied by surveillance and extensive monitoring. The recent CDC team which reviewed TBBC's evaluations and proposed future program options came to the same conclusion: if reducing the ration is necessary, only small reductions in the ration with intensive monitoring should be considered. Lastly, the ECHO Vulnerability Assessment (2009) recommended ration changes that would improve the nutritional value of the ration with a minimal calorie loss similar to the caloric decrease proposed in Plan A and a slight overall cost increase. They did not recommend removing the small percentage of "better-off" families from rations as their monthly HH income is similar to the ration cost; nor did they recommend a significant reduction in the food ration given refugees' dependence on it and ongoing livelihood constraints.

### *V. Adaptations to the General Food Ration, Rations for IDP Camps and Households to Remove from the Ration*

A. Adaptations to the General Food Ration

Several camps have significant populations which do not eat fishpaste; to accommodate this TBCC has been providing an additional mung bean ration instead of fish paste in Tham Hin and Site 1. MaeLa, Umpiem and NuPo have significant Muslim populations who also do not eat fish paste. The following substitution is proposed: 0 fish paste and 250 gm. more of mung beans per beneficiary per month.

Site 2 camps recently suggested that the chilies be removed from their ration and that the fish paste be reduced. The following quantity of fish paste was agreed to for Site 2 camp: fish paste .5 kg. for all rations of individuals over 5 year olds and .25 kg. for children under 5 year old ration

B. IDP Camp Rations

Continue yearly food security assessments in Mon resettlement sites in order to adjust the rice ration to the food gap with the overall objective of lowering and phasing out the ration over time. Continue carrying out yearly food security assessments in the Shan and Karen IDP camps to determine the rice and salt food gaps. Regarding any reductions to the rations in these camps, this should reflect the IDP camp context. See Annex O for a table of IDPs and rations for 2010.

C. Decreasing Households Receiving General Food Rations and Stipend Worker Households

All up the border, it was suggested that TBBC take the more prosperous traders and shop owners (and their households) off the monthly rations. They most likely represent a very small percentage of households, and thus wouldn't save a significant amount of money, but it would help to address the negative perception that comes with providing a ration to those who don't appear to need one. Further, it wouldn't be difficult to identify the traders/shop owners to means test their households, given how supportive camp management committees are of this. For the camp, Mae La camp, with by far, the largest number and the profitable shops as well as the largest number of traders, the camp management committee recently undertook a survey which should provide most of the information needed. Therefore, it is recommended that by the time the first ration reductions are implemented that the traders and shop owners with household monthly incomes over 3200 per month are removed from the food ration along with their household members.

It is recommended that new arrival households be means tested as part of their interview and selection process for the food ration and that those with incomes above a certain level should not be added to

the ration lists. From conversations with TBBC staff and refugees it was concluded that protecting a monthly income of 1000 baht in order to cover basic household expenses and the foods required to complement the ration for an average household (6 individuals)was necessary; this amount on top of the estimated cost of the TTBC ration of 2200 equals 3200. Thus, a 3200 threshold is proposed meaning that households with monthly incomes above this income level would not qualify for food rations. However, the results of the vulnerability assessments will provide more complete information that could be used to set an income threshold for means testing new arrivals, so it may be prudent to postpone this until such information is available. New arrival households deemed eligible for food assistance should have their vulnerability status assessed initially and then 6 months later to determine which rations are appropriate for their household.

It is advised that in the future depending on how the situation evolves, that smaller rations for stipend workers households, with incomes over a certain threshold, such as, 1500 or 2000 baht per month to be adjusted upward after ration reductions are carried out, be considered. This would need to be implemented with care to ensure that stipend workers still retain an incentive to work, that is, that the value of the reduction in ration is less than the salary of each household member that is a stipend worker. Lastly, depending on the information obtained on remittances from the vulnerability assessments, it may be helpful to conduct a study to learn more about this source of refugee income.

## SECTION IV: Analysis of New Food Assistance Tools and Recommendations for TBBC Programs

There is considerable debate about what types of interventions are considered new food assistance tools and fit within the food assistance toolbox. For this discussion the following food assistance tools are considered: cash assistance, conditional vouchers, public work (cash or food for work) and school feeding. Nutrition interventions, such as, SFP and safety net programs, although considered food assistance tools, are not included here (except for school feeding) as they are discussed at length elsewhere in this report. However, the increased interest among donors in addressing undernutrition given its large contribution to infant and young child mortality, loss of productivity and health care costs is worth noting.

### *I. Cash as a Food Assistance Tool*

Acceptance is growing that giving people money can be an appropriate alternative to food aid and other forms of in-kind assistance in response to disasters. This is reflected in revised policy positions to include cash transfers within broader definitions of food assistance, the numerous guidelines for cash transfer programs[5] and in practice the use of cash in emergencies is growing. The Indian Ocean Tsunami in 2004 was a major influence in the increased adoption of cash transfer programs; they have also been used in southern Africa as an alternative to food aid, as safety nets in Ethiopia and northern Kenya and in conflict affected Somalia and Afghanistan. In response to the Tsunami, where they have been most widely used, cash transfers were appropriate as markets quickly recovered; most goods were quickly available and agencies had large amounts of private funding to use for such interventions.

[5] The Red Cross and Red Crescent Movement, Oxfam, Action Contre La Faim, Horn Relief, WFP and the Swiss Agency for Development and Cooperation have all released guidelines for designing and implementing cash transfer programs in the last few years.

Evidence from monitoring and evaluation of cash programs indicate that they are overwhelming successful in terms of impact and have been shown to be more cost-effective than commodity-based interventions [Harvey, 2005]. Specifically, it has been shown that recipients spend their cash on the basic items they need to survive and to protect their livelihoods; there is little evidence that cash is used in inappropriate ways and when cash is provided for particular types of recovery activities, evidence shows that cash is spent for these intended purposes [Harvey, 2007]. Further, cash projects have not generally resulted in sustained price rises and evidence suggests that women's sway over how cash is spent is similar to their influence over in-kind assistance [Harvey, 2005]. However, the body of evidence is still small [Harvey, 2005]. More recently a study found that when cash is used as an alternative to food aid that it is important to calculate household's other basic needs into the cash transfer otherwise households may spend the "intended" food money on other basic needs [Bailey et al 2008]. This shouldn't be surprising since for a number of years, it has been documented, that when refugees or other food assistance beneficiaries with little or no income are provided food assistance, part of it is bartered or sold for cash so that they can cover their basic needs.

One of critical questions to answer when planning cash transfer programs is whether people will be able to purchase what they want at reasonable prices? For example, it is doubtful this would be the case if the Burmese refugees living in camps in Thailand were provided cash instead of food assistance, particularly for the more remote camps. Even if markets could expand to meet refugees demand to purchase for food, it is doubtful that it would be cost-effective. And potentially this is the case for most refugee contexts since it was not possible to find any documentation of the use of cash rather than food assistance in refugee camps. Donor provision of in-kind food assistance for refugees and lack of experience with cash programming may be other explanations.

Another critical point to consider in determining feasibility when planning cash programs is to assess whether cash can be delivered safely by agencies and spent safely by recipients. Evidence suggests that ways can be found to deliver and distribute cash safely even in conflict situations. Delivering cash in conflict situations presents additional challenges, such as, limitations on the degree of monitoring that is possible and the maintenance of neutrality, however, the potential for low visibility and ease of transport of cash as compared to food commodities presents opportunities in situations where agencies movements are restricted [Harvey, 2007].

***Recommendation:*** The refugee camp setting does not lend itself to cash interventions instead of food assistance, thus it is not recommended that TBBC consider this in the near future.

***II. Conditional Vouchers***

Voucher projects are designed to give beneficiaries access to a specified range of commodities or services. They may be denominated in money terms or in physical quantities for specific commodities and used at distribution outlets, markets or special relief shops. Traders then redeem the vouchers for cash at a bank or from the implementing agency. Depending on how specific the commodities provided and the system for accessing them there may be in fact little difference between such a project and in-kind food distributions. Ration cards or books could be seen as a voucher providing access to fixed quantities of specific foods.

Vouchers that are restricted to specific commodities, such as, food and seeds may be more effective than cash if the objective is not just to transfer income to a household, but also to meet a particular goal, such as improving nutrition and increasing agricultural production [Winicki, 2002]. When

compared to cash, vouchers may have a greater potential to be self-targeting if they are restricted to commodities that better-off households are less likely to want. It can be argued that vouchers are easier to monitor than cash, and are less likely to be used for unintended purposes. On the other hand, voucher programs generally require more administration than cash distributions as agreements need to be established with traders so that vouchers can be exchanged and vouchers need to be printed and distributed. When planning voucher programs ensuring that the markets or the distribution outlets can meet the demand is also is a critical step. Similar to food assistance, if vouchers are not providing goods that people see as priorities (or if they are strapped for cash) then a parallel market may develop, with vouchers being traded for cash or goods at a discounted price. A disadvantage of vouchers is that they can be seen as discriminatory or to stigmatize recipients when they serve only the poor and, when this is the case, they can potentially decrease interaction between the poor and other income groups.

In refugee and IDP contexts there is some experience in using vouchers. One example focuses on urban areas, where it is often not appropriate to implement a food distribution specifically for refugees, mainly because it is too hard to target and very impractical. In these contexts, UNHCR finds itself providing a greater number of food assistance programs that distribute food vouchers based on vulnerability rather than entitlement on the basis of refugee status alone [Shoham, 2010]. Food vouchers have also been implemented in urban areas of West Africa to vulnerable households in response to the food crisis and increased costs of staple foods. Another example comes from Darfur where Action Contre La Faim (ACF) has used vouchers to cover the milling of the cereals provided as part of the IDP ration. The evaluation showed that the vouchers covered 20 percent of household expenses, reduced food sales and led to improved diets since more of the food ration was consumed and more income available to purchase fresh foods. [Mattinen, 2008].

The last example comes from another ACF voucher program also from East Africa: the Dadaab refugee camps in Kenya, where 247,000 refugees have been living in three camps for nearly 20 years. Unlike the Burmese refugee camps in Thailand, in the Dadaab camps young children have high levels of global acute malnutrition (14.7%, 2007). The program provides vouchers, to the households with infants at the complementary feeding age (6 months), and households of children enrolled in supplemental and therapeutic feeding, worth about $7.50 per month to purchased eggs, milk, and fresh vegetables and fruit. The objectives of the program include improving access to nutrient dense complementary foods for all children 6 months of age as a preventive intervention and to malnourished children as a recuperative program to increase access to nutrient dense complementary foods. In addition nutrition counseling and education was provided at clinics and at follow-up home visits to address caretakers suboptimal feeding, care and sanitation practices. The voucher system used the already functioning markets. Program results indicated an increase in diet diversity from the consumption of 7 to 10 food groups daily; after the voucher distributions households reported increased consumption of eggs, milk, vegetables and fruit. Even the consumption of many of the food groups consumed pre-voucher distribution also increased; beneficiaries attributed this change to nutrition education and improved availability of fruit and vegetables in the market. They also found the cooking demonstrations that introduced them to new vegetables and increased their awareness helped increase consumption. The program also increased mothers' motivation to bring their children to the SF and TFP and, in turn, increased program coverage as well as business for program vendors [Trenouth, 2009].

***Recommendation:*** Given the success of using vouchers in refugee contexts, it is advised that TBBC consider piloting a voucher program. Potentially such a program could help meet any calorie and nutrient gaps identified for vulnerable households, thus it is recommended that a food voucher pilot project be designed to address vulnerable households' diet deficiencies. It should be linked to TBBC's

livelihood activities since refugees could be trained to administer aspects of the program and to run shops where the coupons are spent as the ECHO 2009 evaluation suggested be studied. ECHO and other donors are interested in such programs; this could be investigated and proposals developed.

### *III. Public Work (Cash and Food-for-Work) Programs*

Considerable food assistance continues to be delivered through food or cash for work programs also known as Public Works programs. The objectives of such programs are to provide resources to the most economically vulnerable and to create community assets that provide or enhance food security. Cash and food for work (FFW) therefore require significant additional funds to provide the technical and management support for these projects and according to WFP evaluations, it is often unbudgeted and the lack of adequate resources for the non-food costs is a recurring theme. Cash and food for work projects are assumed to be self targeting but in practice this rarely seems to be the case unless wages are set so low that they risk failing other objectives. This has been confirmed in recent evaluations which showed that the marginal value of labor varies considerably between households and that short-term employment more often attracts less food-insecure households with a lack of other work opportunities [Harvey, 2009, Dietz 2006]. Further, the chronically vulnerable (sick, elderly, handicapped) usually need a separate safety net of direct food or cash distribution since they are unable to participate. Another consideration regarding FFW or CFW programming, particularly in the development context, is their potential to undermine individuals from volunteering to undertake activities that improve their communities. On the other hand, FFW has been shown to be particularly appropriate in post disaster contexts, such as, the Pakistan earthquake in 2005, since there was a range of immediate needs for short-term infrastructure repair that lent itself to labor intensive and simple public works project [WFP, 2006].

***Recommendation:*** Given the Burmese refugee context along the Thai border, expanding food assistance to include additional food or cash for work programming as is traditionally implemented is not suggested as current evidence does not support it in this context. However, it is reasonable to continue to use food as an incentive payment for repair of camp roads. Or when a natural disaster, such as, flooding, destroys bridges or roads in the proximity of camps, that short-term Food or Cash for Work programs should be considered.

It is recommended that the part of “Extra Needs” budget, which provides food to top up the low cash salaries for Thai Government security guards and as payment to the Karen and Karenni security guards, be shifted from this area of budget to a “Food-for-work” line item created for this purpose. It is also suggested that the FFW rice rations be reduced at the same time and by the same amount as the refugee rice ration.

Although not exactly a public works project, the provision of cash stipends in exchange for employing refugees to provide all the camp services is a public service program that should be continued since it increases refugees’ skills, contributes to the cash economy in camps and provides necessary camp services at a significantly lower cost.

### *IV. School/Preschool Feeding*

The extent to which school feeding may be considered as a food assistance tool in humanitarian contexts is being debated. On the one hand, it is argued that school feeding is unlikely to be the best

use of limited resources for addressing food insecurity and malnutrition in most contexts. However, it is increasingly considered as a tool to use in protracted crises, as part of a long-term safety net or where targeting general rations is problematic. Some caution is warranted; since it does not necessarily reach the most vulnerable groups, that is, the poorest and malnourished, it should not be implemented in isolation.

***Recommendation:*** In the current Burmese refugee context, with the close proximity of schools to children's homes and the provision of rations for all family members, appropriately school feeding has not been implemented. It is advised that this remain so, however, integrating a school health and nutrition program that could provide nutrition and health education along with deworming medication and micronutrient supplements for children and adolescents similar to programs implemented in schools located in Thailand and Myanmar and other countries in the Mekong Delta area would potentially reach and support the health and nutrition status of a large target group, which includes the nutritionally vulnerable adolescents. It is worth nothing that such programs have been shown to be more cost-effective in improving child health and nutrition than school feeding.

The nursery school lunch and snack program funded by TBBC and implemented by CBOs represents an innovative adaptation of "school feeding" that helps to protect the nutritional status of a particularly vulnerable group, preschool children. As noted in earlier section of the report, this should continue and be enhanced to improve impact.

## SECTION V: Concluding Remarks and Recommendations

This section provides concluding remarks and then lists and briefly describes the main recommendations included in this report. More complete explanations of the recommendations can be found embedded at the end of each part in Sections III and IV. In section IV the recommendations are more clearly delineated. And at the end of this section, additional recommendations not previously described in the report can be found.

### *I. Concluding Remarks*

TBBC is to be commended for their role in providing food rations and supplemental safety net programming to the Burmese refugees along the Thailand Burma border for 26 years. Doing this over such a long period of time, without experiencing funding shortfalls significant enough to cause disruptions in food distributions is actually quite remarkable. The continuing low levels of acute malnutrition testify to this success. Over the years, the ration expanded in the number of foods provided, increased in calories and improved its nutritional value in response to changes in the camp context, and as recommendations from studies were implemented. Despite this, levels of stunting and underweight have remained high, remaining at worrying levels; and the limited information available on micronutrient status indicates cause for concern. Further, over the last five years, the rising prices of foods have precipitated reductions in the food basket that placed most refugees at greater risk for micronutrient deficiencies. From a nutrition perspective, this is an unfavorable time to consider reducing food rations. Because the RTG has not signed the Geneva Convention on Refugees, the UN involvement in camps along the Thailand Burma border is limited; and as a result, benefiting from UNHCR and WFP's nutrition experience, recent research, funding, assessment opportunities and newer

approaches to tackle problems, such as, micronutrient deficiencies and poor IYCF practices has been more difficult for TBBC.

On the other hand, the refugees' role in camp management, its corresponding community organization and structures lend themselves to implementing targeted food assistance (TFA), which would reduce rations for most, while protecting the rations for more vulnerable individuals. Further, in most camps there is a strong sense of social cohesion; vulnerable households, such as, new arrivals are looked after. Also there is evidence that the cash economy in camps has increased over the last five years; and a recent study indicates that nearly all households have some source of income.

Opportunities exist to procure ration foods of higher nutritional value without increasing costs. New fortified blended foods with improved formulations are available in Thailand, and, if accepted, brown rice could be substituted for up to half or more of the white rice currently provided improving the nutritional quality of the food basket. Procuring fortified soybean oil can also be considered; and international procurement, though more complex, could potentially solve the problem of high costs for particular foods, such as, dried beans. Also, there are potential savings to be realized through improving food commodity and Supplemental Feeding Program (SFP) management and procurement practices.

To address projected funding shortfalls for 2011, three ration reducing scenarios (Plans A, B and C) were developed with decreasing total budgets along with rationale and impact. All three plans include a phased approach and start with intensive sensitization and nutrition education along with similar small reductions to take place during the first quarter of 2011 with subsequent reductions to provide the time to carry out vulnerability studies, implement a simple nutrition surveillance system, enhanced BCM and develop criteria to select vulnerable households. The proposed strategy also protects vulnerable groups (pregnant and lactating women, young children and SFP beneficiaries) through increasing and improving safety nets and linking with other programs targeting the vulnerable. At the same time, with the CCSDPT Livelihood Working Group, livelihood strategies for each camp should be developed and complementary programming, such as Community Agriculture and Nutrition (CAN) should be expanded to protect refugees' food intake. TBBC should also increase funding and expand livelihood initiatives where they have a competitive advantage, such as, weaving and shelter supplies and scale-up successful components of their entrepreneurship development grant and saving program as soon as feasible.

### *II. Recommendations*

A. Recommendations related to improving and protecting nutritional status

- A border-wide micronutrient survey should be carried out as soon a possible. It is recommended that TBBC make such a request to the CDC Immigrant, Refugee and Migrant Health Branch as soon as possible. The results of this survey could then be used to develop a strategy to address micronutrient deficiencies and plan interventions integrated with ongoing health, education and nutrition programs.

- The vitamin A protocols should be updated along with the micronutrient supplement components of SFP, TFP and RCH guidelines in light of international guidance and in collaboration with the Health Subcommittee and Nutrition Task Force (NTF). Once updated they should be reproduced, distributed and introduced with training and then monitored by health agency and TBBC nutrition officers. Identifying one health agency

to purchase all the micronutrient supplements and deworming medications needed along the border and to distribute them to all health agencies is also recommended.

- Formative research should be conducted in order to support the design and implementation of a pilot community-based GM program with an IYCF focus and FBF incentive. It is also suggested that once the results of the pilot project are available that the lesson learned be identified and the pilot expanded border-wide.

- The SFP protocols needs to be revised in order to comply with international guidance. This should be done with the NTF and Health Subcommittee participation so that health agency staff input is considered and to ensure buy-in. One component, the section on breastmilk substitutes, is a priority and should be updated as soon as possible. The new guidelines should be introduced with training followed by regular monitoring by nutrition officer monitoring.

- A border-wide nutrition education strategy[6] should be developed which focuses on improving and protecting nutritional status through a strong nutrition education component focused on behavior change and prioritizing specific issues, such as, increasing micronutrient rich food intake and IYCF; and based on the problems identified through nutrition surveys, the Health Information System and assessments. It is advised that when designing the nutrition education program formative research, refugee input and pilot testing should be included. This strategy should be linked to the health and livelihood strategies and common components shared.

- Expanding the reach and integrating a stronger nutrition and nutrition education component into the CAN is recommended to improve impact and better compensate for the food ration reductions. Expanding TBBC's livelihood programming is also advised; and stronger assessment and monitoring in both of these programs is also needed.

- To address the various contexts and opportunities available along the border, working with the LWG members to develop livelihood strategies for each of the nine camps is advised.

- Substituting foods, such as, improved FBF, fortified vegetable oil and brown rice for their corresponding foods in the ration could help address micronutrient deficiencies and improve the nutritional content of the food basket. Therefore, it is advised that this foods be piloted tested with appropriate nutrition education and food preparation suggestions. It is also recommended that procuring fortified vegetable oil in Thailand be researched and if feasible, substituted for the non-fortified oil currently purchased.

- Other recommendations related to improving the nutritional content of the ration include: (1) improving the nutritional content of foods substituted for beans and FBF in the stock pile camps; and (2) distributing as many of the ration foods as possible monthly to support household food management and to enhance consumption versus sale of food commodities.

[6] One overall border-wide integrated nutrition strategy is recommended which would include micronutrients, IYCF, safety net programming, nutrition education, nutrition-related health problems and other identified needs.

B. Recommendations related to saving food costs

- Implementing the revised SFP guidelines will significantly reduce food costs and improve the program, thus it is strongly advised for this reason as well.

- Recommendations include eliminating and reducing some foods. Eliminating sugar as a separate food as it is included in the new FBF products along with dried chilies since they contribute little to nutrition is advised. To reduce the risk of high blood pressure, CVD and other disease it is recommended to reduce the salt in the ration; it will also save costs. Recommendations also include rice and oil reductions; quantities vary between Plans A, B and C and with the 4 specific rations proposed.

- Managing TBBC general food ration caseload as it relates to monthly feeding figures is recommended through more closely supervising food distributions border-wide since it has the potential to save significant food cost. Ongoing closer review and monitoring of camp management committee's food store records compared to TBBC records is also recommended to foster transparency, prevent food leakage and save costs.

- Food costs could also be saved by developing guidelines for the use of camp management committees' "extra" needs foods, in order to standardization use between camps. It is also suggested that the quantities provided to camps in the near future be based on populations and that the proportionately higher allotments provided to some camps decrease. Further, increasing monitoring of this program to foster accountability and manage leakage which potentially will increase with ration reductions is also suggested.

- Improving procurement practices was also advised as follows: (1) researching the availability of commodity transporters and producers in Thailand and how to attract more of their bidss; (2) investigating international procurement for dried beans and fortified oil as both, but particularly the beans are significantly cheaper on the international market; and (3) complying with TBBC's procedures for rejecting substandard commodities.

C. Recommendations related to the Ration Reduction Strategy

- Some recommendations related to the ration reduction strategy are covered in the concluding remarks. In addition, in Section III of the report, recommendations related to TBBC's increased staffing needs can be found with suggestions related to the proposed phases of the ration reductions along with the three specific Plans A, B and C. Recommendations related to enhancing TBBC's current BCM and nutrition surveillance activities are there as well.

- One recommendation in particular found in this section, given its importance and urgency is restated here. That is, vulnerability studies are proposed for each camp to be conducted as soon as possible in order to understand more about household food economy, dietary adequacy, coping strategies and to develop criteria to identify vulnerable households. It is also suggested that a component of these studies include a food procurement and dietary intake survey so that more is learned about refugee food intake.

- Other camps: Regarding the Shan residing in Wieng Heng camp their rations should be reduced similarly to the rations reductions instituted in the refugee camps along the border in 2011 and also monitored similarly. IDP camps should continue to determine rations based on food security assessments.

D. Recommendations related to TBBC's use of new food assistance tools

Although TBBC is using some new food assistance tools, opportunities exist to expand further in this arena as delineated in the recommendations which follow.

- The refugee camp setting does not lend itself to cash interventions instead of food assistance, thus it is not recommended that TBBC consider this in the near future.

- Given the success of using vouchers in refugee contexts, it is recommended that TBBC consider piloting a voucher program designed to address vulnerable households' diet deficiencies. This pilot activity, if effective and expanded, should be linked to TBBC's livelihood activities.

- Given the Burmese refugee context along the Thai border, expanding food assistance to include additional food for work programming as is traditionally implemented is not suggested as current evidence does not support it.

- It is recommended that the part of "Extra Needs" budget, which provides food to top up the low cash salaries for Thai Government security guards and as payment to the Karen and Karenni security guards, be shifted from this area of budget to a "Food-for-Work" line item created for this purpose.

- The provision of cash stipends in exchange for employing refugees to provide all the camp services is a public service program that should be continued since it increases refugees' skills and self-esteem, contributes to the cash economy in camps and provides necessary camp services at a significantly lower cost.

- In the current Burmese refugee context, appropriately school feeding has not been implemented. It is advised that this remain so, however, integrating a school health and nutrition program that could potentially reach a large target group, including nutritionally vulnerable adolescents is suggested.

- The nursery school lunch and snack program funded by TBBC and implemented by CBOs represents an innovative adaptation of "school feeding" that helps to protect the nutritional status of preschool children. As noted in earlier section of the report, this should continue and be enhanced to improve impact.

E. Additional Recommendations

While conducting this consultancy, several other issues and needs related to nutrition and food security programming along the border became apparent. The following recommendations offer potential ways forward to address them.

- It is recommended that TBBC increase its leadership role in nutrition policy and strategy. There is not another agency as well positioned to take this up and it could help to address the nutrition gaps in CCSDPT's strategies, health agency protocols and other pertinent documents. In order to fulfill this role and perform other functions, TBBC should hire a senior nutrition advisor.

- TBBC should develop and/or strengthen its relationship with UN agencies, such as, the Inter-Agency Standing Committee (IASC) Global Nutrition Cluster (GNC)-international and regional bodies, and the Emergency Nutrition Network (ENN), UNICEF Thailand, UNHCR and the UN Special Committee on Nutrition (UN SCN). Further, the nutrition surveillance data (and in the future the vulnerability assessment data) collected should be shared with the UN Nutrition Information in Crisis Situations (NICS) of the SCN so that border-wide refugee nutrition data is included in their reports and shared with the international community. TBBC nutritionist(s) should attend regional and international nutrition meetings and training, to the extent possible, in order to share TBBC successes, network with colleagues and donors and to stay abreast of the evidence base and emerging approaches in international nutrition.

- It is also recommended that TBBC strengthen its relationship with the WFP Asia regional office in Bangkok. The nutrition, procurement, logistics/food technology staff have been receptive to providing information and could prove extremely helpful in implementing several of the recommendations made in this report.

- Regarding CAN, developing a relationship with the regional FAO office in Bangkok and Helen Keller International (HKI) regional office in Cambodia, could be extremely useful in strengthening CAN and integrating more of a nutrition focus. The agricultural manager and other appropriate staff could benefit from participating in the IASC food security cluster, though it is not as well developed as the nutrition one.

- In order to support the implementation of the recommended nutrition surveillance and enhanced BCM as well as the vulnerability assessments and increased monitoring needs of other programs, such as, CAN and TBBC's livelihood programs, a senior level monitoring and evaluation specialist should be hired and placed in TBBC's program unit.

- To start an IYCF focused community-based GM program as well as to expand and enhance CAN additional funding will be needed. It is recommended that TBBC hire a fundraising proposal and writing specialist, as proposed in its organogram, to work with program specialists on multi-year proposals and to develop relationships with foundations.

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## Annex A: Consultancy Terms of Reference

**Food Security & Nutrition Consultant – TBBC**
**Mid - August – Mid - November, 2010**

**TBBC Overview:**
The Thailand Burma Border Consortium (TBBC), a non-profit, non-governmental humanitarian relief and development agency, is an alliance of NGO´s working together with displaced people of Burma, to respond to humanitarian needs, strengthen self-reliance and promote appropriate and lasting solutions in pursuit of their dignity, justice and peace.

Established in 1984, TBBC provides almost all of the food and shelter requirements for over 140,000 refugees in 9 camps along the Thailand Burma border , working in partnership with displaced communities to build capacity, strengthen self-reliance,, and ensure an adequate standard of living and human rights are respected.

**TBBC's core objectives as set out in its Strategic Plan for 2009-2013 are:**
1. Pursue change leading to durable solutions while ensuring a protective environment for displaced people of Burma
2. Increase self-reliance and reduce aid dependency by promoting and supporting livelihood opportunities
3. Ensure continued access to adequate and appropriate food, shelter and non-food items prioritising support for the most vulnerable
4. Support mutually accountable community-based management which ensures equity, diversity and gender balance
5. Develop TBBC organizational structure and resources to anticipate and respond to changes, challenges and opportunities

TBBC is one of 18 NGO members of the Committee for Coordination of Services to Displaced Persons in Thailand (CCSDPT). CCSDPT is the committee through which member agencies coordinate services and through which the Royal Thai Government (RTG) sets policy and administers the programmes.

**Nutrition/Food Security Background in Thailand and Current TBBC Food Basket Cuts:**
Nutrition has a direct impact on health outcomes, learning potential, income earning potential and poverty within a community. Nutrition is an aspect of food aid, food security, health, livelihoods, education and agriculture programming and many of these have their own overlaps with one another. Nutrition is often misunderstood and neglected due to its complexity, lack of a quick-fix approach, and overlap with other areas.

It is most common for the United Nations (UN) to assume the lead for nutrition & food security within a refugee context through partnerships with the local government, local NGO's and INGO's. Within UNHCR's Global Strategic Plan for Nutrition and Food Security 2008-2012 the introduction states "ensuring adequate nutrition and eliminating malnutrition have long been recognized as integral to fulfilling UNHCR's protection mandate." The World Food Program (WFP) is typically responsible for mobilizing food for the general ration and selective feeding programs and transporting the food to delivery points.

Within the refugee context in Thailand along the Burma border the UN's mandate is limited to protection within the 9 refugee camps. The UN World Food Program (WFP) is also not involved, and the Thailand Burma Border Consortium (TBBC) is the organization responsible for food aid distribution for the general food ration and for the development and support of nutrition programs such as SFP/TFP and Nursery School Lunches.

Refugees on the Thailand-Burma border were initially relatively self-reliant. The ration provided by TBBC until the mid-1990s consisted mainly of rice (along with some fish paste and iodized salt) and merely supplemented the diet consumed by the camp populations. Following the consolidation of former small camps into much larger ones in the mid-1990s, nutrition assessments found that refugees were increasingly unable to obtain food from outside

sources due to new restrictions imposed on their mobility, and advised provision of a full ration to support all nutritional needs. Reidel and Menefee [Menefee, 1997] noted that the current basic ration did not provide the minimum WHO standards for total calories, lacked a complete protein source, and was micronutrient deficient. These problems were most pronounced in the ration provided to children under 5 years of age. An ensuing assessment by the Institute of Nutrition at Mahidol University (INMU) [INMU, 2001] supported these findings, and confirmed that the ration was the main source of food for refugees in Mae La camp.

TBBC adjusted the ration content to provide increased calories from fat and protein via addition of yellow beans and soybean oil, and spearheaded a Community Agriculture and Nutrition project to encourage camp vegetable gardening. However, the micronutrient content of the ration still had not been addressed. An evaluation of TBBC food and nutrition activities by TBBC program donor ECHO in 2003 [Schuftan, 2004], agreed with the need for a ration that supplied 100% of nutritional needs, and raised serious concerns regarding the lack of dietary micronutrients. TBBC was encouraged to respond to this issue in a timely manner, through provision of a fortified blended food which at the time was being piloted. Blended food was introduced into the ration to all camps by 2005.

Until recently TBBC was able to raise adequate funding to supply a food basket providing on average 2,100 kcals/ person/ day for all eligible refugees but funding has become more problematic in recent year and programme cuts have been made. The cuts have mainly been to non-food items and until this year the minimum 2,100kcals standard was sustained. This year foreign exchange rates have deteriorated and again TBBC has been forced to make programme cuts to get through the year. Altogether these will make up about 6% of our budget.

Again these cuts will mainly be to non-food items but these have now been cut to the bones and TBBC had no choice but to also make some savings on the food basket. As a short-term measure it was decided to suspend any further purchase of mung beans this year which will lower the nutritional value of the food basket to just under 2,000 kilocalories / person / day and protein provision to 82% of the desired minimum (although this 82% is not made up of complete proteins). To protect the most vulnerable however, beans will continue to be provided in supplementary feeding programmes. A key reason for choosing this item is that the market price for beans has doubled since the end of 2009.

While these adjustments should ensure that no further cuts are required this year, TBBC needs to develop programme plans for 2011 to present to our Donors in November. Whilst it is still hoped that full rations will be sustainable, more realistically it is likely that funding will remain problematic and that TBBC will again have to consider food basket reductions. Rather than responding retroactively during a crisis TBBC wishes to prepare a contingency plan in advance that would provide a reduced food basket with the least harmful nutritional impact on refugees and, in particular will protect the most vulnerable. TBBC wishes to engage the services of a food security and nutrition consultant to work with the programme team to determine options. One of the ways TBBC has supported the most vulnerable is through the Supplementary feeding programs (SFP) in all nine camps. SFP programs are implemented by camp health agencies with guidelines and foods provided by TBBC. These programs target all moderately acutely malnourished children (WHZ <-2 and >-3), as well as pregnant and lactating women, although there are a few participants who do not fit into those categories (e.g., infants unable to breastfeed; patients with conditions that impact chewing and swallowing; and TB or HIV patients). Enrolment of pregnant and lactating women has generally been good [Schuftan, 2003], and the significant reduction of rates of beriberi in mothers and infants in the camps is attributed to the SFP. Major challenges facing these programs, however, are sub-standard coverage of malnourished children and prolonged recovery time (>12 weeks) for enrolled children. In addition, SFP outcomes have been difficult to monitor systematically. Finally, donors have recently recommended program changes, including simplification of the SFP ration and extension of some aspect of supplementary feeding to all children attending growth monitoring [Van Der Veen, 2009].

Options presented at the end of this consultation will need to take into account that during 2009 TBBC, as part of a CCSDPT/ UNHCR initiative, adopted a Strategic Plan in which self-sufficiency will be encouraged and aid-dependency reduced. Leaving aside funding constraints it is TBBC policy to encourage and support livelihood

initiatives and to gradually reduce support, in addition to continuing access to adequate and appropriate food, shelter and non-food items prioritising support for the most vulnerable.

**Objectives of the Consultancy:**

1. Review TBBC's current nutrition programme and food basket content and rationale for adjustments from the perspective of adequate access to food;
2. Review of the current literature/thinking on food aid and food assistance programmes in emergency and protracted situation, including analysis and recommendations of new food assistance tools (i.e. Food-for-work, food subsidies, cash transfers and vouchers, etc…)
3. Recommendations for food basket options for 2011 – 2013 linked to:
    3.1 Targeted feeding for vulnerable groups with proposed criteria and mechanisms to implement in line with anticipated budget cuts; and
    3.2 Overall reductions to the food basket with the intention of providing a standard ration for all refugees based on nutritional considerations.

**Deliverables:**

1. Provide TBBC with a comprehensive report outlining the following:
    a. Historical review of TBBC food security and nutrition approach
    b. Literature review (desktop) of similar food security situations in other humanitarian settings including specific analysis and recommendations related to new food assistance tools such as vouchers, cash transfers, food-for-work, etc…that could be included in TBBC's programme
    c. Review current context where TBBC is shifting away from providing a full food basket to reduced food aid
    d. Provide short and long-term options and scenarios for this shift with clear justification and action plan for all scenarios
    e. Provide budget analysis for various food aid options 2011-2013.

2. Presentation to TBBC Management and Core Staff of the findings and recommendations of the final report.
3. Power Point Presentation & Final Report – 5 print copies and electronic version

**Timeline:** 3 months – mid-August/ mid-November, 2010

- August-September: Desktop research, field research, meetings/workshops
- October: Compilation of Draft Report as per deliverables and presentation to TBBC management and Core Staff – week of October 11th
- November: Final Report with Power Point Presentation ready for week of November 1st.

**Required Skill Base:**

- Post-graduate qualification in food security and nutrition
- Extensive field experience in nutrition/food security in developing countries (7+ years) preferably in refugee situations
- Experience in analysis of nutritional programmes and food security approach in refugee setting where rations cuts have been implemented
- Extensive experience in research, analysis and programme design in the area of nutrition/food security.

**Annex B: People Interviewed or Corresponded with and Meetings Conducted**

| DATE | Institution | Individual (s) and Job Titles |
|---|---|---|
| 9/2/10 | Immigrant, Refuge and Migrant Health Branch, US Centers of Disease Control and Prevention | Leisel Talley, MPH- phone interview and e-mail correspondence |
| 9/3/10 | Immigrant, Refuge and Migrant Health Branch, US Centers of Disease Control and Prevention | Tarissa Mitchell, MD- phone interview |
| 9/3/10 | TBBC Nutritionist from 2000 to 2007 | Andrea Menefee, MPH, RD- phone interview |
| 9/4/10 | Baylor College of Medicine, Houston, TX | David Hilmers, MD, MPH-e-mail correspondence |
| 9/06/10 | TBBC | Sally Thompson, Deputy Executive Director |
| 9/06/10 | TBBC | Jack Dunford, Executive Director |
| 9/06/10 | TBBC | Krishna Acharya, Income Generation Coordinator |
| 9/07/10 | TBBC | Dave Brown, Agricultural Manager |
| 9/7/10 and 10/7/10 | WFP, Regional Bureau Asia | Shane Prigge, Logistics Officer (Food Technology and Commodity Control) |
| 9/07/10 | European Commission-ECHO Regional Support Office for East, South East Asia and the Pacific | David Verboom, Head of Regional Office |
| 9/07/10 and 10/11/10 | European Commission-ECHO Regional Support Office for East, South East Asia and the Pacific | Vitor Serrano, Regional Food Security Advisor |
| 9/07/10 and 10/11/10 | European Commission-ECHO Regional Support Office for East, South East Asia and the Pacific | Dr. Marie T. Benner, Regional Health Advisor |
| 9/08/10 | TBBC | Arthorn Srikeeratikarn, Field Coordinator Sangklaburi |
| 9/08/10 | Discussion with Tham Hin Camp Committee | |
| 9/08/10 | Discussion with Tham Hin Camp Karen Women Organization | |
| 9/08/10 | Discussion with Tham Hin Camp Karen Youth Organization | |
| 9/09/10 | Meeting with Tham Hin Camp COERR Program | Sayan Thamyoo, Program Director |
| 9/09/10 | TBBC | Margaret Detpraiwan , Business Support Officer Tham Him Camp |
| 9/09/10 | Meeting with COERR Agriculture Training and Production Program beneficiaries | |
| 9/10/10 | Interviews with International Rescue Committee (IRC), health staff, Tham Hin Camp | Interview RCH Supervisor/SFP Director and staff Pongsri Bootnoy; in-patient TFP Director Dr. Myat Thurain and Banjong Sudhiprapha, HIS staff |
| 9/13/10 | TBBC | Erika Pied, Nutrition Program Manager |
| 9/13/10 | TBBC | Chris Clifford, Field Coordinator Mae Sot |
| 9/13/10 | Shoklo Malaria Research Unit | Dr. Verena Carrara, Researcher |
| 9/14/10 | Discussion with Mae La Camp Committee | |
| 9/14/10 | Discussion with Mae La Karen Women Organization and Moslem Women's Organization | |
| 9/14/10 | CAN Program home visit with Cluster Leader | Interview with cluster leader and wife |
| 9/14/10 | Discussion with CAN Program Staff | |

| | | |
|---|---|---|
| 9/14/10 | Discussion with Nursery School teachers | |
| 9/14/10 | Interview 3 small shop owners | |
| 9/15/10 | Discussion with Karen Refugee Committee Head Quarters, MST | |
| 9/16/10 | Discussion with Umpiem Mai Camp Committee | |
| 9/16/10 | Discussion with Karen Women Organization and Moslem Women's Organization | |
| 9/16/10 | Focus Group with CAN beneficiaries participating in training | |
| 9/17/10 | ARC, Umpiem Mai Camp | Discussion with SFP program manager |
| 9/17/10 | ARC, Umpiem Mai Camp | Discussion with CHW supervisors and CHWs |
| 9/20/10 | TBBC | David Curmi, Field Coordinator MSR |
| 9/20/10 | Discussion with Karen Women's Organization Head Quarters staff | Jane Abbey, Tamla Saw and several other staff |
| 9/20/10 | CARE USA | Mary Lung'aho, Special Advisor IYCF- e-mail correspondence |
| 9/21/10 | Discussion with MRML Camp Committee | |
| 9/21/10 | Discussion with MRML Karen Women's Organization | |
| 9/21/10 | Interview COERR Program Manager | Chumpol Maniratanavongsiri, Program Director |
| 9/21/10 | TBBC | Meeting with Field Officers Kamolrat and John, David Curmi, and Supply Officer Saphat Mupae. |
| 9/22/10 | Malteser International (MI), MRML Supplemental Feeding Program | Interview RCH director-Wiphan and staff person responsible for SFP and TFP |
| 9/22/10 | TBBC | Interview Bet Borirakwana Food Security Officer, Mae Sariang |
| 9/22/10 | Karen Women's Organization | Interview Nursery School Program Director |
| 9/24/10 | Interview MI Health Staff in MSR office | Interview RCH director- Wiphan and SFP Manager Htoo Baw |
| 9/27/10 | Meeting with Site 1 Camp Committee | |
| 9/27/10 | Discussion with SFP staff in Site 1 Camp | Dr. Kay Khine Kyaw, RCH Technical officer, Niko Lee, RCH Nurse and refugee health staff |
| 9/28/10 | Interview Boarding House Caretaker St. Mary Section 14 | |
| | Interview Boarding House Caretaker Karenni Health Department Sponsor | |
| 9/29/10 | Meeting with KnRC at Nai Soi | |
| 9/29/10 | Meeting with Karenni Women's Organization at Nai Soi | |
| 9/29/10 | Meeting with IRC Health staff in MHS town | Dr. Tila Ahmadzai, MHS Health Coordintaor, Dr. Kay Khine Kyaw, RCH Technical Officer, Hla Khay Htoo, MHS CHW Supervisor |
| 9/29/10 | TBBC | Meeting with Field Coordinator, Lahsay Sawhaw, support officers: Bruce Yamstit , Supplies Officer, Mary Yone, Nutrition Field Officer |
| 9/30/10 | Discussion with Site 2 Camp Committee | |
| 9/30/10 | IRC, Supplemental Feeding Program | Observation of SFP for pregnant women; Discussion with Niko Lee, RCH Nurse and refugee health staff |
| 10/5/10 | TBBC | Miles Jury, Community Outreach Officer-e-mail correspondence |
| 10/5/10 | TBBC | Justin Foster, Program Support Manager |
| 10/5/10 | TBBC | Pakpao Neumthaiong, Procurement Manager |
| 10/6/10 | Institute of Nutrition, Mahidol University | Pattanee Winchagoon, Phd, Associate Professor |

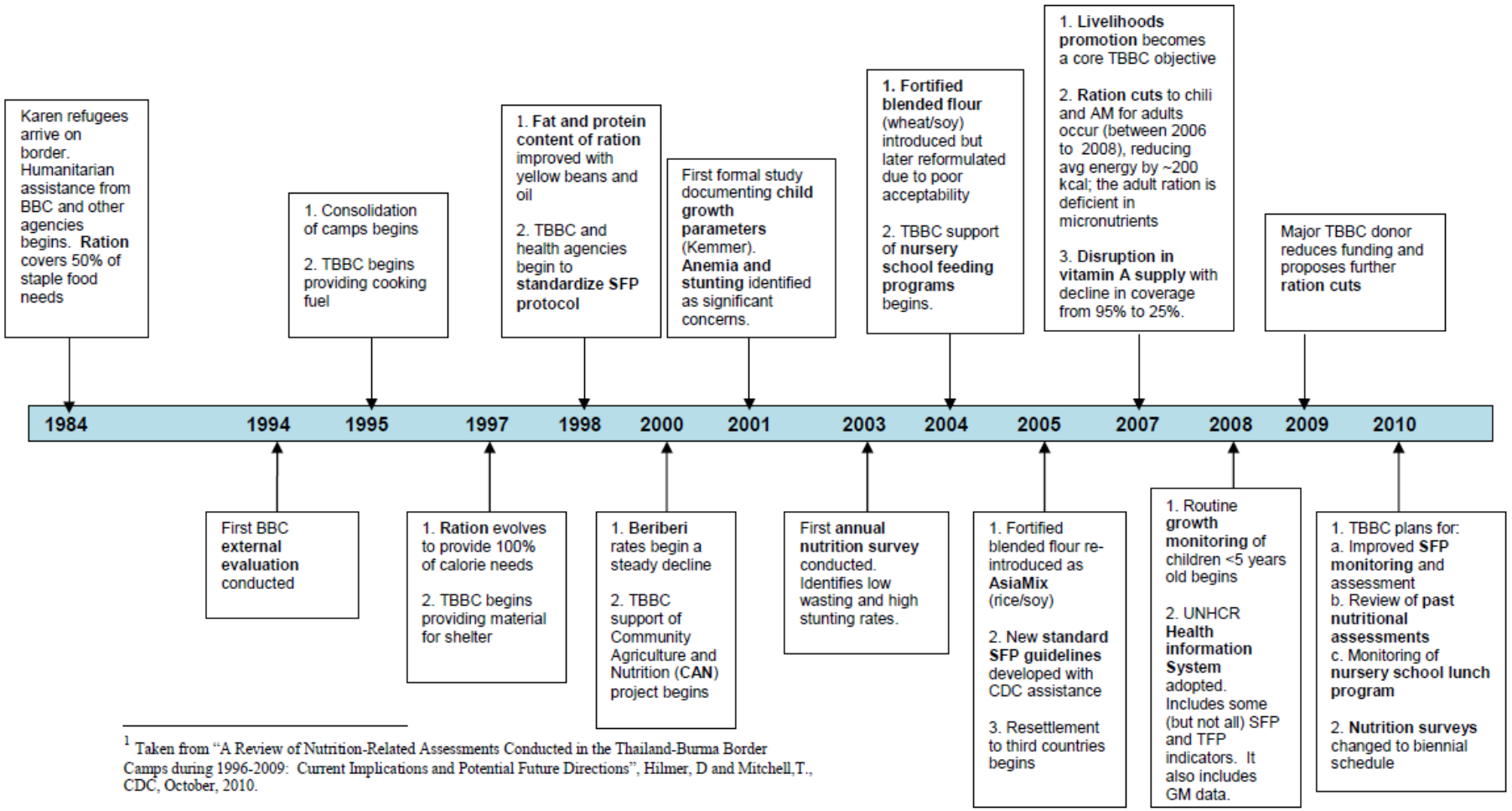
| | | |
|---|---|---|
| | | Community and International Nutrition |
| 10/6/10 | TBBC | Chirat Santarattiwong, Field Operations Supply Chain Director |
| 10/6/10 and 10/8/10 | TBBC | Brian Brook, Financial Controller |
| 10/7/10 | WFP, Regional Bureau Asia | Rita Bhatia, Senior Programme Officer, Nutrition |
| 10/7/10 | WFP, Regional Bureau Asia | Haitham El-noush, Voucher and CashTransfer Officer- brief meeting and e-mail correspondence |
| 10/8/10 | IRC | Christine Petrie, Deputy Director, Programs |
| 10/15/10 | World Vision International, Toronto, Canada | Carolyn Macdonald, Nutrition Director and Nutrition Centre of Expertise Lead, Health and WASH Team, e-mail correspondence |
| 10/15/10 | World Vision International, Asia Pacific Region, East Asia Sub-region | Mary Dunbar, Maternal Health and Nutrition Specialist, e-mail correspondence |
| 10/16/10 | Save the Children USA | Seunghee F. Lee, School Health and Nutrition Senior Director, e-mail correspondence |
| 10/18/10 | WFP, Rome and Friedman School of Nutrition Science and Policy, Tufts University, Boston, Massachusetts | Saskia de Pee, Phd- e-mail correspondance |
| 11/1/10 | UNHCR | Gloria Kisia, nutritionist Dadaab Refugee Camps, Kenya- e-mail correspondence |
| 11/1/10 | TBBC | Sompit (Jae) Komchun, Camp Management Coordinator- e-mail correspondence |
| 11/8/10-11/15/10 | UNHCR, Public Health and HIV Section, Division of Program Support and Management, Geneva, Switzerland | Caroline Wilkinson, Senior Nutrition Officer—e-mail correspondence and phone interview |
| 11/17/10 | UNHCR, Regional Support Hub- Nairobi, Kenya | Allison Oman, Senior Regional Nutrition and Food Security Officer-- e-mail correspondence |

## Annex C: TBBC General Food Ration for Adults: 1984 to 2010

| Ration Food | 1984 | 1986 | 1990's[7] | 1997 | 1998-2001 | 2002-2003 | 2004-2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| White Rice (35% broken) | 8 kg. | 16 kg. | 16 kg. | 16 kg. | 16 kg. | 16 kg. | 15 kg. | 15 kg. | 15 kg. | 15 kg. | 15 kg. | 15 kg. |
| Yellow Mung beans | | | 1.5 | | 1.5 kg.[8] | 1.5 kg. | 1.5 kg. | 1 kg. | 1 kg. | 1 kg. | 1 kg. | 1kg to 0 kg (7-12/10) |
| Asia Mix (fortified blended food) | | | | | | | 1.4 kg. | 1 kg. | 1 kg. | 1 kg. to .5 kg. to .25 kg. | 0.25 kg. | 0.25 kg. |
| Fish Paste | | 500 gm. | 500 gm. | 1 kg. | 1 kg. | 1 kg. | 1 kg. | 0.75 kg. | 0.5 kg. | 0.75 kg. | 0.75 kg. | 0.75 kg. |
| Soybean oil (non-fortified) | | | | | 1 liter | 1 liter | 1 liter | 1 liter | 1 liter | 1 liter | 1 liter | 1 liter |
| Dry Chillies | Very small quantities | | | | | 125 gm. | 125 gm. | 125 gm. | 40 gm. | 40 gm. | 40 gm. | 40 gm. |
| Salt | | 330 gm. | 330 gm. (1993 iodized) | 330 gm. | 350 gm | 350 gm | 330 gm. | 330 gm. | 330 gm. | 330 gm. | 330 gm. | 330 gm. |
| Sugar | | | | | | | | 250 gm. | 250 gm. | 125 gm. | 125 gm. | 125 gm. |
| Nutrition Composition | | | | | | | | | | | | |
| Total Calories | | | | 1934 | 2100 | | 2458 | 2348 | 2351 | 2351-2245 | 2245 | 2107 |
| Protein- %RDA | | | | 86% | | | 124% | | 105% | | 100% | 82% |
| Fat- % kcalories | | | | 3% | | | 14% | | 14% | | 14% | 14% |
| Calcium-%RDA | | | | 53% | | | 72% | | 41% | | 49% | 42% |
| Iron-% RDA | | | | 14% | | | 40% | | 30% | | 19% | 10% |
| Vitamin A-% RDA | | | | 0.0% | | | 68% | | 44% | | 15% | 14% |
| Thiamin- % RDA | | | | 34% | | | 96% | | 76% | | 53% | 40% |
| Niacin - % RDA1 | | | | 70% | | | 89% | | 81% | | 72% | 68% |
| Vitamin C-% RDA | | | | 0.0% | | | 50% | | 35% | | 9% | 10% |
| Riboflavin-% RDA | | | | 14% | | | 145% | | 104% | | 49% | 31% |
| Zinc -% RDA | | | | 31% | | | 77% | | 61% | | 37% | 37% |
| Sodium-%RDA | | | | 268% | | | 268% | | 225% | | 246% | 246% |

[7] Starting in 1994 refugees in poor camps, relocated camps and new arrivals received a 3 month supply of yellow beans.
[8] Aqua highlight indicates an increase in the quantity of a food and yellow highlight shows where foods were decreased.

## Annex D: Timeline of historical and nutrition-related events, Thailand-Burma border camps, 1984-2010[1]



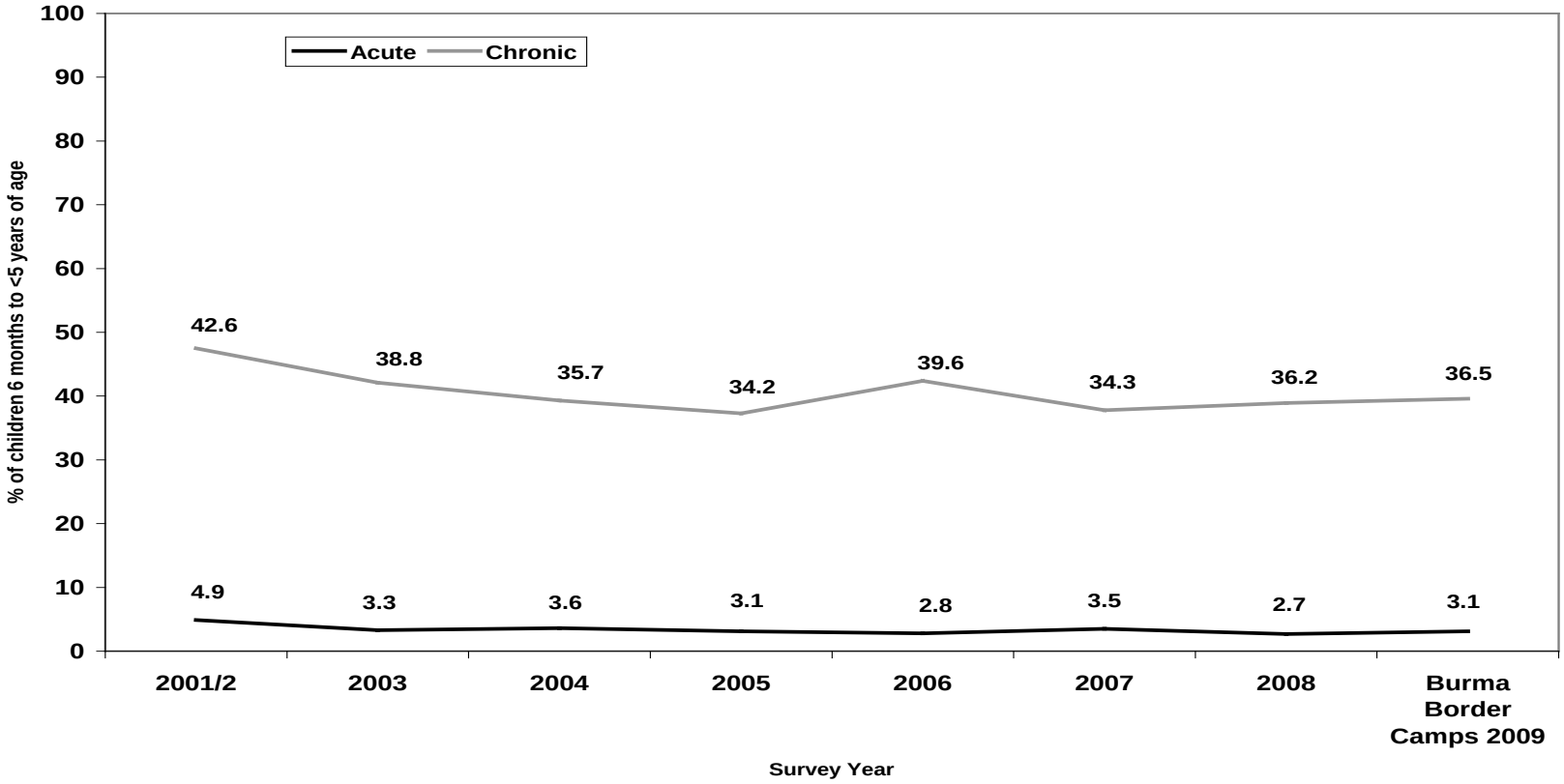

[1] Taken from "A Review of Nutrition-Related Assessments Conducted in the Thailand-Burma Border Camps during 1996-2009: Current Implications and Potential Future Directions", Hilmer, D and Mitchell,T., CDC, October, 2010.

## Annex E: Current TBBC Adult Ration Compared to UN Recommended Ration, Bhutanese Refugee Ration & Previous TBBC Ration

| Ration | Rice/cereal | Beans/Pulses | Oil | AM/FBF | Sugar | Fish Paste | Chilies | Salt |
|---|---|---|---|---|---|---|---|---|
| TBBC Adult 2009 | 15 kg. | 1 kg. | 1 Liter | .25 kg. | 125 gm. | .75 kg. | 40 gm. | 330 gm. |
| TBBC Adult 2004-2005 | 15 kg. | 1.5 kg. | 1 Liter | 1.4 kg. | 0 | 1 kg. | 125 gm. | 330 gm. |
| Bhutanese Refugees in Nepal* | 12 kg. (rice) | 1.8 kg. (lentils, chickpeas) | .75 liter (fortified) | 1.1 kg. (WSB) | 600 gm. | -- | -- | 225 gm. |
| Eritrean & Ethiopian Refugees in E. Sudan | 13.5 kg. (sorghum) | 1.5 kg. (green split peas) | 1 liter | Both these foods are included in the planned ration, but funding constraints limited their purchase, delivery and distribution | | -- | -- | 300 gm. |
| Rohingya (Burmese) Refugees in Bangladesh | 12.6 kg. (rice) | 1.2 (yellow split peas) | .6 liter (fortified) | 1.4 kg. (WSB) | 240 gm. | -- | -- | 280 gm. |
| UN Recommended Ration | 12 kg. | 1.8 kg. | .75 Liter (fortified) | 1.8 kg. | 450 gm. | -- | ---- | 150 gm. |

*Bhutanese refugees receive 250 gm. of seasonal fresh vegetables and 10 gm. of ginger and garlic per person every 2 weeks provided by UNHCR

**Annex F: Graph of the Malnutrition Rates in the Thai border camps between 2002 and 2009**



## Annex G: Results of Border-wide Micronutrient Studies (2001-2008)

### Anemia and Iron Deficiency in Children 6-59 months

Living in the Burmese Refugee Camps along the Thai Border

| Study Information | Anemia | Iron Deficiency Anemia | Iron Deficiency | Severe anemia (all ages) |
|---|---|---|---|---|
| 2001-5 camps, 975 children ; Thai Red Cross, Iron deficiency (ID)- ZPP/H> 80 umol/mol; ; ID Anemia- Hb <110g/L & ZPP/H> 80 umol/mol.; Anemia- HB,11.0 g/L<br>Severe ID anemia- Hb< 80 g/L | 72.0%;<br>88% (6-24 months) | 64.9% | 85.4% | 10.4% |
| 2004- 1 camp (Umpiem), 500 children, Anemia- Hb<11.0 g/L | 40.5% ;<br>66.5% (estimate 6-24 months) | | | |
| 2006- follow-up to above study | 31.5%; 53.5% (estimate 6-24 months) | | | |
| 2008- CDC Blood Lead Study; 3 camps (Mae La, Umpiem, Nupo) ; 645 children<br>Anemia- Hb < 11.0 g /L Severe Anemia Hb<80 g /L | 55.0% ;<br>70%<br>(estimate 6-24 months) | | | 45%<br>(estimate 6-24 months) |

### Micronutrient Data

Women Living in the Burmese Refugee Camps along the Thai Border

| Study Information | Anemia in Non-Pregnant Women | Anemia in Pregnant Women | Vitamin A Status 3rd trimester of pregnancy | Zinc deficiency | Thiamine Deficiency (Pregnant Women) |
|---|---|---|---|---|---|
| 1995- 1 camp (Maela); 47 women | | | | | 36% |
| 2004- 1 camp (Umpiem), 500 mothers of children 6-59 months, Anemia- non-pregnant women Hb<12.0 g/L; pregnant women Hb<11.0 g/L | 22.4% | 27.3% | | | |
| 2006- follow-up to above study | 11.3% | 15.9% | | | |
| 2006-2007- 1 camp (Maela); 515 women; Anemia Hb< 110g/L 1st trimester | | 38.5% | 33% low vitamin A levels; 5% vitamin A deficient; 66% lacking Beta-carotene | 30.7% | 10% |

## Annex H: Description of formative research, the CARE Group[9] and Mother-to-Mother Support Models, community-based nutrition and health programs

***I. Formative research*** is a general term describing investigations conducted for program design. It forms the basis for developing effective strategies and programs and information channels for influencing behavior change. It helps researchers identify and understand the characteristics - interests, behaviors and needs - of target populations that influence their decisions and actions.

It often starts by gathering all the available quantitative and qualitative data, such as, nutrition survey results, HIS reports, vulnerability assessments, food consumption practices, information on health services, cultural beliefs and practices, livelihood practices and vulnerable groups. Once this has been done gaps in information needed for program design, such as, specific cultural beliefs and how these relate to IYCF practices, are identified and the qualitative data collection approaches and formative research required, such as, focus groups, observation and in-depth interviews, are selected.

One formative research technique that can be particularly helpful in designing community-based nutrition programs focusing on improving IYCF is called consultative research. It uses several quick, interactive information-gathering methods with mothers and other key people who are likely to be beneficiaries or participants in a program.[10] During consultative research, important scientific information and key cultural and personal concerns are examined, and changes in behavior are negotiated. The goal of consultative research is to identify feasible, acceptable and effective strategies to improve health-related behaviors, with program beneficiaries playing an active role in the process.

Nutrition programs designed with formative research that include a behavior change communication approach have been shown to be more effective in changing targets behaviors. The two models described below have been shown to be effective community-based approaches to improve nutrition and health practices.

***II. Care Groups*** are an approach for organizing community health volunteers. It is a community-based strategy for improving coverage and behavior change through building teams of women who each represent, serve and promote health and nutrition among women in 10-15 households in their community. Volunteers meet weekly or bi-weekly with a paid facilitator to learn a new health message, report on the incidence of disease and support each other. Care group members conduct group sessions monthly and home visit the women for whom they are responsible, offering support, guidance and education to promote behavior change.

Objectives:

- Improve coverage of health programs
- Sustainable behavior change

Target groups:

- Mothers of children 0-59 months of age

[9] Descriptions of CARE Groups and Mother-to-Mother Support Groups taken from: CORE Group. Nutrition Working Group. Nutrition Program Design Assistant: A Tool for Program Planners, Washington, DC: 2010.

[10] Dicken, K et al, Designing by Dialogue: A Program Planners' Guide to Consultative Research for Improving Young Child Feeding, The Manoff Group and SARA/AED, June 1997.

Criteria:

- Community with houses close enough together so that volunteers can walk between them and to meetings
- Need a sufficient volunteer pool

Defining Characteristics:

- Trained "leader mother" volunteers provide support to other mothers
- Small number of paid staff reach large population (through leader mothers)
- Peer support
- Can support multiple health initiatives

Needed Elements for Quality Programming

- Time available—leader mothers mush have 5 hours per week to volunteer
- Comprehensive and ongoing training of leader mothers
- Long start-up time (due to training)—program should be 4-5 year duration
- Supervisor-to-promoter ratio should be 1:5

***III. Mothers and Grandmothers Support Groups*** provide comfortable, respectful environments where peers can learn from and support each other to practice optimal child care and feeding practices. Support groups may build on existing groups within the community to be organized for specific purposes. Common support groups include breastfeeding support groups, women's groups and grandmother's groups. Support groups may be facilitated by a member of the group, a health care provider or other community member.

Objective: Promote optimal child care and feeding behaviors

Target groups:

- Mothers of young children (<2, <3 or < 5 years of age)
- Pregnant women
- First-time mothers
- Adolescent mothers

Criteria:

- Group members willing and able to meet and share with each other
- Community mobilized

Defining Characteristics:

- Groups are composed of peers
- Safe environment for mothers to learn and share
- Research shows the level of influence of peers on behavior change is strong
- Requires minimal outside resources

Needed Elements for Quality Programming:

- Group leader must have strong facilitation skills
- Training may be necessary
- Variation in methodology from very interactive to lecture driven
- Can link into the non-health sector

## Annex I: SFP Proposed Beneficiary Groups, Rations and Budget

| CURRENT SUPPLEMENTAL and THERAPEUTIC FOOD PROGRAMS | | | |
|---|---|---|---|
| Type of beneficiary | Monthly/Yearly Caseload | Monthly Ration | Cost per Year |
| Moderate Acute Malnutrition < 5 years old (or > 2 years and < 5 if GM distributes CSB++) | 680/410 yearly caseload:<br>410 > 2 yrs old | 6 kg. RSB+ with sugar month<br>.75 liter oil | $5,740.00 (Plan A)<br>or<br>$9,350.00 (Plan B) |
| Moderate Acute Malnutrition > 5 years old | 35 yearly caseload | 6 kg. RSB+ with sugar month<br>.75 liter oil | $481.25 |
| Severe acute malnutrition (SAM) < 5 years old | 54 yearly caseload | High energy milk & RSB+ with sugar or RSB++ for younger children | $6480.00 |
| SAM > 5 years old | 48 yearly caseload | High energy milk & RSB+ with sugar | $5,760.00 |
| Supplemental Feeding for pregnant and lactating Women | 2700- PW (per month)<br>2770- PPLW (per month) | P: 3 kg. RSB+ (average 7 months) = $36,855<br>L: 3 kg. RSB+ .5 kg. oil (average 6 months) = $44,597 | $81,452. |
| Infants unable to breastfeed | 150 per month | Powdered Infant formula (Dumex brand) average consumption = 4.5 packets/ month and 4 kg. RSB+ 6-24 months if no RSB++ provided in GM program (not included in the money budgeted) | 2427 baht per beneficiary month<br>4,367,925 bhat/yr.<br>$145,600 year |
| Chronic disease (HIV, TB) and children with special health need (CSHN) | Monthly caseload<br>HIV: 200<br>TB: 120<br>CSHN: 310 | **CSHN**: 6-24 months = 4 kg. RSB++ if not provided in GM<br>> 2 yrs. = 4 kg. RSB+ with sugar & 1 liter oil<br>**Chronic disease:** 3 kg. RSB+ & 1 liter oil | TB: $4,920.00<br>HIV: $8,200.00<br>CSHN: $21,796.00 |
| In-patient feeding or Patient house feeding | 400 (per month) | GFR | $61,750 year |
| Total | | | **$337,240.00** |

| NEW SUPPLEMENTAL FOOD PROGRAM OR PROGRAM NOT CONSIDERED PART OF SFP BUDGET | | | |
|---|---|---|---|
| Infants/Children 6-24 months | 5850 | 4 kg. RSB++ per month | $336,960.00 |
| Nursery School Lunch and Snack Program: children between 2 yrs. 8 months and 5 years old | 8700 | 5 baht per child per day provided as an advance for 5 months<br>Change: Standard menus developed and implemented; GFR commodities provided, bulk buying implemented and reimbursement decreased | Current budget: $270,000<br>Revised with cost savings: $235,000 |
| Total for supplemental Food Programs | | | **$674,200.00**<br>(Nursery school budget not included as currently it is not included with SFP) |

## Annex J: TBBC General Food Ration and Nutrition Composition: Adult, BH Student and Child <5 years old (2008-first half of 2010 and budgeted for 2011)

| Ration Food | Child <5 year old ration | Board House Student Ration | Adult Ration 2009-2010 |
|---|---|---|---|
| White Rice (35% broken) | 7.5 kg. | 15 kg. | 15 kg. |
| Yellow Mung beans | .5 kg. | 1 kg. | 1 kg. |
| Asia Mix (fortified blended food) | 1 kg | 1 kg. | 0.25 kg. |
| Fish Paste | 0.75 kg. | 0.75 kg. | 0.75 kg. |
| Soybean oil (non-fortified) | .5 liter | 1 liter | 1 liter |
| Dry Chillies | 40 gm. | 40 gm. | 40 gm. |
| Salt | 330 gm. | 330 gm. | 330 gm. |
| Sugar | 250 gm | 250 gm. | 125 gm. |
| Nutrition Information | | | |
| Total Calories | 1265 | 2337 | 2245 |
| Protein- %RDA | 109% | 107% | 100% |
| Fat- % calories | 14% | 13% | 14% |
| Calcium-%RDA | 97% | 41% | 49% |
| Iron-% RDA | 121% | 31% | 19% |
| Vitamin A-% RDA | 55% | 37% | 15% |
| Thiamin- % RDA | 117% | 69% | 53% |
| Niacin - % RDA | 112% | 12% | 72% |
| Vitamin C-% RDA | 53% | 40% | 9% |
| Riboflavin-% RDA | 201% | 89% | 49% |
| Zinc -% RDA | 58% | 39% | 37% |
| Sodium-%RDA | 246% | 246% | 246% |

The aqua highlighted numbers indicate micronutrients that are present in sufficient amounts. Amounts of sodium are highlighted in red, because the quantities are so high.

**Annex K: Comparison of the Nutritional Composition of Polished, Parboiled, Enriched and Brown Rice, Mung beans, Asia Mix and FBF+**

(100 grams edible portion)

| | White Rice (Polished) | White Rice (Parboiled) | Brown Rice | White Rice (Enriched) (United States) | Mung Beans | Asia Mix | RSB+ with sugar (rice/soy blend) For individuals > 2 years old | CSB++ (corn soy blend) For young children 6 to 24 months |
|---|---|---|---|---|---|---|---|---|
| Calories | 360 | 360 | 360 | 360 | 350 | 400 | 410 | 410 |
| Protein | 6.5 gm. | 6.7 g. | 7.5 gm. | 6.7 gm. | 25.6 gm. | 14 | 15% | 16% |
| Fat | 1 gm. | 1 gm | 1.8 gm. | .77 gm. | 1.1 gm. | 6 | 6% | 9% |
| Crude fiber | | | | | | | 5% maximum | 3% maximum |
| Calcium | 4 mg. | 7 mg. | 33 mg. | 24 mg. | 206 mg. | 192.5 | 130 (+calcium) | 130 (+ calcium) |
| Iron | 0.5 mg. | 1.2 mg. | 1.6 mg. | 2.9 mg. | 4.6 mg. | 24.5 | 4 mg. (ferrous fumarate-more bio-available) | 4 mg. (ferrous fumarate-more bio-available) |
| Vitamin A | 0 | 0 | 0 | 0 | 16 | 500 (mcg.) | 1664 IU | 1664 IU |
| Vitamin B1 (thiamin) | 0.08 mg. | 0.2 mg | 0.35 mg. | .44 mg. | 0.44 mg. | 0.9 mg. | 1280 mg. | 1280 mg. |
| Vitamin B2 (Riboflavin) | 0.02 mg. | 0.08 mg. | 0.04 mg. | .03 mg. | 0.62 mg. | 1.5 mg. | 4480 mg. | 4480 mg. |
| Niacin | 1.5 mg. | 2.6 mg. | 4.7 mg. | 3.5 mg. | 1.6 mg. | 4.8 mg. | 4.8 mg. | 4.8 mg. |
| Folate | 10 mcg. | 11 mcg. | 12.8 mcg. | 0.02 mcg | 120 mcg. | 160 mcg. | 60 mcg. | 60 mcg. |
| Vitamin C | 0 | 0 | 0 | 0 | 0 | 48 mg. | 100 mg. | 100 mg. |
| Zinc | 1.3 mg. | | 1.8 mg. | 1.3 mg. | -- | 10 (low bioavailability) | 5 (low bioavailability) | 5 (low bioavailability) |
| Iodine | -- | -- | -- | | -- | -- | 40 mcg (k Iodate) | 40 mcg (k Iodate) |

## Annex L: Plans A, B and C Rations and Nutritional Composition

### *PLAN A Rations*

| Ration Food | 6 months to 5 year old ration[11] | 5-18 years and Board House Student Ration | Adult Ration | Vulnerable Adult |
|---|---|---|---|---|
| White Rice (35% broken) | 7 kg. | 13.5 kg. | 13.5 kg. | 14 kg. |
| Yellow Mung beans | 0.5 kg. | 1 kg. | 1 kg. | 1.25 kg. |
| Rice Soy Blend + (fortified blended food) | 1 kg | 1 kg. | 0.25 kg. | 1 kg. |
| Fish Paste | 0.5 kg. | 0.75 kg. | 0.75 kg. | 0.75 kg. |
| Soybean oil (non-fortified) | .8 liter | .8 liter | .8 liter | 1 liter |
| Salt | 75 gm. | 150 gm. | 150 gm. | 150 gm. |
| Nutrition Information | | | | |
| Total Calories | 1234 | 2072 | 1973 | 2232 |
| Protein- %RDA | 100% | 100% | 92% | 107% |
| Fat- % calories | 19% | 12% | 12% | 15% |
| Calcium-%RDA | 72% | 41% | 48% | 55% |
| Iron-% RDA | 115% | 30% | 18% | 31% |
| Vitamin A-% RDA | 50% | 34% | 11% | 41% |
| Thiamin- % RDA | 113% | 66% | 49% | 76% |
| Niacin - % RDA | 106% | 61% | 66% | 79% |
| Vitamin C-% RDA | 53% | 40% | 9% | 35% |
| Riboflavin-% RDA | 198% | 88% | 48% | 109% |
| Zinc -% RDA | 55% | 38% | 34% | 60 |
| Sodium-%RDA | 106% | 129% | 150% | 150% |

The aqua highlighted numbers indicate micronutrients that are present in sufficient amounts. The nutritional composition of AM was used to calculate nutritional composition, however, RSB+ has a more favorable nutrition composition and includes a micronutrient formulation that is more absorbable. That said, at least some of the B vitamins and vitamin C will be lost during food preparation, i.e. cooking.

[11] The 6 to 36 month ration also includes 4 kg. month for RSB++ as an incentive for all young children that attend Growth Monitoring sessions. See Plan B where this ration is included for comparison.

## Annex L: Plans A, B and C Rations and Nutritional Composition

*Page 2*

### *PLAN B Rations*

| Ration Food | 6 months to 5 year old ration | 6 months to 5 year old ration + GM 4 kg. RSB++/month[12] | 5-18 years and Board House Student Ration | Adult Ration | Vulnerable Adult |
|---|---|---|---|---|---|
| White Rice (35% broken) | 6 kg. | 6 kg. | 12 kg. | 12 kg. | 13.5 kg. |
| Yellow Mung beans | 0.5 kg. | 0.5 kg. | 1 kg. | 1 kg. | 1.25 kg. |
| Rice Soy Blend + (fortified blended food) | 1 kg | 1 kg | 1 kg. | 0.25 kg. | 1 kg. |
| Fish Paste | 0.5 kg. | 0.5 kg. | 0.75 kg. | 0.75 kg. | 0.75 kg. |
| Soybean oil (non-fortified) | .8 liter | .8 liter | .8 liter | .8 liter | 1 liter |
| Salt | 75 gm. | 75 gm. | 150 gm. | 150 gm. | 150 gm. |
| Nutrition Information | | | | | |
| Total Calories | 1115 | 1641 | 1894 | 1795 | 2173 |
| Protein- %RDA | 92% | 160% | 93% | 85% | 104% |
| Fat- % calories | 21% | 19% | 14% | 13% | 15% |
| Calcium-%RDA | 71% | 123% | 41% | 48% | 55% |
| Iron-% RDA | 111.6% | 424% | 29% | 17% | 30% |
| Vitamin A-% RDA | 50% | 247% | 34% | 11% | 41% |
| Thiamin- % RDA | 108% | 371% | 63% | 46% | 75% |
| Niacin - % RDA | 97% | 219% | 61% | 59% | 76% |
| Vitamin C-% RDA | 53% | 263% | 40% | 9% | 35% |
| Riboflavin-% RDA | 197% | 855% | 88% | 47% | 109% |
| Zinc -% RDA | 54% | 210% | 36% | 32% | 60% |
| Sodium-%RDA | 106% | 120% | 129% | 150% | 150% |

The aqua highlighted numbers indicate micronutrients that are present in sufficient amounts. The nutritional composition of AM was used to calculate nutritional composition, however, RSB+ has a more favorable nutrition composition and includes a micronutrient formulation that is more absorbable. That said, at least some of the B vitamins and vitamin C will be lost during food preparation, i.e. cooking.

[12]The 6 to 36 month ration also includes 4 kg. per month of RSB++ as an incentive for all young children that attend Growth Monitoring sessions. It is expected that with intra-family sharing that young children will not consume all of their FBF ration; and in addition, the some (to most) of the water soluble vitamin (B and C vitamins) will be lost during cooking. .

## Annex L: Plans A, B and C Rations and Nutritional Composition

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### *PLAN C Rations*

| Ration Food | 6 months to 5 year old ration[13] | 5-18 years and Board House Student Ration | Adult Ration | Vulnerable Adult |
|---|---|---|---|---|
| White Rice (35% broken) | 6 kg. | 11 kg. | 11 kg. | 13.5 kg. |
| Yellow Mung beans | 0.5 kg. | 1 kg. | 1 kg. | 1.25 kg. |
| Rice Soy Blend + (fortified blended food) | 2 kg | 1 kg. | 0.25 kg. | 1 kg. |
| Fish Paste | 0.25 kg. | 0.5 kg. | 0.5 kg. | 0.5 kg. |
| Soybean oil (non-fortified) | 0.5 liter | .75 liter | .75 liter | 1 liter |
| Salt | 75 gm. | 150 gm. | 150 gm. | 150 gm. |
| Nutrition Information | | | | |
| Total Calories | 1176 | 1754 | 1656 | 2164 |
| Protein- %RDA | 105% | 85% | 78% | 102% |
| Fat- % calories | 16% | 14% | 14% | 15% |
| Calcium-%RDA | 60% | 31% | 36% | 43% |
| Iron-% RDA | 22% | 27% | 15% | 30% |
| Vitamin A-% RDA | 99% | 34% | 11% | 41% |
| Thiamin- % RDA | 174% | 61% | 44% | 75% |
| Niacin - % RDA | 126% | 56% | 55% | 76% |
| Vitamin C-% RDA | 105% | 40% | 10% | 35% |
| Riboflavin-% RDA | 359% | 86% | 46% | 108% |
| Zinc -% RDA | 91% | 34% | 29% | 58% |
| Sodium-%RDA | 100% | 123% | 128% | 115% |

[13] With Plan C due to the higher anticipated intra-family sharing with the larger ration reduction, the provision of a large FBF rations for young children as an incentive to attend GM sessions is not recommended. Instead the RSB+ is increased in their GFR.

## Annex M: Job Description for a Senior Nutrition Advisor

**Essential Job Duties/Scope of Work:** The Senior Nutrition Advisor will lead in technically managing all aspects of TBBC's nutrition programs; in addition, he/she will ensure integration of a nutrition focus in all other aspects of TBBC's programs including, procurement, strategy and policy, other program trainings, CAN, income generation and livelihoods, IDP programs and nutrition surveillance. He/she will also develop the border-wide nutrition strategy and lead the process to acquire the resources to carry it out. Providing leadership, mentoring and capacity building to a team of national and international staff will also be a key priority. To facilitate mainstreaming nutrition into TBBC's programming, the nutrition advisor will report to the Deputy Executive Director and will participate in the senior management team meetings.

**Core duties include:**

1. Provide expert advice and guidance to TBBC's food program for refugees and IDPs in light of international guidelines and standards related to food basket composition.
2. Provide leadership and technical oversight for the effective and efficient implementation of the supplementary feeding programs in collaboration with the TBBC nutrition manager and in cooperation with various health agencies and local community-based organizations working inside the 9 refugee camps along the border.
3. In collaboration with the TBBC nutrition manager carry out capacity building of national nutrition staff through on the job training so that they can effectively monitor and support TBBC's nutrition programs in the 9 refugee camps along the border.
4. Periodically review TBBC's nutrition program protocols and guidelines in light of changes to similar international guidelines and revise as needed in collaboration with TBBC nutrition staff, the Nutrition Task Force and CCSDPT Health Sub-committee.
5. Through a collaborative process with health sub-committee, develop CCSDPT's nutrition strategy and implementation plan along with funding requirements. Review and update as needed.
6. Ensure proper communication, coordination and harmonization of tools with the different stakeholders involved in food/nutrition activities in the 5 field sites border-wide.
7. In collaboration with the TBBC nutrition manager ensure that nutrition protocols and guidelines are respected, adhered to and correctly implemented in all the border field sites.
8. With the TBBC nutrition manager assess the procurement needs of the nutrition program and ensure that food supplies and nutritional materials are timely, properly requisitioned and well utilized.
9. Support the preparation of nutrition budget needs and monitor program expenditures.
10. Ensure the regular reporting systems are in place, and with the support of the nutrition manager verify and compile Nutrition reports which are done monthly, biannually and annually.
11. In collaboration with the TBBC nutrition manager develop and the nutrition surveillance database. Ensure data collection quality and timeliness of reports. Periodically review the indicators to ensure they are current and provide relevant beneficiary and program information.

12. Maintain professional networks, such as WFP, UNHCR, CDC, ENN, UNICEF, SCN NCIS and the Global Nutrition Cluster and other relevant international agencies to share information, remain current in the field, and be able to use recent practices that are innovative and successful.
13. Display the highest standards of teamwork with the Senior Management Team and other international and local health colleagues.
14. Support the Nutrition Manager in providing technical nutritional support and strategic direction to a border-wide team of 3 to 6 TBBC nutrition field staff and a number of beneficiary stipend staff in each camp. Provide technical oversight to Nutrition Manager in the field.
15. Participate in related research projects with academic and professional partners that further the technical knowledge of humanitarian relief and development.
16. Host donor visits and manage donor relations in regards to all nutritional projects and issues raised.
17. Represent TBBC, on the CCSDPT Health Subcommittee and share the leadership of the Nutrition Task force with the Nutrition Manager
18. Lead the process to obtain the resources required for TBBC's future complementary nutrition programming, such as, IYCF and community-based nutrition activities and micronutrient initiatives.

**QUALIFICATIONS:**

- Bachelors degree in Nutrition and a Masters degree in Nutrition in Public Health or related field.
- 7 to 10 years international experience working with an international Non Governmental Organization preferable working in a limited resource setting.
- Previous experience working as a nutritionist in a refugee/IDP setting required; experience in a protracted refugee/IDP situation and/or development nutrition program preferred.
- Field coordination and management experience of emergency feeding programs.
- Awareness of community-based approaches to improving nutrition and food security, such as, IYCF and nutrition education based on BCC.
- Supportive personnel management style and ability to manage teams.
- Excellent report writing and computer skills (Microsoft Office and Outlook)
- Proficiency in Nutrition and statistical packages (ENA-SMART, SPSS).
- Ability to plan, coordinate and lead Nutrition surveys based on the SMART methodology with health agency partners and be able to work in a multicultural setting.
- Excellent decision making skills.
- Fluent in English and Thai an asset.

**Annex N: Household Oil Rations for Plans A and B**

The 6 months to 5 year old ration was changed from .5 liter to .8 so that all rations at phase 2 are .8 L oil. It is designed based on the fact that larger HHs can more easily economize on oil, i.e. that there are economies of scale operating in food preparation and that smaller HHs are more likely to be vulnerable.

| Number of Members in Household | Suggested HH Monthly oil ration | | Actual size of oil ration in Liters to equal .8 L per beneficiary |
|---|---|---|---|
| | Liters per month | % of former ration | |
| 1 person | 1 | 100% | .8 |
| 2 persons | 2 | 100% | 1.6 |
| 3 persons | 2.5 | 83% | 2.4 |
| 4 persons | 3 | 75% | 3.2 |
| 5 persons | 4 | 80% | 4 |
| 6 persons | 4.5 | 75% | 4.8 |
| 7 persons | 5.5 | 78.5% | 5.6 |
| 8 persons | 6 | 75% | 6.4 |
| 9 persons | 7 | 78% | 7.2 |
| 10 persons | 7.5 | 75% | 8 |
| 11 persons | 8.5 | 77% | 8.8 |
| 12 persons | 9 | 75% | 9.6 |

**Annex O: TBBC Food Rations for Other Displaced Burmese 2010**
(TBBC Program Report- January-July 2010)

| Beneficiaries | Numbers | Ration |
|---|---|---|
| 4 Mon Resettlement Sites | 8,617 villagers | 3 months rice supply |
| Karen IDP camp | 4,529 | Rice and salt ration |
| 6 Shan IDP Camps along the border | 6,000 | Rice and salt ration |
| Total | 19,416 | |