

EXECUTIVE SUMMARY

Rates of malnutrition are extremely high in Cambodia. In 2000, the Cambodia Demographic and Health Survey found that 44.6% of children between 0-5 years were stunted (low height/age), 45.2% of children were underweight (low weight/age), and 15% were wasted (low weight/height). High rates of extreme malnutrition also exist: 20.5% of children are severely stunted, 12.6% are severely underweight, and 3.9% are severely wasted.

As part of the country's efforts to improve the quality of nutrition interventions in the health sector, the *Field Research Study on Infant and Young Child Feeding Practices in Selected Provinces of Cambodia* was conceived and carried out in the 5 pre-selected provinces of Stung Treng, Kratie, Prey Veng, Kampot, and Battambang. These provinces were selected purposefully to be representative of the main geographic regions of the country.

This report describes the infant and young child feeding practices in five provinces of Cambodia. The main purpose of this research study is to provide useful information and data from families and communities to develop appropriate feeding recommendations for children less than two years of age in Cambodia. These recommendations are then to pave for the creation of a counselling and other educational materials (for IEC campaigns), which are to be developed in detail by a different agency with specialisation in this work. The messages and materials will be used by primary health care workers at the health centres and during outreach activities at the village level, with the aim of preventing growth failure in infants and young children during their first two years of life. Specifically, the objectives of this research are as follows:

1. To gain a fuller understanding of current feeding practices and those that impede or facilitate adequate nutrient intake in children less than two years of age in the different regions of Cambodia;
2. To identify attitudinal or environmental factors that determine current feeding practices;
3. To engage mothers in determining the most feasible and efficacious ways to improve feeding practices to ensure improved nutrient intakes of both well and sick children less than two years of age;
4. To gain an in-depth understanding of factors that act as constraints to mothers' willingness or capability to improve feeding practices as well as factors that enhance or motivate improvements in feeding practices; and
5. To review and revise the current feeding recommendations based on the above results.

This study employed a consultative research approach, and collected information in phases, and applied both qualitative and quantitative analysis. Information was collected primarily from different people involved in providing care for infants and young children. These included mothers, health workers, community leaders or other family members who influence infant and young child feeding in the home.

In Phase 1 of the study, recipe trials and in-depth exploratory interviews were conducted to refine the counselling guides to be used for the survey on Trials of Improved Practices (TIPS).

In Phase 2 of the study, it involved the identification of feeding problems among the children aged 0-23 months old and presenting recommendations to change such behaviours. The TIPS involved three steps that are categorized as a.) initial visit or problem identification, b.) counselling visit or

presentation of the problems to the mothers and providing recommendations for them to try; c.) follow-up visit to determine the outcome of the TIPs

A total of 110 mothers with children aged 0- 23 months old (~22 per province) were interviewed regarding infant and young child feeding practices. Five pregnant women (~1 per province) were interviewed on breastfeeding initiation and 20 key informants (~4 per province) were asked on health and nutrition situations in the areas.

Key Findings

1. The practice of breastfeeding (for 0-23 months old) and exclusive breastfeeding (for 0-6 months old) among the mothers in the study is almost universal. More than half of the study population initiated breastfeeding immediately after birth and nearly all of the mothers provided *colostrum* to their child. The recommended frequency of breastfeeding is practiced by most of the mothers.
2. Introduction of complementary foods at the age of 6 months is practiced by more than 70% of the mothers. *Bobor*, which is the most available semi-solid food for the young children in the rural villages, is the first complementary food introduced by majority of the mothers.
3. Among the most common feeding problems identified based on the counselling guides were the following:

For the 6-11 months old

- Infants were fed watery *bobor*, not energy or nutrient dense
- Infants were fed only soup liquid with rice
- Inadequate amount, frequency and variety in the diet of the young children

For the 12-23 months old

- Delayed introduction of family foods, not enough variety in the diet
- Inadequate amount, frequency and variety in the diet of the young children
- Child eats by himself or with older siblings and does not finish meal

4. Most of the mothers agreed to try the recommendations presented concerning improvements in child feeding practices. The mothers somehow did something to improve their child's diet in terms of the quantity and quality of meals but nevertheless, most mothers could not carry out the whole trials because of some difficulties encountered such as: difficulty feeding the child with more amount of food to meet the recommended quantity of food to be served and limited available resources to buy quality foods for the children.
5. The acceptability and feasibility of the recommendations suggested to the mothers based on the TIPs are given below:

For the 0-5 months old

Recommendation No. 1: Use both breasts at each feeding and feed until the breasts feel soft

This recommendation is feasible for the mothers with children in this age-group, especially since most mothers practice exclusive breastfeeding.

Recommendation No. 2: Stop giving the child water

Although only tried by one mother, this practice appears to be feasible for the mothers to do especially since most children in this age group are predominantly breastfed.

For the 6-11 months old

BREASTFEEDING PRACTICES:

Recommendation No. 1: Use both breasts at each feeding and feed long enough so the breasts feel soft

This recommendation is feasible for the mothers with children in this age-group, especially since most mothers practice exclusive breastfeeding.

Recommendation No. 2: Express breastmilk and have others give to the baby with cup and spoon or just a cup

Based on these results, it can be said that this recommendation is not feasible. It is possible that mothers need more education and support on how to express their milk properly and to overcome their belief that they do not have enough milk to express and leave for their children when they leave the house.

Recommendation No. 3: Breastfeed more frequently when at home and during the night, on demand.

Though only one mother tried the recommendation, it is possible for the mothers to feed their children on demand.

COMPLEMENTARY FEEDING PRACTICES:

Introduction of food

Recommendation No. 4: Start feeding soft foods, such as thick *bobor* or soft steamed rice (*bay cham hoy*) with chopped fish, egg or meat and mashed pumpkin or green vegetable, after breastmilk.

The importance of the well-being of the child is the ultimate concern of the mothers when it comes to feeding. Taking this into consideration, the mothers tried their best to do something to improve their child's intake. With proper information on initiation of complementary feeding, this practice can be feasible for the mothers to do

Quality of food

Recommendation No. 5: Make *bobor* with less water so it is thicker, and add mashed fish, egg or chopped meat and pumpkin, and green vegetable, after breastmilk.

This recommendation is feasible, although most mothers were more willing to add fish or meat to *bobor* than vegetables.

However, most mothers think that providing thick *bobor* to a young child will cause choking because it will get stuck in the child's throat. This was seen in one of the recipe trials conducted. However, the information on acceptability of thick *bobor* is very limited. Therefore, it needs further investigation. It is sometimes difficult to convince mothers to prepare *bobor* with vegetables and meat especially for the younger children because they think they are too small to be fed and it will choke the child. It is important to counsel mothers on the right consistency of foods so the child will not choke.

Recommendation No. 6: Add oil to *bobor* when cooking

Although most of the mothers were not using oil in the *bobor*, they were able to try it. This recommendation is feasible, and cooking oil is always available in the market.

Recommendation No. 7: Add the fish or meat and vegetables to the rice, not just the liquid

Foods in the villages are usually prepared with liquids and this is usually the food for the family and not just for the child. It can be said that, most mothers can adapt this practice since it is less time consuming than to prepare a different dish for the child. However, mothers will need counseling in order to overcome their fear of choking their children because of certain vegetables such as morning glory, which is actually good for their child. With proper information on food preparation, this recommendation can be doable.

Recommendation No. 8: Add vegetables and meat to the child's diet

Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings.

Frequency and quantity of meals

Recommendation No. 9: Increase meal frequency until baby is fed 2 times per day (6 months) or 3 times per day (7-11 months)

Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings.

Recommendation No. 10: Gradually increase the amount of food given to baby until the child is eating at least 1/3 of small bowl (or 2-3Tbsps.) per meal (for 6 months)

This recommendation is difficult for the mothers to do since most of them believe that younger children are too small to be fed. Infants can be fed in small frequent feedings and make them use to feeding rather than make abrupt changes in the amount of food to feed.

Recommendation No. 11: Gradually increase the amount of food given to baby until the child is eating at least 1/2 of small bowl (for 7-11 months)

Among the recommendations presented, this is the most difficult for mothers to do. Most mothers think that providing ½ small bowl is too much for their young child to eat. This practice is not feasible for the mothers to do. It is recommended instead that small frequent feeding be provided in order to make the young children used to eating rather than providing a large amount of food in one eating.

Feeding behavior

Recommendation No. 12: Motivate and help your child to finish all his food.

Motivation is an important factor for a growing child to finish his meal. For working mothers with children less than 2 years of age, most of the time, they are left with other caregivers in the family. While this recommendation can be feasible, it is important that other caregivers (aside from the mothers) have the same aspirations for the child.

For the 12-23 months old

BREASTFEEDING PRACTICES

Recommendation No. 1: Express breastmilk and have others give to baby with cup and spoon or just a cup

Expressing breast milk is a totally new practice among the mothers in the study sites. There are certain issues that need to be considered such as storage of milk and ability of the mothers to express breast milk. This recommendation is not feasible for the mothers considering the living conditions in the rural villages.

COMPLEMENTARY FEEDING PRACTICES

Quality of meals

Recommendation No. 2: If you feed the child soup with rice, give him all the ingredients in the soup, including fish or meat and vegetables

There are certain foods, as well as practices that mothers perceive as harmful. It is essential that mothers be educated on the benefits of providing certain vegetables and that diarrhea can be brought about by other causes such as unhygienic environment or provision of contaminated water. Mothers often believe that their children can get choked because of vegetables, hence, they would usually provide rice with liquid only. This recommendation can be feasible if the misconceptions on foods are corrected.

Recommendation No. 3: Add vegetables and meat to the rice at each meal

Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings.

FREQUENCY AND QUANTITY OF MEALS

Recommendation No. 4: Increase feeding frequency of meals until the child is fed 3 times per day plus 2 snacks

Financial constraints become an issue when it comes to buying food for the family. This recommendation can be feasible but providing quality snacks should also be considered and emphasized.

Recommendation No. 5: Gradually increase the amount of food until you are giving your child 1 small bowl of food at each meal

Among the recommendations offered, this is the hardest that the mothers can actually practice. Although the amounts served were increased at a certain point, still it is not enough to meet one small bowl as recommended. The mothers had difficulty feeding their children the amount suggested because they think it is a lot for their child. This recommendation is difficult to attain. It can be emphasized though that small frequent feedings and gradual increase in the amount of meal served be tried to make the child get used to feeding more than what was usually being given.

FEEDING BEHAVIOR

Recommendation No. 6: Help your child to eat; do not leave your child to eat by himself. Motivate your child to finish all his meal

This recommendation can be feasible with the support of other household members to look after the younger children when the mother is not around.

6. Other factors that should be taken into consideration because of their influence on infant feeding practices are:
 - The changes in the physical and emotional condition of the children when the practices were tried according to the mothers' observations are the most frequently stated reasons why the practices were tried. The health of the children remain as the mothers' primary

concern regardless of how inadequate their resources are, mothers' attitude towards the practices are motivated by how they see such changes among their children;

- The ability to buy certain foods such as fish and meat becomes an issue when the family has no enough money to buy for such;
- The effects of changes in behaviour of their children when they perceive them as "satisfied" because of recommended increase in the number of meals and amount of servings serve as a motivating force among the mothers because they are not disturbed by their children when it comes to doing some work in the field or household chores;
- There are certain foods that the mothers frequently mentioned such as morning glory, pineapple and pumpkin to somehow harm their child's health. The lack in information about nutrition is an important factor that has to be addressed in order for the mothers to be fully aware of the benefits that their children can get from the mentioned vegetables.

Given the above findings, the following recommendations are then presented:

1. The mothers' inadequate resources play a vital role in providing adequate and quality foods to the young children. Their ability to provide the recommended quantity and quality of meals should be enhanced by providing capacity building among the mothers in the rural villages. The presence of backyard gardening is practiced by most of the households but the technical knowledge to maintain the available resources should be emphasized.
2. The mothers' aspiration for their children is an important motivator for improving child feeding. The recommendations were tried because the mothers wanted their children to grow well, be healthier, more satisfied, and happy. With support and motivation from the key informants that most mothers have high regard for information on health, these key phrases should be continually used to motivate the mothers to improve their child feeding practices.
3. The beliefs that certain foods will make the young children choke or have diarrhoea should be corrected in a way that mothers will be given knowledge on proper health and nutrition. The benefits of providing vegetables should be emphasized to be more helpful than harmful with regard to the child's health.
4. In providing quantifiable recommendations, it is more useful to establish a standard measurement that the mothers can easily follow. For instance, there are various sizes of bowls that mothers used to feed their child. A clear definition of a standard bowl that would provide the adequate amount (i.e. half of a small bowl, 1 small bowl) necessary for the child should be established. Specifically, it can be useful to define how small is a small bowl that can adequately provide the recommended amount of food for the young child. As recommended by the NNP, it is easier for the mothers to refer to the common bowl, "Chan Jang Koer" to provide a clear definition of how much should be fed for the child.
5. Radio and television remain as key media forms for receiving information on infant and young child feeding practices. Use of these media forms, including posters, should be continued. The health workers who are considered to have the most influence among the mothers in terms of health information should continue to advocate and educate the mothers about proper infant and young child feeding. It may be helpful that the health workers be given continuous education and training on nutrition by the health personnel in order to acquire more knowledge and skills and can be more effective as advocates of health improvements in the villages.

I. INTRODUCTION

A. BACKGROUND INFORMATION

Malnutrition in Cambodia

Rates of malnutrition are extremely high in Cambodia. In 2000, the Cambodia Demographic and Health Survey found that 44.6% of children between 0-5 years were stunted (low height/age), 45.2% of children were underweight (low weight/age), and 15% were wasted (low weight/height). High rates of extreme malnutrition also exist: 20.5% of children are severely stunted, 12.6% are severely underweight, and 3.9% are severely wasted.

Recent estimates in the incidence of malnutrition in the country indicate that there has been no improvement since the 2000 CDHS (The World Bank, 2006:113-114). Patterns show variations in malnutrition by socio-economic status and geography such that the problem in children under 5 years is significantly higher:

- by per capita consumption quintile (at 57.8% stunted and 53.9% underweight among the poorest compared to 48.4% and 36.5% stunted and underweight, respectively, among the richest)
- by educational status (51.6% of children are underweight when their mothers had no education compared to 34.3% when their mothers had at least a secondary education);
- by birth order (43.6% are underweight when their mothers have only had 1 child compared to 49.5% when their mothers have had more than 6 children);
- by birth interval (52.2% are underweight when their mothers had a previous birth less than 24 months before, compared to 39.6% with underweight when their mothers had a previous birth more than 48 months before);
- in rural areas compared to urban areas (45.7% in rural areas compared to 38.1% in urban areas for stunting; 46% as against 37.95% for underweight; 15.4% as opposed to 12.6% for wasting);
- by region (from 35% and 39.5% of children underweight in Phnom Penh and Banteay Mean Chey, respectively, compared to the incidence of low weight for age at 54.0% in Mondol Kiri / Rotanak Kiri and 56.8% in Prey Veng).

Malnutrition is a major contributor to early childhood mortality in Cambodia, and there are estimates that 54% of childhood deaths are associated with it (Maternal and Child Nutrition in Asia, 2005:3). Its incidence is attributed to a range of factors, the main ones being inadequate access to food, inadequate care for children and women, as well as insufficient health services and unhealthy environment (Food Security and Nutrition Information System website www.foodsecurity.gov.kh). Poor feeding practices in particular, especially complementary feeding practices, have been said to place infants and young children at high risk very early in life (Maternal and Child Nutrition in Asia, 2005:6; NPRS, 2002:94). Such practices are often shaped by the mothers' or caregivers' lack of knowledge, which in turn can be a function of their low educational levels or inability to read and write, as well as lack of access to information and/or various communication channels.

Feeding Practices in Children under Two Years of Age

Acute and chronic illnesses as well as inadequate feeding practices are among the principal causes of poor growth in Cambodian children. Among the few sources of information on feeding practices in children under two are the recent Cambodia Socio-Economic Survey (CSES), the CDHS 2000 and two studies of limited geographical scope conducted by Helen Keller International (HKI). One of

these was in Takeo province in 1997, and describes breastfeeding and weaning practices in a sample of 57 mothers; the other was conducted in 2000 and reports on household trials for adaptation of feeding recommendations proposed by the World Health Organization (WHO) as part of the Integrated Management of Childhood Illness (IMC) protocols. The household trials were conducted in Takeo, Kampong Chhnang and Siem Riep provinces.

A summary of feeding problems by age group that were identified through a review of available literature are described below:

- Birth: The initiation of breast-feeding is delayed in most infants, so many do not receive colostrum; many also receive pre-lacteal feeds. 0-5 mo: Most infants are breastfed, but breastfeeding is not exclusive for most children under 6 mo. Water is the most commonly used supplement for infants under 6 mo, but some mothers also give food, and some mothers use bottles as the key mode of feeding between birth and 6 mo.
- 6-8 mo: Breastfeeding continues for most infants but feeding is delayed beyond this age in about 30%. *Bobor*, a watery rice porridge prepared with water and salt is the usual food given to babies during this period. Feeding frequency is less than 3 times per day, and the amount of food given is less than 5 tablespoons per meal. Some babies receive bottles.
- 9-11 mo: Breastfeeding continues for over 90% of infants nationally, however 15% are still not receiving complementary feeding. About 20% receive bottles. Complementary foods include mostly grains; meat, fish, fruit and vegetables are less frequent. There is not much specific information about this age group since HKI studies do not include this age group separately.
- 12-23 mo: There is still a high rate of breast feeding in this age group, although at 23 mo only about 60% of children continue to be breastfed. There is delayed introduction of family foods and a lack of variety in the diet. Feeding frequency is inadequate and the amount of food fed to the child at each meal is insufficient. Children are also anorexic in this age group, probably due to chronic low intake, frequent illness and multiple micronutrient deficiencies.

There are still many gaps to be filled in with regards to information on infant and young child feeding practices in different age groups as well as factors that motivate current practices or act as constraints to improving practices. For example, there is practically no information on feeding sick children; traditional ways of stimulating children's appetites need to be explored. In general there is a need to learn about the energy density of common foods given to children in the different age groups, as well as acceptable ways to improve these foods. In infants, it is not known whether maternal fear of human immunodeficiency virus (HIV) transmission is affecting breastfeeding practices. Overall, much more needs to be learned about the feasibility of improving infant and young child feeding behaviours and practice, since the previous research conducted by HKI concluded that mothers were willing to do almost all of the recommendations included in the IMC feeding protocols. Only a few changes needed to be made to the draft national guidelines that had already been adapted from the feeding guidelines from the Philippines and the generic WHO feeding recommendations.

National Goals towards Improving Infant and Young Child Feeding Practices

The importance and priority that the Royal Government of Cambodia (RGC) has placed in mitigating the incidence of malnutrition in infants and young children has been visible in the various initiatives and programmes that it has instituted. Central to these are a 2006 Annual Operational Plan of the National Nutrition Program, the Health Sector Strategic Plan 2003-2007, and the 1999-2008 Cambodian Nutrition Investment Plan, the latter focusing on improving the nutrition and well-being of children under 5 years and pregnant women (Maternal and Child Nutrition in Asia, 2005:11). More

recent efforts are evident in the setting of targets in the Cambodia Millennium Development Goals (CMDGs) to reduce child mortality. Directly addressing prevailing feeding practices are the goals to increase the 2000 base year rates of (a) 11.4% of infants exclusively breastfed up to 6 months of age to 34% by 2010 and 49% by 2015, and (b) 11% of mothers who start breast-feeding newborn child within 1 hour of birth to 45% and 62% by 2010 and 2015, respectively (MoP, 2003:41). These targets are reiterated in the country's National Strategic Development Plan (NSDP), which consolidates the country's development efforts and articulates the RGC's commitment to substantially improving "physical and economic access to sufficient, safe and nutritious food at all times to meet...dietary needs..." (RGC, 2006:47).

Translating the above goals into action is undertaken by the RGC through the Health Sector Support Project (HSSP) of the Ministry of Health (MOH). Through the HSSP in general and the National Nutrition Programme (NNP) in particular, the government is supporting the delivery of a package of cost effective interventions (including Studies and Technical Assistance) towards the adoption of essential nutrition behaviours by a majority of HSSP's target groups living in rural areas of 12 provinces selected for World Bank funding support. As part of the country's efforts to improve the quality of nutrition interventions in the health sector, the *Field Research Study on Infant and Young Child Feeding Practices in Selected Provinces of Cambodia* was conceived and carried out in the 5 pre-selected provinces of Stung Treng, Kratie, Prey Veng, Kampot, and Battambang. These provinces were selected purposefully to be representative of the main geographic regions of the country.

B. PURPOSE AND OBJECTIVES OF THE RESEARCH

The purpose of this research study is to provide useful information and data from families and communities to develop appropriate feeding recommendations for children less than two years of age in Cambodia. These recommendations are then to pave for the creation of a counselling material and other educational materials (for IEC campaigns) which are to be developed in detail by a different agency with specialisation in this work. The identified key practices and materials will be used by primary health care workers at the health centres and during village outreach activities, with the goal of preventing growth failure in infants and young children during their first two years of life.

The specific objectives then of the research are as follows:

6. To gain a fuller understanding of current feeding practices and those that impede or facilitate adequate nutrient intake in children less than two years of age in the different regions of Cambodia;
7. To identify attitudinal or environmental factors that determine current feeding practices;
8. To engage mothers' in determining the most feasible and efficacious ways to improve feeding practices to ensure improved nutrient intakes of both well and sick children less than two years of age;
9. To gain an in-depth understanding of factors that act as constraints to mothers' willingness or capability to improve feeding practices as well as factors that enhance or motivate improvements in feeding practices; and
10. To review and revise the current feeding recommendations based on the above results.

Implementation of the field research study for the HSSP-MOH was sub-contracted to SBK Research and Development, a local consulting firm. Through this firm, a team was formed consisting of a Team Leader, an Assistant Team Leader, a Junior Nutritionist, and 5 Research Assistants.

Providing technical support to this Cambodia-based team is the World Bank-supported Senior Nutrition Specialist associated with The Manoff Group, an organisation that provides assistance in communications and behaviour-centred planning, management and evaluations for health, nutrition, and population projects. On two occasions in 2005, Dr. Janet Irene Picado, the Senior Nutrition Specialist, came to Cambodia to assist in the training of the team on the research methods, including the field work in its initial phases. She also provided significant inputs into the improvement of the report, especially its technical aspects.

The study was designed and carried out with full collaboration of the National Nutrition Programme (NNP) of the Ministry of Health. Other stakeholders were similarly consulted and kept abreast of the key developments on the study. These stakeholders included the Infant and Young Child Feeding Practices Working Group and the World Health Organization (WHO), through Ms. La Ong Tokmoh.

II. METHODS

A. STUDY DESIGN

This study employed a consultative research approach, collected information in phases, and applied both qualitative and quantitative analysis. Information was gathered primarily from different people involved in providing care for infants and young children. These included mothers, health workers, community leaders or other family members who influence infant and young child feeding in the home.

The research was carried out in two phases: *Phase 1*, during which the Research Team undertook recipe trials and conducted in-depth exploratory interviews to firm up counselling guides with a menu of recommendations which served as inputs into the Trials of Improved Practices (TIPS). Recipe trials involve bringing a small group of mothers and children together in a setting where special foods or food mixes are prepared, tasted and discussed (Dickin et al, 1997:5.16). As applied in other countries, the recipe trials for this study sought to get a better understanding of how food is prepared for infants and young children and to develop and test recipes for appropriateness and acceptability to infants and young children. Information derived from these trials were analysed and also contributed to the refinement of the counselling guides which had been tentatively developed prior to the conduct of the research. The in-depth individual interviews, on the other hand, followed a conversation approach to soliciting information from among a different set of mothers. It employed open-ended questions focused on the mothers' perceptions, beliefs and opinions regarding child feeding practices. Results of this semi-structured interview consisted of summaries of breastfeeding and complementary practices, as well as of facilitators and barriers to each ideal breastfeeding and complementary feeding practice. These also served as inputs into the fine-tuning of the counselling guides.

Phase 2 or the Trials of Improved Practices, formed the core method of this research. Aimed at changing behaviours, it involved a three step process: (a) holding an initial visit to assess the health condition of the young child, child feeding practices and access to health services and health communication channels, etc; (b) conducting a counselling visit to engage the mothers in a dialogue on the findings of the initial visit and motivating them to select and apply recommendations on

improved practices; and (c) undertaking a follow up visit to determine outcomes of the mothers' trial of the improved practices they agreed to try. During this second phase, recipe trials were likewise conducted and served to confirm the recommendations derived during the first phase of the research.

Towards the research objectives and correspondingly with the above research phases, structured data collection instruments/ guides and tools were designed which drew upon existing instruments that have been developed and used in a number of countries. These instruments were tailored for each group of research participants (i.e., mothers of 0-23 month-old children, pregnant women and key informants from the community) and were administered during the two phases of the research. Below are the guides and tools that had been employed according to the study phases ([Annex 1](#)):

STUDY PHASE	RESEARCH GUIDES AND TOOLS
Phases 1 & 2	01 Recipe Trial Forms
Phase 1	02 In-Depth Exploratory Interview Guide
Phase 2	03 TIPS Initial Visit
"	04 TIPS Counseling Visit
"	05 TIPS Follow up Visit
"	06 Matrix TIPS Analysis
"	07 24-Hour Recall Registration Form
"	08 Observation Registration Form
"	09 TIPS Pregnant Woman
"	10 Interview Guide for Health Worker, Community Leader, etc.

In conjunction with the research phases and to ensure the effective use of the above instruments, training of the field team was undertaken in two phases. The training for the recipe trials and the In-depth interviews took place on 29 June – 1 July 2005, with members of the NNP staff as resource persons. Pre-tests of Tools 01 and 02 were also part of the activity and were held in Kampong Speu. Subsequent recipe trials and in-depth exploratory interviews were also undertaken in four villages¹ of Kampong Cham on 3-4 July 2005². Analyses of the findings from these initial activities in Kampong Cham and Kampong Speu paved for the improvement of the Counselling Guides, shown in [Annex 2](#). These Counselling Guides were finalised after review by the NNP staff and members of the IYCF Working Group and they formed an essential part of the TIPS phase of the research.

Training of the interviewers for the Trials of Improved Practices took place on 15-19 August 2005. With the Senior Nutrition Specialist/ Consultant and the Junior Nutritionist as facilitators, the training covered detailed discussions of the TIPS-related tools (i.e., Tools 01, 03-10) and their pre-testing in Kday Takoy in Kandal Province. Revisions were made during the training and tools were reformatted to facilitate the coding and encoding of the data.

¹ Of these 4 villages, 3 were in Kampong Cham while the fourth one was in Prey Veng. This was because the selected villages were in the border of the two provinces and the team did not realise that the fourth village was part of Prey Veng.

² Originally planned for Kratie, the Field Study Management Team agreed to shift the location due to the limited time of the Senior Nutrition Specialist/ Consultant in Cambodia. Conducting this in Kratie would have meant a half-day's travel to the province and another half-day to return to Phnom Penh.

Part of the preparations for the TIPS involved compiling a Cambodia specific food composition table (FCT), for which the NNP team had a major responsibility. The FCT was needed to analyse the food recall information gathered during the visit 1 and visit 3 of the TIPS process. An innovative part of this process involved coding this Cambodia-specific FCT for the *Propan* software. New food items obtained during the field work were added to the database and used in the course of the data processing. [Annex 3](#) contains this Cambodia-specific FCT.

B. STUDY SITES

The study was conducted in five (5) selected provinces of Cambodia, namely: Kratie, Prey Veng, Kampot, Battambang and Stung Treng. These provinces were chosen purposively to be representatives of the main geographic regions of the country. Kratie, located northwest of Phnom Penh, and Prey Veng, which is south of the capital and borders Vietnam, represented the flood plain lands near the rivers where most of the country's population live. Kampot is a mountainous region west of Phnom Penh and has a border with the sea. Battambang is a rich, highly populated region bordering Thailand. Stung Treng is a very poor region in the northern part of the country with both a mountainous area as well as river plain. Except for Battambang, these provinces are considered poor, with high levels of stunting (over 40%) in children under five years of age.

In each of these provinces, the Provincial Health Department (PHD) recommended the Operational Districts (ODs)³ from which the study villages were to be derived. Six (6) rural villages were subsequently selected from each of the identified ODs by the Assistant Team Leader and the Junior Nutritionist Consultant prior to the data collection. The process involved consultations with the officials from the PHDs, including the Nutrition Department of the Ministry of Health (MoH), with support from the World Health Organization. Because a basic criterion for the village selection was its poor condition, those suggested by the Provincial Health Department officers were in some instances substituted with ones that fell within some established guidelines for determining poor villages, namely:⁴

- Remoteness
- Absence of accessible roads
- Lack of potable drinking water

Such substitution was done to increase the possibility of identifying feeding problems and their feasible solution among vulnerable populations. Limitations of time and the special challenges of trying to reach the more distant operational districts and villages during the rainy season constrained the team, however, to substitution of study sites that depicted the above criteria yet were relatively accessible. Of the six selected villages from each province, five were chosen for the TIPs and the sixth was selected for the conduct of the recipe trials.

³ ODs cover a population of between 100,000 and 200,000 persons and provide this population with a Complementary Package of Activities within the catchment area of a referral hospital. Each OD manages the health facilities (e.g., health centres, health posts, referral hospital) in its area and through its office, has ties to the MoH at the central level. ODs are not the same as administrative districts as the former can cross the boundaries of the latter.

⁴ Other criteria include no school or other educational facility, absence of a marketplace, no health centre, absence of irrigation system, no development project, and lack of arable land (ADB, 2001:6).

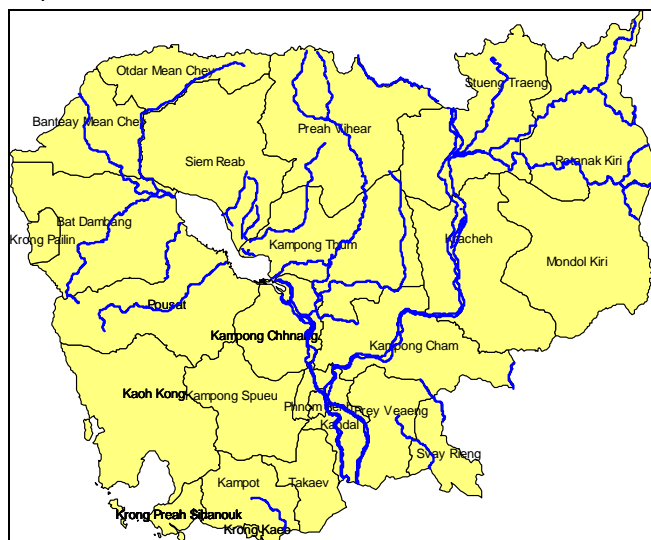
Table 1 below presents a summary of the study provinces, operational districts and the selected study villages, while Figure 1 shows maps of the study provinces depicting the locations of the study villages.

Table 1. Study provinces, operational districts, communes and villages

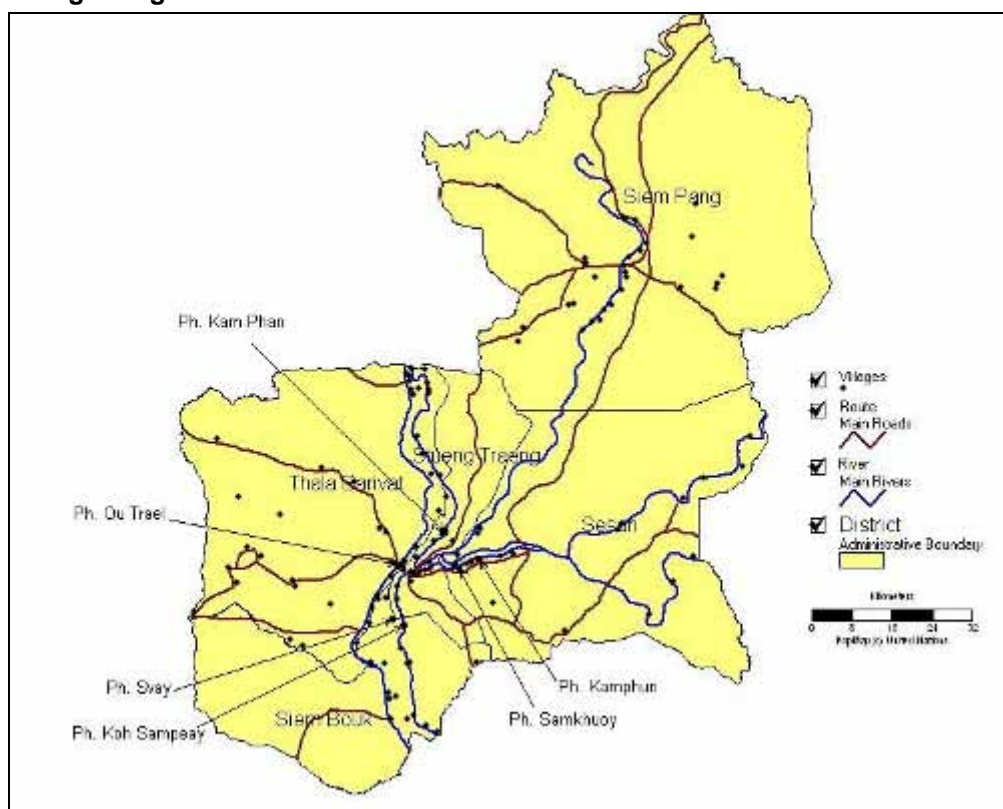
PROVINCE	OPERATIONAL DISTRICT	ADMINISTRATIVE DISTRICT	COMMUNE	VILLAGES
Kratie	Chhlong	Chhlong	Chhlong	Chhey Kampong Sre
		Prek Prosob	Prek Prosob	Dei Dskrom
		Snoul	Snoul	Snoul Watkat
			Ksim	Sre Themey
Stung Treng	Stung Treng	Siem Bok	Koh Sampeay	Koh Sampeay
			Koh Sralay	Svay
		Thala	Thala	O'Trel
		Sesan	Kampun	Kampun
			Sam Koi	Sam Koi
Prey Veng	Neak Loeung	Ba Phnom	Chheur Kach	Trea Svay Prakma
	Kampong Trabek	Kampong Trabek	Kou Kchak	Hap Cham Reh
	Mesang	Mesang	Prey Romdieng	Kreul
Kampot	Angkor Chey	Bantaey Meas	Trapeang Sala Khang	Keatha Vong Krom Sam Por
			Samrong Leu	Damnak Chambok Damnak Trayueng
			Wat Ang Khang Cheu	Ponhea Angkor
Battambang	Sanke	Sanke	Tapon	Samdach Beung Tem
			O'Dambang 1	Baoh Pou
			O'Dambang 2	Kampong Madouk
			Samraung Khnong	O'Trea

Figure 1. Location Maps of Study Provinces and Villages Selected for TIPS and Recipe Trials

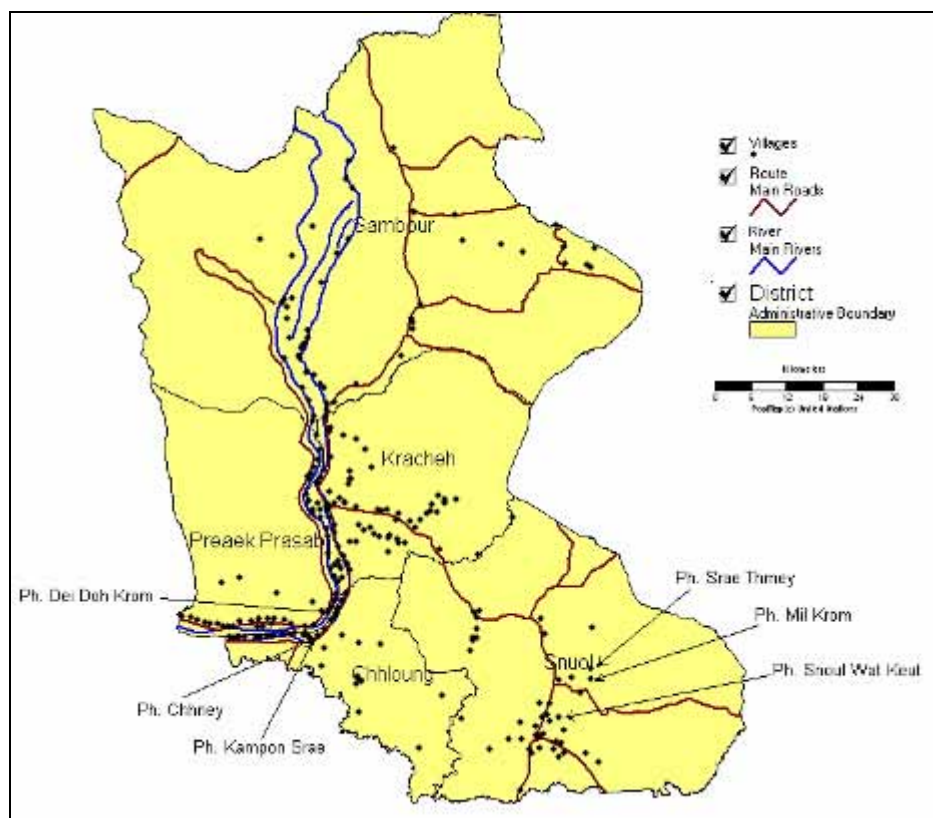
Map of Cambodia



Stung Treng Province



Kratie Province



Prey Veng Province

