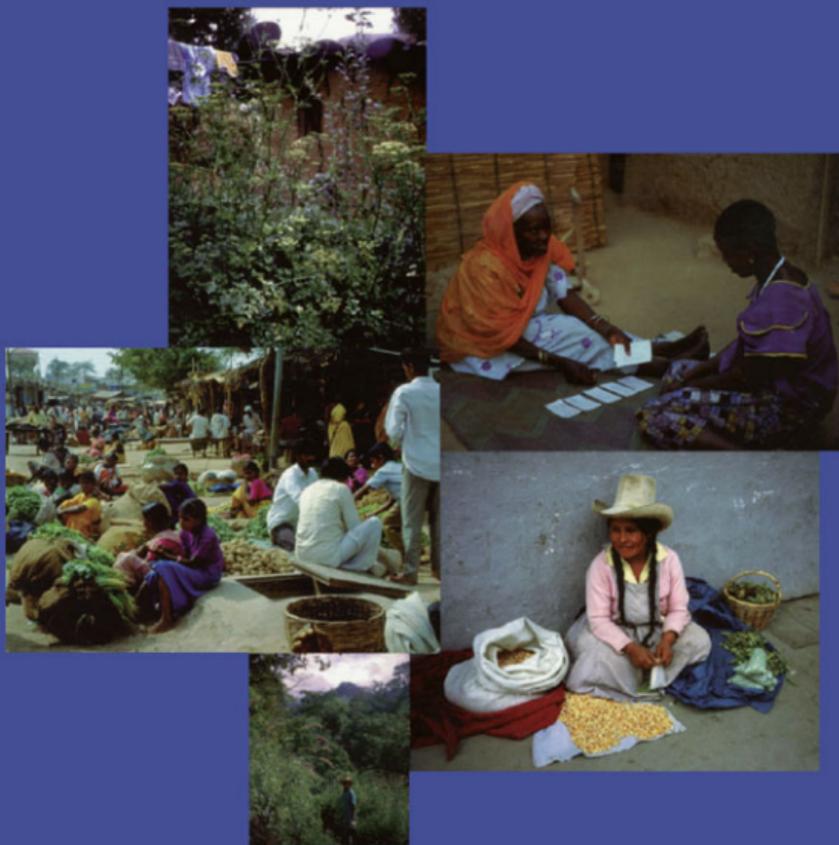


Community Assessment of Natural Food Sources of Vitamin A

Guidelines for an Ethnographic Protocol



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Cover Photography (clockwise from top left): Kitchen garden in Chamis, Peru, with ingredients for “caldo verde;” Conducting pile sort in Filingué, Niger; Street vendor in Cajamarca, Peru; Footpath to the Aeta village, Philippines, in rainy season; Market with leafy vegetables near Sheriguda, India.

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The project became an activity of the IUNS committee whose members were comprised of the following: Isabel Nieves (Guatemala) and Harriet Kuhnlein (Canada) as cochairs; Gretel Pelto (USA, WHO), Richard Young (Canada, IDRC), S. Abdel-Azim Wahba (Egypt), Cecelia Santos-Acuin (Philippines), P. Pushpamma (Singapore), K. Kalumba (Zambia), Ndolamb Ngokwey (Benin), Hilary Creed-Kanashiro (Peru), and L.H. Martinez Salgado (Mexico). The planning subcommittee became Kuhnlein, Pelto, Nieves and Young, and following communication and helpful suggestions from all committee members, it was agreed to create a draft protocol and to test it in five regions under the direction of Cecelia Santos-Acuin (Philippines), P. Pushpamma (India), Hilary Creed-Kanashiro (Peru), Li Wen Jun (China), and Lauren Blum (Niger).

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Introduction

A. Users and Purpose

This manual is intended for experienced health professionals interested in food-related public health problems. It describes a protocol developed to understand natural food sources of vitamin A: their availability and use, cultural beliefs surrounding their use, and community perceptions about food and vitamin A deficiency.

The purpose of the assessment described in this manual is to provide essential information for program planning aimed at increasing consumption of vitamin A–rich food among populations at risk for deficiency. It gives careful and complete guidance that can be followed by researchers not generally familiar with ethnographic approaches to data-gathering. There are several steps to the protocol which incorporate techniques in public health, anthropology, and field-based nutrition. Not all steps will be equally important to all readers or situations where the protocol is implemented. Thus, it is intended that these guidelines can be adapted to provide necessary information in a wide variety of settings.

B. Goals

Steps in the protocol are intended to achieve the following interrelated goals within a local community food system:

1. Identify significant sources of preformed vitamin A and carotene-rich food in the context of the local food system.
2. Describe patterns of food consumption especially for vitamin A–containing food, particularly with respect to infants, young children, and women of reproductive age.
3. Identify cultural beliefs that influence food choice and consumption patterns.
4. Identify cultural, ecological and socioeconomic factors that constrain or facilitate consumption of vitamin A.
5. Describe the community explanations and understandings of vitamin A deficiency diseases and symptoms.

For each step, the manual defines research questions to be addressed, and guidance on how to collect field data on the forms which are provided. The entire protocol can be completed by a field team of three in a period of six to eight weeks.

As outlined in many policy-relevant documents, food-based interventions are best seen as one component of a multi-stranded strategy to reduce vitamin A deficiency. Together with other types of interventions (such as vitamin A supplement distribution and food fortification with vitamin A), improving consumption patterns of local food resources containing vitamin A can help reduce the burden of morbidity and mortality associated with inadequate intake of this essential nutrient. Food-based interventions are viewed as those most likely to be sustained, provided the culture and ecology of the vitamin A–containing foods are addressed in programs based in agriculture, food processing, social marketing, and public health education.

It is understood that food carries many nutrients, and that when communities are at risk for vitamin A deficiency, they may be at risk for other nutrient deficiencies as well. The scientific issues of nutrient composition of food as consumed, and of dietary evaluation of those vulnerable to vitamin A deficiency, are particularly complex for vitamin A. While some steps in the protocol can contribute to knowledge of general food use and nutrition, others are specific to issues of vitamin A in food, and the cultural context of the use of these food sources. To understand vitamin A in food as consumed in communities vulnerable to deficiency, the complex issues are broken down into component parts, and each is addressed in turn—this is a particular strength of the protocol.

The assessment will give several perspectives on dietary change, some of which will be specific to vitamin A nutrition. Understanding the elements of food

availability, food choice and consumption patterns will set the stage for understanding how consumption of vitamin A–rich food can be improved. For example, steps in the protocol will help to define the food history of the area, migration patterns of the people, where and how food items no longer used to a great extent can still be harvested, and ability to access food available in markets. This information together with cultural food beliefs and practices is especially important in programs based in agriculture, public health, social marketing, and nutrition education.

C. Program Benefits

This manual is intended for distribution to national and regional ministries and NGOs for decisions on implementing the protocol in local areas. Following the assessment described here, recommendations for effective strategies in a variety of sectors can be defined to improve vitamin A nutrition in vulnerable groups. The activities resulting from this research will be directly applicable to the community in which the research is conducted. However, adaptation to broader regions is possible with program planning and development. While national health planners and vitamin A programs obviously cannot conduct the ethnographic protocol in every ethnic group and region in a country, the local circumstances so described by the protocol give essential rationale for program guidelines and activities.

Ultimately, programs to improve community food use and nutritional status for vitamin A are more likely to be effective and sustainable when local circumstances are considered with credible and useful data, and when the program is implemented locally.

D. Using this Manual

This manual is to assist in the definition of the assessment, the organization of the protocol, the guidance of how to complete the procedures of data collection and analysis, and the preparation of the report. The

Table of Contents clearly shows how to find each of these components.

Part One describes the protocol: the questions addressed, the design and timing, and the actual steps to complete before and during the fieldwork phase. Before field work begins, the steps to complete are site selection, background research, and document review on the historical, ecological, and cultural setting for the food system. Field activities include key-informant interviews, creating family food lists, market surveys, creating food system data tables, conducting structured interviews with mother-respondents, and six research modules to define food use and cultural beliefs among the mothers. Guidance on interpreting results and preparing the assessment report is also provided here.

Part Two describes how to manage the project, and contains several sections on how to complete some of the procedures. It gives guidance on selecting personnel, providing translation, and general administration preparation. Also provided are “how to” sections needed to complete the research steps. For example, how to complete the family food list and select key foods from it for more detailed study; how to identify food plant and animal species and search for their nutrient content; and how to use a computer to manage the data.

Thirteen appendices give a variety of useful information to assist data collection, management and interpretation. Examples from the five field test sites are given in this section, and a glossary of terms is presented.

In each step, the forms for use in data collection are provided. These are on separate pages and can be copied so there are enough for each step of the protocol by members of the research team and for each respondent.

Inside the front and back covers of the manual, photographs describing the eye signs of clinical vitamin A deficiency are given in order to complete research Module 6 with mother-respondents.

Part One

The Protocol

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I

Context

In this section we describe the research questions and the overview of design and timing required to conduct the protocol.

A. The Primary and Secondary Questions Addressed by the Protocol

Fundamental to any successful effort at helping communities to overcome nutritional problems is understanding community conditions and cultural perspectives, particularly with regard to food use. Healthcare workers, nutrition educators, and nutrition researchers have encountered certain recurring features or *themes* that combine to produce nutritional deficiencies under conditions of restricted food supplies and inadequate medical care. The questions given below reflect those issues and problems that have been repeatedly identified as influencing nutrient consumption. There are six areas of primary questions, each with their secondary questions. These form the basis of the procedures within the protocol.

Answering these questions provides the data base from which nutrition planners, educators, and community people can work together to develop culturally-appropriate interventions to improve vitamin A status.

The research questions addressed are:

1. *What are the Key Foods (Staples, Fruits, Vegetables, Animal Food, Fats/Oils)?*

- i. How is food acquired in this particular locality or region? What food is purchased, traded, home-grown, or collected from the wild? In what settings are food items purchased? What food is grown locally or brought in from other areas?
- ii. Are there periodic markets in the area? If so, when are the market days? What food is available in the markets? Where, and at what distance do people buy food outside the community? To what extent do people rely on the markets for food? Are there door-to-door vendors? For vitamin A-rich food?

- iii. What are the non-animal sources of vitamin A-rich food available in the region? Are they seasonal? How much do they cost? Are they affordable?
- iv. Do people have home gardens? If so, what food is grown in the gardens? What are the seasons for garden crops? Are the crops from home gardens mostly sold, traded, or consumed by the family?
- v. Do people grow green leafy vegetables among their staple food crops? When and for how long are they available? Fresh or preserved?
- vi. Do people gather food from the wild? If so, what plants or animals and how often? What people are involved?
- vii. Are there available vitamin A-rich food items that are not eaten? If so, what are they and why are they not used?
- viii. What are the animal sources of vitamin A-rich food available in the region? Are they seasonal? Are they affordable?

2. *What are Cultural Beliefs about Key Foods?*

- i. What are the main qualities or attributes people recognize concerning their food? (e.g., tasty, strength-giving, filling, healthful, expensive, prestigious). Do these judgments about food vary according to age, gender, or ethnic subgroup?
- ii. Have people heard of the term "vitamin"? What are their beliefs concerning vitamins?
- iii. How are the foods rich in vitamin A perceived?
- iv. What are the general ideas about suitability of various foods for children?

3. *What are Patterns of Food Use?*

- a. Pregnant women
 - i. What do women of childbearing age typically eat? Do they modify their diets during

- pregnancy? Do women recognize that their nutritional needs are greater when pregnant? Is there food associated with pregnancy?
- ii. What vitamin A–rich food items are consumed by women? How often are they consumed and in what quantities?
 - iii. Do women perceive a link between food intake and pregnancy outcome?
 - iv. Are there food items associated with a difficult pregnancy?
 - v. Are there specific food practices (restrictions or preferences) during pregnancy?
- b. Lactating women
- i. What food is particularly consumed during the immediate postpartum period? Are there any food items which are believed to facilitate lactation?
 - ii. What do lactating women typically eat? What vitamin A–rich food is consumed? How often are these food items consumed and in what quantity?
 - iii. Do mothers recognize a need to eat more while they are breastfeeding? Is there any food associated with increased breastmilk?
 - iv. Are there perceived effects of vitamin A–rich food on the nursing child? If so, does this affect intake of food rich in vitamin A?
 - v. Are there food practices (restrictions or preferences) pertaining to lactating women? If so, to what extent are they observed?
- c. Infants
- i. When does breastfeeding begin? Is colostrum fed to the infant? Are there any postnatal ceremonies which interrupt the introduction of breastmilk?
 - ii. Are infants exclusively breastfed? If so, to what age? If not, why not?
 - iii. When is supplementary food introduced into the infant’s diet? At what age are foods rich in vitamin A introduced? In what form are they given?
 - iv. What vitamin A–rich food items are introduced during the first year? At what stages are they introduced and in what form? How often does the infant eat this food and in what quantities are they served?
- v. Do people have doubts or worries about the digestibility of vitamin A–rich food? Regarding digestibility of oil?
 - vi. Is the infant breastfed on demand? If so, to what age? Are there any other forms of milk fed to the infant during the first year of life?
 - vii. What factors, including cultural beliefs, affect the timing of cessation of breastfeeding?
- d. Children one to six years old
- i. What vitamin A–rich food is fed to children? How often are they fed these items and in what amounts?
 - ii. How often are children fed? Does the child follow the family’s eating schedule? At what age are the children fed “adult food”? What is adult food?
 - iii. Are young children encouraged to eat? Verbally or by direct feeding?
 - iv. Is snack food available between meals? Are any of the snack foods vitamin A–rich? Are they seasonal or available all year round? What food items that are available locally do children select to eat?
 - v. At what ages are children thought to be able to digest the various vitamin A–rich fruits and vegetables?
 - vi. Are there differences in what male and female children eat? What are they and why?
- 4. *How is Food Prepared and Stored?***
- i. How are the various vitamin A–rich foods prepared? Are they boiled; fried? For how long? Are vegetables prepared with spices?
 - ii. What food preservation techniques are practiced? Are fruits and vegetables dried? If so, are they dried in sun or shade?
- 5. *What are the Signs and Symptoms of Vitamin A Deficiency?***
- This set of questions concerns local cultural beliefs and practices concerning the recognition and interpretation of signs and symptoms of vitamin A

deficiency. It is essential to use the photos on the inside cover of this manual when interviewing about eye signs. (see Glossary, Appendix 13) for definitions.

- i. Is there a local term for nightblindness?
- ii. Do mothers and other caretakers recognize nightblindness in infants? In children ages one to three years? In children ages four to six years?
- iii. Do mothers consider nightblindness in infants serious enough to seek care? In children ages one to three years? In children ages four to six years? In themselves?
- iv. Is nightblindness treated? If so, how? What home-based treatments and ways of management are used? Is treatment sought outside the home? If so, from whom? What kinds of health providers or practitioners are considered appropriate for treatment? What forms of treatment do they provide?
- v. Do women of reproductive age experience nightblindness? If so, at what stage of pregnancy? Do they perceive nightblindness as a problem or a symptom of pregnancy?
- vi. Do women suffering from nightblindness seek treatment? If so, from whom and in what form?
- vii. Is there a local term for Bitot's spots?
- viii. Do mothers and other caretakers recognize Bitot's spots? If so, are Bitot's spots recognized in infants? In children ages one to three years? In children ages four to six years?
- ix. Do mothers consider Bitot's spots in infants to be serious enough to seek care? In children ages one to three years? In children ages four to six years? Is there a sign that prompts care-seeking?
- x. What are the local cultural beliefs concerning the causes of Bitot's spots? Are there home-based treatments for this condition? Is treatment sought outside the home? If so, from whom? What kind of treatment?
- xi. Is there a local word for corneal xerosis?
- xii. How do mothers and other caretakers perceive corneal xerosis? What is done when an infant's cornea is apparently dry? When a child one to three years old has a dry cornea? A child four to six years?
- xiii. Does corneal xerosis in infants prompt care-seeking? In children one to three years? In children four to six years? Is there a particular sign which prompts care-seeking?
- xiv. What are the local cultural beliefs concerning causes of corneal xerosis? How is corneal xerosis treated in the home? Is treatment sought elsewhere? If so, from whom? What kind of treatment?
- xv. Are there local terms for corneal ulceration, keratomalacia or xerophthalmia?
- xvi. How do mothers and other caretakers perceive corneal ulceration or keratomalacia? What is done when these advanced stages of xerophthalmia occur in infants? In children one to three years? In children four to six years?
- xvii. When scarring on the cornea or softening of the eye is apparent, is care sought? In infants? In children one to three years? Children four to six years?
- xviii. What are the causes of corneal ulceration in the local cultural belief system(s)? Is it treated in the home? If so, how? Is treatment sought outside of the home? If so, from whom? What treatments are given?
- xix. Do mothers and caretakers see xerophthalmia as a progression of eye-related problems? If so, how is that progression or sequence conceptualized?
- xx. Are mothers aware of how quickly the various stages of nutritional blindness progress?
- xxi. Do mothers recognize conjunctivitis? Do they consider conjunctivitis to be a serious condition?
- xxii. Is conjunctivitis treated in the home? If so, how is it treated? Is care sought outside of the home for a child with conjunctivitis? If so, from whom? How is it treated?
- xxiii. What other eye diseases do they consider serious and seek care for?
- xxiv. Do mothers or caretakers associate eye problems with measles? With rashes? With diarrhea or worms? With respiratory infection? What explanations are given concerning these connections?
- xxv. Do mothers or caretakers associate eye problems with food or diet? If so, how?

6. *Are There Other Important Issues?*

- i. Do women generally work outside the immediate household? If so, what do they do? How soon after childbirth do they resume full working schedules? Do they take the infant with them when they go to work? What is the extent of work women do within the family home or farm? How does women's work affect home food/garden production?
- ii. To what extent are there general intracommunity variations in food use patterns due to culture, economics, etc.?
- iii. What changes occur in women's work patterns during pregnancy? Does someone assist with the daily work?
- iv. How is food distributed during mealtime? Does the entire family share one central plate? Do the males eat separately? How are vitamin A-rich food items distributed in the family?
- v. Who controls buying food? How are food selections made? Who controls the finances?
- vi. Are there infections common to the community? Which ones? Measles? Respiratory disease? Intestinal parasites/worms? Diarrhea?
- vii. What previous exposure have mothers had to health and nutrition education in this community?

B. Overview of Design and Timing

The manual is intended to provide nutrition program managers with useful information collected by field investigators with experience in qualitative research methods and food/nutrition evaluation. It is assumed that the investigators will be generally familiar with the cultural setting and language in the area in which the research is conducted, but that they may not be conversant with the techniques of formal ethnographic methods. Therefore, research techniques and procedures are presented here in detail.

The research is based on various types of data collection activities:

- Review of existing literature and reports on the historical, ecological, and cultural settings for community food use.
- Review of existing data on food composition for food items in the community food system.
- Market surveys for availability and prices of food.

- In-depth interviews with six to eight key-informants in the community.
- Structured interviews with a sample of twenty-five to thirty respondents (particularly mothers) interviewed in their homes.

Data are collected from a defined area that can be identified as a *community*. The reasons for conducting the study in a specific community, rather than across a broad geographic area, include the following:

- a. Qualitative ethnography aims to identify and describe behavior patterns and shared beliefs. In most of the world, the minimal social-geographic unit of shared culture is the community. Beyond the community, patterns become more difficult to identify because of linguistic and ethnic variation and differences in community resources and characteristics.
- b. Food availability may vary significantly from one community to another depending on its location and access to water.
- c. Healthcare providers are typically organized at the community level. A researcher investigating care-seeking practices can obtain information about local health providers relatively quickly on a community basis.
- d. When assessment team members can reside in the location where they are conducting the study they have greater opportunities to observe local practices and behaviors and therefore can obtain greater insights regarding local conditions than can a researcher who quickly moves from one community to another.

The study is designed to be conducted in a period of six to eight weeks, including the data analysis and preparation of the report. Completing the study in this short time period will require the full-time participation of a team leader with two field assistants. Depending upon the situation, a translator may also be necessary.

The study involves the use of both qualitative and quantitative research methods. Ethnography can identify household food practices and perceptions about both vitamin A and staple foods that can suggest ways to construct messages to encourage the consumption of vitamin A-rich food items. The information collected can also be used to delineate patterns of health-seeking care for the treatment of xerophthalmia and improve communications geared to prevent and control nutritional blindness.

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II

Steps in the Protocol

Although the time period for the study is short, it is useful for purposes of organization and planning to subdivide the assessment process into several phases:

1. Background, market survey, setup of food system data tables format.
2. Interviewing key-informants and creating family food lists, food system data tables.
3. Preparation for structured interviews: review of initial data from key-informant interviews; preparation and pretesting of structured interview schedule concerning diets, with special attention to food rich in vitamin A.
4. Preparation for structured interviews: review of key-informant data on cultural beliefs and practices concerning xerophthalmia; preparation and pretesting of structured interviews on the signs and symptoms of nutritional blindness.
5. Structured interviews with mother-respondents. These respondents are interviewed at least three times to complete the six modules.
6. Final market survey, data consolidation, and report writing.

A. Site Selection

Site selection is critical when conducting vitamin A assessment. The following criteria should be followed when choosing a community to carry out the study:

- The community should be representative, both linguistically and ethnically, of a large block of the general population.
- The area of study should be one where significant rates of vitamin A deficiency are known to exist or are highly suspected, or an area in which morbidity and mortality from childhood diseases related to the deficiency (diarrhea, malnutrition, respiratory illnesses) are high.

- The area of study should be one in which a range of foods, including vitamin A-rich foods, are available and accessible.
- The area must be accessible by road, and telecommunications should be available.
- The area of study should have some formal health structure with staff that can introduce the project team to the community and provide logistical support.

See Appendix 1 for further discussion of the selection of research sites.

B. Historical, Ecological, and Cultural Setting for the Food System

An important part of the initial data-gathering is collecting the existing information on the factors and forces influencing the food system of the community selected. By this, we refer to all factors that make certain food items available to the local community setting to form the family food base. Included in this is a review of existing data on the nutritional status of this population, and especially with respect to vitamin A status. A checklist of this important information is given in Appendix 2.

The assessment manager should review documents in public and university libraries, and public offices in the health and agricultural sectors. This information may include published ethnographies of the culture(s) of the community or region, and histories and geographies of the region with special reference to land use, agriculture, and food supplies. Topographical maps of the area, climate data, crops grown, economic activities and usual income, agricultural extension activities to improve food supplies, census data, and other such information, are all important to define the setting of the food system. Reports on successful community development activities, including NGO activities in the area that emphasize food resources may give helpful clues for potential interventions.

An example of salient information reported for a study site where this manual was tested, for the Aetas of Canawan, Morong District, Philippines, is given in Appendix 2A.

A careful review of the vitamin A situation in the region is needed. Any published or unpublished reports that discuss nutritional deficiencies should be gathered together, especially those specific to vitamin A and illnesses related to vitamin A deficiency. This may include data on dietary intake, serum levels, or availability of vitamin A-rich foods, or infant and child morbidity and mortality data. Community assessment of natural food sources of vitamin A is particularly valuable in areas known for vitamin A deficiency.

A concise summary (five to ten pages) should be prepared, with background information which will assist in discussions with local government officials and in briefing the field team.

C. Field Activities

Once the field site has been selected, the personnel recruited and trained, and the facilities made available, data-gathering can begin.

To understand the community and the use of its food system, the manager and the field assistants gather data from general information sources, such as libraries and government reports, community markets, and key-informants (see Glossary, Appendix 13). Key-informants are individuals with whom the research team consult regularly throughout the research process.

Section II-5 describes data-gathering from mother-respondents using a series of modules (exercises) which define more structured interviews to answer specific research questions. These respondents are usually interviewed at least twice to complete the five modules.

➤ *You will find it helpful to create a master list of interviews conducted, dates, key issues discussed, follow-up needed, and follow-up completed.*

1. Key-Informant Interviews

Key-informant interviewing is an extremely powerful ethnographic research tool. Information gathered from in-depth interviews will provide the primary data to direct research operations. Data will be used to identify key vitamin A food sources in the community and for the explanation of local food use and food consumption, particularly as it pertains to children. The

interviews will define the various components necessary to describe the food culture in the community, focusing on cultural beliefs as they relate to vitamin A-rich food. The team leader/manager will also obtain information that will allow him or her to explain the reasons for vitamin A deficiency in the community and to suggest plausible interventions.

Key-informants will provide necessary baseline information on cultural beliefs related to both vitamin A-rich and staple foods in order to carry out the structured interviews. Key-informant interviewing allows the researcher to formulate a general picture of the basic eating model in the community. Critical information on price, seasonality, and availability of food will be taken from both key-informants and mother-respondents.

From the key-informants, the team leader/manager will also gather information to: understand household food acquisition, including foods that are purchased, gathered or grown; identify food distribution patterns at the household level and age-specific beliefs, together with practices that apply to sources of vitamin A foods; determine food preparation and preservation techniques; identify terms related to signs and symptoms of vitamin A deficiency and perceptions regarding these signs and symptoms; determine expectations concerning the progress of the signs and symptoms of vitamin A deficiency; identify less visible healthcare resources available in the community; identify treatments for vitamin A deficiency administered by the health providers; and determine the decision-making process in dealing with the illness. This information may also be useful to identify events held in the community when special foods are consumed.

Although key-informant interviewing is meant to be flexible, it is necessary to pursue certain goals during the interviews in a particular sequence. Tasks carried out with key-informants could take the following order:

First Interview

- Free-listing to generate a list of key vitamin A-rich and staple foods in the area.
- Gathering general information about aspects of the key vitamin A-rich and staple foods, such as price and seasonality.
- Getting a complete list of health resources in the area.

Second Interview

- Pretesting and evaluating procedures to use with mother-respondents.
- Building on general information about vitamin A and staple foods and related materials from previous interviews.

Remember that you will continue to interview key-informants throughout the duration of the study to get detailed information on food perceptions, food consumption patterns, and health practices, and to substantiate data gathered with mother-respondents. Often it is more effective to have shorter, frequent sessions with key-informants, rather than meeting with them for long periods. Be sure to schedule interviews when it is convenient for the informants so that they are not pressed for time. Always keep in mind the reason for which key-informants were selected and try to tailor the interview according to each informant's particular background. The team leader/manager will want to vary the interview schedule with different informants.

Once you have completed the first interviews with key-informants, it will be necessary to consolidate the results. Key-informant interviews will be used to: 1) identify vitamin A-rich and key staple foods, and their associated attributes and classifications; 2) develop a preliminary *explanatory model* of xerophthalmia in the community; 3) identify local healthcare providers; and 4) pretest the interviews to be used for the structured interviews. Please read Section IV-A: "How to Select Key-Informants and Conduct Key-Informant Interviews" (pages 85–86).

2. Family Food Lists and Selecting the Key Foods

The purpose of this procedure is to identify food that is available and consumed in the research area, with a primary emphasis on vitamin A-rich food and a secondary concern with staple food. It is useful to understand how vitamin-containing foods "fit" in the overall dietary scheme. When we talk about staple food we are referring to food that constitutes the regular framework of eating in a community (see Glossary). This can include a cereal, grain, or root as well as other basics that are consumed on a daily basis, such as condiments or taste enhancers to staple food items. This procedure also provides a *working vocabulary* of the food-related words and terms commonly used in the area.

A second purpose of this procedure is to begin the process of identifying attributes of the foods of interest. Free-listing interviews with key informants may also give the informants' knowledge about various vitamin A-rich foods in the local food system.

Since most carotene-rich foods are seasonal, the interview techniques should allow you to discover the different vitamin A-rich foods that are consumed at various times of the year. Although it would be ideal to conduct interviews during the different seasons, time restraints may not allow this. Therefore, you will need to gather information on seasonality at one time. Probing techniques and hypothetical situations during the key-informant interviews will help to discover the variety of vitamin A-rich food items available and consumed.

This procedure should be carried out with two types of informants that are referred to as Type I and Type II. Type I includes members of the community who, due to their profession or area of expertise, are knowledgeable about local food sources. These informants are individuals who you may have identified at the outset of the research process as good sources of information. Examples may include the local doctor, a local merchant, or a local historian. In order to generate a working list of key foods, the exercise should initially be conducted with these individuals.

Type II refers to those community members whom you have selected as key-informants, including two or three mothers of preschool aged children, other primary caretakers, a male head of household, and a village elder. Once a preliminary food list has been established with the Type I informants, additional free lists should be carried out with six to eight Type II key-informants. Therefore, the team members should aim to carry out approximately ten free list exercises.

Refer to Section IV-B: "How to Conduct a Free List of Family Food" (pages 86–88). Forms needed for the free-listing are given. Following this you will need to select the list of key foods. This is described in Section IV-C: "How to Select Key Foods" (pages 88–92). Again, the forms are provided to complete this procedure.

3. Market Survey 1 and 2

The purpose of the market surveys is to determine the costs involved when purchasing food items on the key food list identified in section IV-C-i., as well as for market-available foods in the Community Food System Data Tables.

Since many foods are seasonal and prices may vary according to food availability, you will need to assess possible price variation over a twelve month period. Therefore, during this exercise you will be collecting a range of prices which reflects seasonal variation.

This exercise should be carried out at the very outset of the study as well as at the end of the research phase of the project to see if the price ranges vary. First you will need to identify the locations where foods are sold. This can be done with your key-informants. Ask them to name the sites in the area where the majority of community members purchase their food.

a. Task on Food Costs

It is advisable to have someone from the area assist with this. This may be one of the research assistants or a key-informant. Remember that you are interested in getting the most accurate information possible; often a community member would be able to gather this in a survey of market vendors.

Select someone whom you feel would interact well with market vendors. Explain the purpose of the exercise and introduce the forms that are given. Set up a hypothetical market situation and have the interviewer, through the questioning, get the price of a food or foods, the corresponding quantity individuals generally buy, the price per serving, the price range over the year, and the months available. Once you have done this several times and are satisfied with the way the interview is conducted, you can begin in the market.

Start with the location where people buy most of their food. This will probably be the market, on market day, or in a local store.

- i. Fill out Form 2.1 with the list of twenty-five to thirty food items from sections IV-B and IV-C (Form 1.3) in the left hand column and the locations where the foods are purchased in the top row. When listing the vitamin A food, be as descriptive as possible about the part of the item on which you are gathering information. For example, if you were to include sweet potato, you would want to specify whether you are referring to the leaf or the root on Form 2.1.
- ii. Be sure to take the list to the place where people purchase most of their food, in this case, to the market.
- iii. Go to vendors with whom the assistant is familiar and who are selling food items included on the list of key foods. Begin by explaining that this project is to learn more about food prices and that you would like to ask the vendor some questions about the food being sold.
- iv. Once the purpose of the visit is explained, the assistant should begin the interview. When asking about particular food items, the assistant should select the standard purchasing amount of each item. For example, it is unlikely that a vendor will sell one carrot, but will probably sell bunches of carrots.

The assistant may start by selecting a food item that the vendor is selling and say, "I see that you have sweet potatoes. What times of the year are sweet potatoes available?"

The assistant may continue by saying, "How much are you selling sweet potatoes for today?"

It is also important that you inquire about the cost of the food item at other times of the year, when availability differs. Inquire about the prices according to the local seasons.

For example, the assistant may say, "You said that sweet potato is available from now through the rainy season. How much is the price of sweet potato at the end of the rainy season?"
- v. Write down the months that the item is available and the price range in the appropriate box on Form 2.1 and be sure to include the corresponding amount of food.
- vi. Continue inquiring about the different food items on the list. The interviewer will probably have to move from vendor to vendor to get prices for all of the food items listed. When visiting different vendors, the interviewer may also ask about the prices of food items for which she has already gathered information to ascertain the accuracy of the price elicited during the first interview. If she finds that there is a wide range of prices, include the range in the appropriate box on Form 2.1.
- vii. Once the interviewer has gathered prices for all of the foods on the list that can be purchased in the market, then continue interviewing in the other locations where the foods are available. For example, the next location where the interviewer may want to inquire about food prices may be in a local store or perhaps with the butcher. Continue conducting the interviews until all of the

possible purchasing locations and foods purchased at these sites have been exhausted. If the food can be purchased in several locations, be sure to indicate which purchase site and price correspond. The right hand margin of the table can be used to record time of year when price is highest or lowest.

b. Procedures for Analysis

- i. For each food item, include the price range which takes into account the various locations where food can be purchased in the area, and the price variation according to seasonality, in the right hand box on Form 2.1.
- ii. Using the information on Form 2.1, construct a rank ordering by transferring the information from Form 2.1 to Form 2.2.
- iii. Rank the thirty key foods from the most expensive per serving to the least expensive on Form 2.2. When there is a price range, select the higher end of the range when determining the rank order. Be sure to include the corresponding price (or price range) and the corresponding food quantity in the appropriate box. Check the Community Food System Data Tables for vitamin A content of food and then determine the price or price range per 1000 RE of food. Leave this column blank if the vitamin A content of the food is not known.

Over the six to eight week period that the assessment is being conducted, the team leader should make continual visits to the market looking for information that may apply to the research focus, and changes that may occur in the market during the assessment period. Market survey forms should be completed at least twice—at the beginning and at the end of the period. Prices should be added to the Community Food System Data Tables as new food items are added. Participant observation is a research method that can give useful and different types of information. Through observation you may be able to gather information that was not gained through an interview. For example, when visiting the market you can observe the size and quantity of the food items in their purchased forms, the way that the foods have been preserved, or the way in which people living in the community actually select food.

During these market visits you may also want to conduct informal interviews with the market vendors to get additional information, such as where food comes from or for how much it was purchased.

It is advisable to avoid being conspicuous in taking notes in the market setting. However, to record the information accurately, it is important to record your observations and any other information you collected there shortly after you leave the market. If there are questions, consult with a key-informant while it is fresh in your mind.

4. Constructing Food System Data Tables

The purpose of this procedure is to identify the foods in the community food system that are potential or known plant and animal sources of vitamin A, and other key nutrients available within the assessment area. The data tables are continually updated with direct observation, published and unpublished data, and information gathered from interviews with key-informants, the elders, and others. These tables will be an invaluable source of information for considering potential interventions to improve vitamin A status using locally available food. The tables will also be useful in identifying gaps in knowledge about the availability, acceptability and composition of locally available food items. Complete tables are necessary to be confident that all possible considerations are given to potential local food resources for nutritional interventions. Constructing Community Food System Data Tables (Form 3.1) takes place in a series of steps. An example of a completed table is given on page 22.

a. Preliminary Data

Before the field work begins, you will need to review existing data on local/regional foods. Sources of information may include regional food composition tables, other published works from the region, unpublished theses from local and national universities and colleges, and unpublished reports from international development agencies. Ideally, you should approach the field work with a listing of all reported foods in the local area with the following information: food category, local names(s), scientific name (Latin terminology), part used, preparation and preservation, if any, and nutrient composition, with special note on vitamin A content.

See Appendix 8 (page 121) for an overview of the vitamin A content of food.

b. Completion of the Community Food System Data Tables

By the end of your study, the data tables should be complete with all food items you have found to be

FORM 2.2

Rank Order of Food Prices for Vitamin A–Rich Food from Most to Least Expensive for 1000 RE

| Vitamin A Food Item | Price or Price Range/Serving | Price or Price Range/1000 RE |
|---------------------|------------------------------|------------------------------|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 8. | | |
| 9. | | |
| 10. | | |
| 11. | | |
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| 21. | | |
| 22. | | |
| 23. | | |
| 24. | | |
| 25. | | |
| 26. | | |
| 27. | | |
| 28. | | |
| 29. | | |
| 30. | | |

FORM 3.1

Community Food System Data Tables: Food Data Sheet

Food Category: _____

Local Name & Other Common Names: _____

Scientific Name: _____

Part(s) Used: _____

Preparation: _____

| Nutrient | Nutrient Composition/100g (Edible Portion by Part) | | |
|---------------------|--|-------|-------|
| | Part: | Part: | Part: |
| Energy, kcal, kJ | | | |
| Protein, g | | | |
| Fat, g | | | |
| Retinol, mg | | | |
| Beta carotene, mg | | | |
| Total carotene, mg | | | |
| Retinol equivalents | | | |
| Ascorbate, mg | | | |
| Riboflavin, mg | | | |
| Niacin, mg | | | |
| Iron, mg | | | |
| Calcium, mg | | | |
| other: | | | |
| | | | |

Wild, Hunted/Gathered, or Cultivated: _____

Home Harvested or Purchased: _____

Seasonality of Use: _____

Cost of Production, if Known: _____

FORM 3.1

Community Food System Data Tables: Food Data Sheet (continued)

Use/Price

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| High | | | | | | | | | | | | |
| Medium | | | | | | | | | | | | |
| Low | | | | | | | | | | | | |
| None | | | | | | | | | | | | |

Importance Value to the Community by Age/Gender: _____

Miscellaneous Information: _____

FIGURE 3.1

Example of an Entry in a Community Food System Data Table (Form 3.1)

Food Category: Green leafy vegetables (indigenous)
 Local Name & Other Common Names: Chomtee (K'ekchi); chilete dulce; quilete (Chiapas)
 Scientific Name: Lycianthes Synanthera – Bitter
 Part(s) Used: Leaf, preferably young
 Preparation: Leaf boiled in stew and soups, primarily for the flavor

| Nutrient | Nutrient Composition/100g (Edible Portion by Part) | | |
|---------------------|--|----------------|-------|
| | Part: | Part: | Part: |
| Energy, kcal, kJ | | | |
| Protein, g | | | |
| Fat, g | | | |
| Retinol, mg | | None Available | |
| Beta carotene, mg | | | |
| Total carotene, mg | | | |
| Retinol equivalents | | | |
| Ascorbate, mg | | | |
| Riboflavin, mg | | | |
| Niacin, mg | | | |
| Iron, mg | | | |
| Calcium, mg | | | |
| other: | | | |
| | | | |

Wild, Hunted/Gathered, or Cultivated: Gathered in rural communities only (N/A in urban)

Home Harvested or Purchased: Only available periodically in rural market
(Q0.14 – 03/90 market price in Carcha, Guatamala)

Seasonality of Use: Year round availability, with greatest intake in February and April
when the maize fields are cleared of indigenous greens and weeds

Cost of Production, if Known: _____

used (past and/or present) in the area of study. Direct observation of markets, household gardens and areas of intense agriculture may generate additional information about food sources. You will be able to identify gaps in knowledge and to complete existing data with the following information for each food:

- Wild, hunted/gathered or cultivated.
- Home harvested or purchased in the local market (or both); price in the local market.
- Cost of production, if known (i.e., cost of seeds, fertilizers, food, housing, labor).
- Seasonality of use. If possible, construct a table of seasonally available foods. List the months of the year along the horizontal axis and a relative scale of availability of each food item along the vertical axis. Additional information, such as price, can be inserted at the appropriate places along the horizontal axis.
- Importance value to the community:
 - ◆ as a source of food;
 - ◆ as a source of vitamin A (to be determined in part by portion size and frequency of use).
- Use by family members:
 - ◆ by age/gender;
 - ◆ by young children;
 - ◆ preparation for use as a weaning food.

➤ **NOTE:** Each food item listed should be by primary species, as either raw or cooked. Recipe items are too complicated for these tables, but may be included as an appendix to the Food System Data Tables with notes of preparation and preservation techniques.

c. Search for Little-Used or Unused Vitamin A–Rich Food

Since this effort on community assessment on natural food sources of vitamin A is focused on developing interventions for improving the utilization of vitamin A–rich foods occurring in particular regions, it is of vital importance to identify all possible local resources of vitamin A. These may include plants and animals that are no longer utilized by the people for a variety of reasons that may include the following:

- i. The particular food source is now considered “old fashioned” by the current generation of inhabitants; perhaps due to the influence of European and American cultural contacts (including administrators and missionaries).
- ii. The food may have been collected in connection with other activities (e.g., collection of firewood) which are no longer done. Hence this relatively secondary source of food is now neglected, in part because of inconvenience.
- iii. In some cases the food may have been contaminated or damaged by activities such as the spraying of pesticides, closeness to garbage dump, etc.
- iv. In some regions people have become accustomed to the purchasing of foods from stores and markets, so the gathering of wild foods, or growing of garden foods, has dwindled to insignificance.
- v. Various other factors may also be involved in the low utilization of certain foods rich in vitamin A. Crop land may be used for cash crops, thus displacing the ecological niche for a particular food rich in vitamin A, such as green plants.

The field team should probe for lists of foods that might be used only during special times, such as lean seasons or lean years. Some of the so-called *famine foods*, or *lean-year foods* may be important sources of vitamin A at certain times of the year. Some individuals and families may be particularly good sources of information about famine foods and other foods no longer used. Some families that live in marginal circumstances, or perhaps farther up the mountain, or in other special ecological locations, may have information about wild foods or unusual cultigens that the rest of the population has forgotten.

Also, elderly members of the population may be important sources of information concerning utilization of foods that are no longer used or cultivated in the region. Researchers should make special efforts to find some of these special types of informants, in order to assess the possibility that some little used food sources may be potentially important sources of vitamin A.

When little-used or no-longer-used foods are identified, they present a special challenge to researchers. In some cases the foods may be difficult to utilize because of the time investment in searching for them (e.g., particular types of wild berries). In some areas, the indigenous foods that were once considered low in

prestige may be restored to favor because of newly awakened ethnic (cultural) pride. All the various factors affecting their possible utilization should be examined carefully with your key-informants.

If little used, or currently unused foods rich in vitamin A are discovered early in the field work, they can be included in the research modules along with other foods. On the other hand, sometimes these special foods are identified near the end of the research period. In that case, probing with key-informants is required. Perhaps a special focus group session would be useful to examine the pros and cons of using those foods and to provide the information for the Community Food System Data Tables.

To do this, identify two to four key elders or other special informants with the help of local leaders/chiefs who may or may not participate as key-informants or mother-respondents.

From these individuals you want to find out if there are any key vitamin A-rich foods in the area that people once used, but are no longer using and why not. You may want to start by saying, "People in this area eat quite a lot of different foods. We want to know if there are other foods you know about that people are not using and why not. We are interested in local foods (not imported ones), especially those that were eaten by most family members."

For each general food category (animal food, starch/staple food, fruit, etc.) ask your elder informant if there are other foods to add to the list you already have for the area. For each new food he or she mentions ask:

- Its name (and food category).
- Season available. (Be sure to ask if there are foods that are only consumed during periods of drought and if they exist in the area of study.)
- Place available.
- A brief description of its harvest and preparation.
- Why it is no longer used.
- Could this food be shown to you? If not, why not?

When you have completed these special interviews, record all the newly mentioned foods on Form 3.2 using the local name. Give each food a score according to the number of informants who used it; i.e., if it was used by one person (1); by two people (2); etc. Write the number of people interviewed and their names at the top of the page. Try to get information on the cultural associations of these foods in terms of their major characteristics that were/will be explored in the pile sort

and attribute comparison modules in Section II-C-6. Make notes on their potential vitamin A contents.

If, in the memory of the elders, the community had been relocated into this area, make a note of it on the form. Knowledge of locally-available foods is often limited when people migrate into a new area. Sometimes peoples of different ethnic groups use different foods from the same environment.

This list of foods no-longer-used should be scrutinized for what may be good sources of vitamin A. If vitamin A-rich foods are still available, these may be added to the list of foods in the Community Food System Data Tables for identification, possible nutrient analysis, and for the structured interviews.

5. *Structured Interviews with Mother-Respondents*

For the structured interviews with mother-respondents you will need to make a number of decisions including:

- i. Selecting the twenty-five to thirty key foods consumed (see section IV-C, page 88).
- ii. The selection of appropriate terms and phrases to describe the signs and symptoms of xerophthalmia used in the generic case scenarios. Literal translations should be avoided, unless they are used in the local language.
- iii. The selection of sites where foods are obtained or collected.

Preparation for the structured interviews should include testing of the procedures with both key-informants and mother-respondents in their homes. During this time you will want to identify aspects of the procedures that may be problematic or inappropriate for your study community and make necessary adaptations.

Informed Consent

Before you begin conducting structured interviews you will need to decide how best to obtain consent from your respondents. You should identify the accepted government procedures at the national level (you may want to consult Ministry of Health officials) and the regional level for obtaining consent. Additionally, it is important to design a format that is appropriate for the local community. Some guidelines in this regard are given in Appendix 3, "Some Reminders about Data-gathering: Do's and Don'ts" (page 109).

The following section gives detailed descriptions of the interview procedures with mother-respondents.

FORM 3.2

List of Little-Used or Unused Vitamin A-Rich Foods

Focus Group Participants: _____ **No.:** _____

Date: _____ **Place:** _____

| Food Name | Food Category/Part and Preparation | Season | Place | Why Not Used | Score |
|-----------|------------------------------------|--------|-------|--------------|-------|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
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| 23. | | | | | |
| 24. | | | | | |

Notes on cultural associations of food items:

Notes on potential vitamin A value:

6. Research Modules

This section consists of a set of research procedures or modules carried out with mother-respondents that are designed to yield answers to many of the primary and secondary questions. The same mother-respondents are interviewed for each module.

The modules for structured interviews are as follows:

| | | |
|-----------|-------|---|
| Module 1 | (M1) | Pile Sort |
| Module 2 | (M2) | Food Attributes and Differences |
| Module 2a | (M2a) | Optional Directed Free List with Attributes |
| Module 3 | (M3) | Rating Food Qualities |
| Module 4 | (M4) | Household Food Acquisition |
| Module 5 | (M5) | 24-Hour Recalls and Food Frequency |
| Module 6 | (M6) | Hypothetical Health Case Scenarios |

Preliminary Work to the Structured Interviews with Mother-Respondents

The structured interviews include a series of six modules which involve various procedures geared to get information on local concepts surrounding food items, food consumption patterns, and perceptions related to the stages of xerophthalmia. The way in which these exercises are carried out and the direction that the structured interviews take is partially based on the information gathered during Part 1 of the data-gathering process.

Before carrying out the research modules in this section, the research team needs to review the list of twenty-five to thirty key foods (IV-C) that will be the focus of the procedures. This list is used in Modules 1–5. The other major preparation is to develop a system and select the sample of mothers who will be the respondents for the structured interview modules. Before beginning the structured interviews, it is also important for the research team to create a system to manage the data generated.

Modules 1, 2, and 3 describe *cognitive mapping procedures* that are intended to provide an ethnographic picture of cultural beliefs concerning staple and vitamin A–rich food items.

Modules 4 and 5 are used to obtain data on food practices, specifically, food availability, food costs, food acquisition, and consumption practices.

Module 6 is aimed at understanding community beliefs and practices in relation to vitamin A deficiency.

As a cognitive mapping procedure, Module 6 helps to establish the *explanatory model* of vitamin A deficiency. It is also designed to amplify the picture of cultural perspectives on vitamin A deficiency, adding the dimension of where households seek help for these problems and what guides them in choosing healthcare.

All of the research procedures administered to respondents should first be pilot-tested with key-informants in the presence of the research manager. The field team should be aware that some modules appear to repeat similar questions. The mother-respondents should know the importance of each step in the modules and how they are different.

Introduction to Pile Sort and Food Attribute Modules

The goal of the pile sort and food attribute modules is to understand how people in the community think about, or what meanings are attached to, food items in the key food list. In a systematic way, the project team can learn what features community members associate with individual food items and how these items fit into the larger food system. While the food attribute module gets local concepts and qualities related to each food item, the pile sort module gathers information on how community members group food items according to local attributes. You may find that the attribute module is useful in identifying a range of local concepts, therefore allowing the team to become familiar with general food perceptions, while the pile sorting module guides respondents to separate foods by the more salient attributes.

In many cases the team may want to carry out these two complimentary modules together during a single session. During the testing of the manual, some researchers found that the attribute module was easier to carry out and served as a way to familiarize mother-respondents with the list of key foods, and prepared them for the pile sort exercise.

It is important to keep in mind that one pile sort task should be administered during this initial visit with respondents and a second pile sort task will be carried out four or five weeks later at the end of the research period. The reason for conducting two pile sorts is because often during the first session you will find that women group foods according to those eaten or prepared together. The second time the task is administered the team should remind the respondents how they initially grouped the key foods and suggest that this time around they group foods in a different fashion (see Module 1).

When conducting these modules it is important that the research manager and assistants keep the purpose of the modules in mind, making adjustments and modifications in the research approach to conform to the local situation. Remember that the collection of data should be an inductive process and that you are building your approach based on results from the ongoing collection of information. Therefore, the research team analyzes the data on a continual basis, refining the research strategy as information is collected and a greater understanding of the local food system is established.

M1. Pile Sort

Purpose

The purpose of this module is to better understand people's perceptions regarding relationships between staple food and vitamin A-rich food and how they relate to eating patterns. In a nondirected pile sort, when you ask individuals to group the items in any way that makes sense, it is assumed that the sort process reflects people's ideas about similarities and differences. That is, the person doing the sorting is thinking "These belong together because...." Through this module, you can collect systematic information about people's idea systems that will enable you to identify classifications and dimensions of the food items included on the key food list. In particular you are interested in identifying attributes and qualities related to vitamin A-rich food items. You will be looking for clues about food, such as food restrictions among certain age groups, food taboos, food considered *healthy*, etc. Pile sorting gets information on the systematic sorting of foods, identifying local practices and concepts that broaden the researchers' understanding of the basic meal plan.

In this module you ask respondents to sort foods into groups of items that belong together and you will then inquire about the basis for their choices. For example, you may find that women group together green leafy vegetables and mangoes because they are both considered *cold* foods.

Since you may find that the first pile sorting frequently uncovers information on recipes, food preparation, or typical local food combinations the module should be administered on two separate occasions. Although the information on local menus can be extremely valuable, you will also want to gather data on the way in which respondents group foods according to attributes. It is therefore recommended that the

first pile sorting task be carried out during the first session with the respondent and the second pile sort be conducted at a later time. For example, if the sessions are staggered over a four to five week period, the team may want to conduct the second series of pile sorting tasks during the last session when the case scenarios are administered.

Although you will conduct pile sorts with all mother-respondents in your sample, you may also want to carry out the module with a variety of other people including fathers and other caretakers, such as grandmothers and older siblings.

Another possibility is to involve students and perhaps teachers in the research, if the local primary or secondary school is in session.

Preparation of Materials

You will use the twenty-five to thirty key staple and vitamin A-rich foods selected through the administration of the free list and the criteria given in the introductory module section. Each food is assigned a number from one to twenty-five or thirty, depending on the total number of foods. The procedure for administering the task can be slightly different with literate and nonliterate respondents. The data are collected through a *card sort module* with both groups. The key foods selected can be drawn for the nonliterate group on the cards or written for literate participants. Depending upon the community with which you are working, you may use the drawings for both groups. People in general are more willing to respond to questions about food when they can actually see the food or a drawing of the food being discussed. Using drawings will reduce the possibility of confusing food items and ensure that you are talking about the same foods.

To prepare the materials for pile sorting make one card for each of your key foods. Draw the food item on one side of the card and place its corresponding number on the reverse side. (The purpose of the number is to assist the interviewer in recording. The same number is used throughout the modules.) Alternatively, write the name of the food item in addition to drawing a picture of the food. You may want to find a local artist to draw the foods as realistically and simply as possible, using colors appropriate to the area. If there are items that come from the same food source on the list of key foods be sure to make separate drawings for each item. For example, if both cassava root and cassava leaves have been identified as key items on the list of twenty-

five to thirty foods, it will be necessary to make separate drawings for the root and the cassava leaf.

The research team in India who tested this procedure successfully used nonperishable items (dahl, rice, dried greens, etc.) in small plastic bags for the pile sort module, rather than drawings.

Each sorting module should take about thirty minutes.

Administering the Pile Sort

i. Explain to the respondent the purpose of the pile sort. Tell the respondent that you are interested in learning how he or she would place the foods together, according to similarities and differences in the foods. You may find that the respondent is more receptive to the sorting if you describe the module as a game. You may begin by saying, "I'd like you to put these foods into groups or piles that belong together."

ii. To ensure that the respondent is familiar with the foods and recognizes the pictures and to give her/him an idea of the range of foods, begin by asking the respondent to go through the cards, reading the names aloud, or, read each food item to the respondent.

You may say, "Here are some of the foods which I'd like to know more about. Let's go through them each individually and you read their names aloud."

Or, "Just to make sure that you are familiar with all of the foods, I'm going to go through the foods and read them aloud."

iii. Next place the cards, one by one, on a flat surface with enough space to hold all of the cards so that the food names or drawings are easily visible.

iv. Ask the respondent to group the foods in whatever way she/he wants. Assure her/him that there are no wrong or right answers. Allow the respondent to take as much time as necessary.

If the respondent is hesitant or has problems understanding the module, demonstrate how you would go through the module. Choose an item or subgroup that is familiar to the local population and go through the module. For example, you may select animals that are common in the region and go through the module grouping the animals according to similarities or differences.

You may say, "I would place cows, sheep, and goats together because their meat is consumed by

the people here. I would place camels and donkeys together because they are used for transportation purposes."

Another possibility that has worked extremely well at the field level is to use laundry or cooking utensils to demonstrate how the module should be carried out with nonfood items.

You could ask the respondent how she sorts clothes when preparing to do the laundry. For example, you may say, "In my household, I would put shirts and pants together because these are the clothes worn by my husband and sons. *Pagnes* (women's wraps) and blouses would be placed together because they are worn by the women of the household. *Boo-boos* (an outfit worn by men and women in countries in West Africa) are sorted separately because they are more delicate and are only worn on special occasions."

If the respondent gets stuck in the middle of the module, try to encourage completion of the task.

You may say, "Now you have grouped milk, eggs, and meat together in one pile and oranges, pumpkins, and mangoes in another pile. Where are you going to place these remaining foods? How do you think they fit with the other foods?"

Some researchers testing the module found that to ask whether the remaining foods have "friends," facilitates the process. Another possibility is to ask the respondent about the "personality" of the food item(s) and to suggest that the respondent group the foods accordingly.

➤ *For example, in Niger, millet, maize, and rice were grouped together as strengthening foods, as were cassava, sweet potato, and yams. However, when the interviewer probed further, she found that the degree to which people perceive that millet, maize, and rice strengthen the body is far greater than cassava, sweet potato, and yams.*

v. Once the module has been completed, go through each pile and ask the respondent to explain why the foods have been placed into these particular groups. Remember that you are searching for categories and dimensions. Ask probing questions to get answers as complete and as specific as possible. If you find that the same attribute is used to describe different food groupings, probe to gain an understanding as to why these foods were grouped separately.

FORM 4.1

Pile Sort Table for *Individuals* (M1)

Respondent's Name: _____ Respondent No.: _____

| Index Card Number | Description by the Respondent |
|---------------------|-------------------------------|
| <i>Pile Sort #1</i> | |
| gr.1 | |
| gr.2 | |
| gr.3 | |
| gr.4 | |
| gr..5 | |
| gr.6 | |
| gr.7 | |
| gr.8 | |
| gr.9 | |
| gr.10 | |
| gr.11 | |
| <i>Pile Sort #2</i> | |
| gr.1 | |
| gr.2 | |
| gr.3 | |
| gr.4 | |
| gr..5 | |
| gr.6 | |
| gr.7 | |
| gr.8 | |
| gr.9 | |
| gr.10 | |
| gr.11 | |

- vi. On the recording Form 4.1, write down the name of the respondent and record the numbers for each group of cards. After the card numbers, note a descriptive phrase or phrases that summarize the respondent's statement about the group.

For example, the recording form may look like this:

Group 1: 2 17 3 24 8 22
(foods eaten by infants)
Group 2: 6 26 1 19 13 18 25 27 29
(foods eaten by children)
Group 3: 21 28 10 4 5 12
(foods consumed during the
harvest season)
Group 4: 23 14 9 17 30
(root crops)

Procedures for Analyzing the Data

- i. At the top of Form 4.2, enter all of those qualities or characteristics that the team has identified as important (e.g., children's foods, hot or cold foods, etc.), including those characteristics which were mentioned frequently by respondents during the pile sorting task. On the same form include the twenty-five to thirty food items, so they correspond to the index numbers in the left column on Form 4.2.
- ii. Using Form 4.1, tabulate the responses on Form 4.2 by placing a mark in each appropriate box. For example the food item, carrot was characterized by the first respondent as an *expensive* food. Locate the food item, carrot, in the first column and the term expensive in the top row. Find the box where the column and row intersect on Form 4.2 and place a mark in this box.
- iii. Go through each respondent's form and record the answers from all of the pile sorts on Form 4.2. Calculate the totals in each box.

➤ **NOTE:** Although you will be comparing the food items to only seven or eight key characteristics, it is recommended that you create a list of other attributes and characteristics mentioned during the pile sorting module with their corresponding food groupings. You may find that information gathered from these less-often mentioned attributes will be useful in directing the research and/or compiling the final report.

Conducting the Pile Sort a Second Time

- i. Administering this module a second time, towards the end of the study and after you have conducted the cognitive mapping procedures, may elicit some interesting responses. You may say: "Remember the module that we went through compiling the food items according to either similarities or differences? I found your responses to be very interesting the first time around and wonder if there is any other way these foods can be sorted. Could you group the foods again this time arranging the foods a different way?" (Since you should have the results from the first pile sort on the recording form you may want to remind the respondent how she sorted the foods during the initial session).
- ii. Go through the module again. If you find that it is difficult for her/him to go through the module a second time, give the respondent suggestions. You may find it useful to make reference to attributes mentioned over the course of the research process. At the same time try to avoid imposing your ideas on his or her decision-making process.
- iii. Once the informant has completed the pile sorting task, ask again about the basis for the second sorting. Remember that you are trying to extract local terms. You may find it necessary to try several different ways of probing to get the reasons for the informants' answers.
- iv. Record the numbers on Form 4.1, as you did during the first pile sort module. Be as specific as possible in recording. Transfer the information to Form 4.2 and combine the responses with the previous calculations.

➤ **REMINDER:** Create a list of attributes and food groupings that were less frequently mentioned, as you did after the first pile sort.

M2. Food Attributes and Differences

Purpose

The purpose of this module is to identify in greater detail the attributes and qualities that people in the community apply to food. The goal is to elicit concepts and perceptions associated with individual food items, which will enable the researcher to establish food patterns and develop a broader picture of the

FORM 4.2

Summary of Responses to the Pile Sort (M1)

| Characteristics Food Item | | | | | | | | |
|------------------------------|--|--|--|--|--|--|--|--|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |
| 6. | | | | | | | | |
| 7. | | | | | | | | |
| 8. | | | | | | | | |
| 9. | | | | | | | | |
| 10. | | | | | | | | |
| 11. | | | | | | | | |
| 12. | | | | | | | | |
| 13. | | | | | | | | |
| 14. | | | | | | | | |
| 15. | | | | | | | | |

FORM 4.2

Summary of Responses to the Pile Sort (M1) (continued)

| Characteristics Food Item | | | | | | | | |
|------------------------------|--|--|--|--|--|--|--|--|
| 16. | | | | | | | | |
| 17. | | | | | | | | |
| 18. | | | | | | | | |
| 19. | | | | | | | | |
| 20. | | | | | | | | |
| 21. | | | | | | | | |
| 22. | | | | | | | | |
| 23. | | | | | | | | |
| 24. | | | | | | | | |
| 25. | | | | | | | | |
| 26. | | | | | | | | |
| 27. | | | | | | | | |
| 28. | | | | | | | | |
| 29. | | | | | | | | |
| 30. | | | | | | | | |

local food system. Depending upon the order in which you decide to carry out the pile sort and attribute module, you may have already collected some information about food attributes during the pile sort. This module allows the researcher to elicit responses from the respondents about each food item on the list of twenty-five to thirty foods.

1. Food Attributes

Preparation of Materials

- i. Form 5.1 is a check list to use during this module.
- ii. At the top of the form write the interviewee's name and number.
- iii. Write in the list of key foods. Be sure to fill out the forms before you begin the module. If you have access to a photocopy machine, you will want to make copies of a master form already filled out with the list of key foods.
- iv. This module should take thirty to forty-five minutes.

Administering the Task

- i. Introduce this module by suggesting that you would like to learn more about some of the foods which are eaten in the area.
- ii. Starting with the first item on the list, you may say, "I have heard a lot about the foods in the area but would like to learn more. As you can see, here is a drawing of *kuka* (Hausa baobab leaves) on the card. What can you tell me about *kuka*? What kind of (or type of) food is this? What aspects of this food would you like to share with me?"

Or, "Why do you buy this food? When you purchase this food, what do you think of? Is there anything else?"

Another possible way to elicit information may be to ask, "How would you describe the personality of this food?"

- iii. If the respondent is reluctant to respond, give guidance by stating examples of how the food could be described or viewed. At the same time, avoid influencing or feeding answers to the respondent. You could also use examples from other domains. For example, mention a common animal and describe some of its characteristics.

You may say, "Let's take cows, for example. I would describe cows as strong, big, powerful.... How would you describe them?"

- iv. When the respondent has exhausted the list of descriptions that belong to the first food item and the attributes have been recorded on Form 5.1, move on to the next item and ask her/him to go through the same process. You will probably find that the respondents become comfortable responding to the questions once they have mentioned the attributes for a couple of foods on the list. If necessary, you may have to probe the informant reminding her/him of some of the attributes which had already been mentioned in association with this food item. Proceed through all of the food items one by one.

➤ *NOTE: Some researchers have found that respondents find this module tiring, and as a result, they begin to lose attention. If, after administering the module several times, you find that respondents become distracted, you may consider dividing the list into two parts (e.g., food items 1–13 and food items 14–26) and getting attributes using half of the list for each respondent. If you decide to take this approach, be sure to use the food lists equally among respondents.*

Procedures for Analyzing the Data

- i. If the information was not already recorded while the module was being conducted, fill out the food name and the attributes listed during the modules on Form 5.1.
- ii. Transfer the responses on Form 5.1 to Form 5.2. A separate Form 5.2 should be used for each food item. Continue by calculating the number of times the attribute was mentioned for each food item by the different informants and include that figure under *Number*.
- iii. Examine the *Percent* columns on the forms and calculate the number of times respondents mentioned each attribute by dividing the total number of responses by the number of responses for that particular item. Write in the percent of the responses. Go through the entire list of attributes and calculate all of the percentages.

2. Food Differences

During your next meeting with the respondent you may want to add to information from the attribute module

FORM 5.1

Attribute Form for *Individuals* (M2)

Respondent's Name: _____ Respondent No.: _____

| Food Name | Attributes |
|-----------|------------|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |
| 10. | |
| 11. | |
| 12. | |
| 13. | |
| 14. | |
| 15. | |
| 16. | |
| 17. | |
| 18. | |
| 19. | |
| 20. | |
| 21. | |
| 22. | |
| 23. | |
| 24. | |
| 25. | |
| 26. | |
| 27. | |
| 28. | |
| 29. | |
| 30. | |

with another interview technique that is aimed at examining the *differences* among the staple and/or vitamin A-rich foods. This module uses concrete examples and is therefore relatively easy to carry out, allowing the researcher to probe further into concepts of foods. Comparing food differences may uncover classifications or dimensions that have not been mentioned before.

Select food that you think is of particular importance to the community, food that you would like to gather additional information on, or food that through the other modules you have discovered may be interesting to compare, especially food containing vitamin A. For example, you may want to compare indigenous greens to less vitamin-rich vegetables that have been recently introduced. It may be instructive to examine differences among those foods that belonged together (foods placed in the same pile) during the pile sort module to get a better understanding of aspects of the food items that the population considers different or similar. You may also want to look at food that was not included in the key list of food items, but which you have identified during the initial research period as being important to the community. Once you feel that you have gathered enough information on one combination of foods you may want to change your list and explore other food difference comparisons. This module takes approximately fifteen minutes.

Administering the Task

- i. You can conduct this method of questioning with or without cards with food pictures.
You may ask for example: "What are the main differences between *anta* (Hausa: liver) and *kwai* (Hausa: eggs)?"
- ii. Probe to obtain as many differences as possible (e.g., frequency of consumption, expense, preparation, who eats these foods, seasonal availability, terms used for the food, etc.) You may also ask which food the respondent considers to be better and why.
- iii. Always keep in mind the purpose of the module. That is, to identify the terms, attributes, and classifications (see Glossary) associated with food. As you conduct the modules, descriptive language should emerge highlighting common beliefs and attitudes about food.

Procedures for Analyzing the Data

- i. Include the food items and the respondent's name on Form 5.3 before conducting the interview. Four

pairs of foods to be compared for differences can be included on each form. List the differences between each pair of foods on the form as the module is being administered. Any one food can be compared to several food items. A single attribute will be mentioned more than once if it is important.

- ii. Form 5.4 should be used to calculate the responses. You will use one form for each food difference comparison. Write the food items in the designated places. Transfer the terms, attributes, classifications and dimensions mentioned for each food item by going through all of the responses and including them on Form 5.4. As you did during the previous procedure, calculate the number of times each term or attribute was mentioned by each informant and include that figure under *Number*.
- iii. Examine the *Percent* columns on the forms and calculate the number of times respondents mentioned each term or attribute by dividing the total number of responses by the number of responses for that particular item. Write in the percent of the responses. Go through the entire list of terms and attributes and calculate all of the percentages.

➔ **NOTE:** This module is useful for comparing food qualities, verifying responses, and getting more precise answers. It is also helpful for gathering in-depth information on particular food items. Therefore, as you learn more about a food, you may want to return to this procedure.

M2a. Optional Directed Free List with Attributes

Purpose

If you would like to complement the information collected through the *attribute task*, you may want to conduct a second, directed *free list* in which you ask the respondent to sort according to the qualities or descriptors understood from the attribute and pile sort tasks. This will give you further evidence concerning how foods are classified. For example, in communities in which food is classified as *hot* or *cold* you may want to explore this more fully with a directed free list. In parts of West Africa researchers have found that many of the vitamin A-rich foods are considered to be *blood rich*, a food attribute highly valued and associated with vitamin A-rich foods. Or if you find that food available in the area is consumed to remedy nightblindness

FORM 5.3

Individual Form for Food Differences (M2)

Respondent's Name: _____ Respondent No.: _____

| | | |
|--------------------------|--------------------|--------------------------|
| 1. Food Item: | <i>Compared to</i> | Food Item: |
| Terms/Attributes: | | Terms/Attributes: |
| | | |
| | | |
| | | |
| | | |
| | | |
| 2. Food Item: | <i>Compared to</i> | Food Item: |
| Terms/Attributes: | | Terms/Attributes: |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| 3. Food Item: | <i>Compared to</i> | Food Item: |
| Terms/Attributes: | | Terms/Attributes: |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| 4. Food Item: | <i>Compared to</i> | Food Item: |
| Terms/Attributes: | | Terms/Attributes: |
| | | |
| | | |
| | | |
| | | |
| | | |

you may want to conduct the directed free list module, asking the respondents to list food items that are believed to protect against or treat for nightblindness.

Keep in mind that you are trying to extract concepts and ideas about vitamin A-rich food, and the way in which people's classification of food affects perceptions of food and influences intake. Select attributes that are used frequently when describing vitamin A-rich food, or attributes that you have identified as important to the community when discussing food. Expect this module to take about fifteen minutes. Once you have exhausted the range of responses, select three different attributes and continue the exercise.

Administering the Task

- i. Select attributes (three per form) that you would like to explore further. Fill out Form 5.5 before beginning the task with the respondent.
- ii. Tell the respondent you would like to know more about which food items are (choose a classification) vitamin-rich.
- iii. Ask her to list all of the foods she considers vitamin-rich. If the respondent needs encouragement give examples.
- iv. Review the list(s) and probe for additional features. For example, you may say "You've said that X, Y, and Z are all vitamin-rich foods. Are they alike in any other ways?"
- v. Once you feel that the respondent has completed the list continue the module by going through the same process with the other attributes on Form 5.5.

Analyzing the Data

- i. Once you have conducted this module, you will want to arrange the responses systematically on Forms 5.6 and 5.7 as you did during the first free list task.

M3. Rating Food Attributes

Purpose

Structured rating techniques are useful to explore further how people assign attributes to food. Many different attributes associated with food are discovered during in-depth, key-informant interviewing, as well as from pile sorts, the free list of family food, and the attribute module. More structured techniques, such as rating, will enable you to gain a clearer picture of the relative values people assign to specific food items in relation to culturally-assigned attributes. This rating

process will also help identify differences in patterns within groups or cultures in the study area.

In the structured rating technique, you ask your informants to rate the key food items in terms of each of the main attributes that you have identified during interviews, free list, and pile sort modules. Remember that the primary purpose is to gather additional information on food rich in vitamin A and ways in which food fits into the local food structure. Therefore you will want to be selective in choosing the list of attributes. Keep in mind that your goal is to gather information that will add to the data and help in understanding the vitamin A picture.

Before conducting this module meet with your team members to identify attributes that require further investigation and could potentially give pertinent information through the module. It is important to go through the preliminary results from Modules 1 and 2 to identify areas for additional exploration. Keep in mind that you want information to design messages for a vitamin A deficit intervention strategy. Therefore you will want to select attributes or terms that are related to the objectives of the study. For example, a team of researchers in the Philippines selected the following six attributes: nutritious, delicious, good for the baby/child, good for the eyes, good for the mothers, and foods that cause illness. Also consider abstract attributes of foods that may be related to theories of general health maintenance, such as the concept of *hot* and *cold* that is widespread in Asia and Latin American, or *chi*, an important concept in China that refers to fluid energy in the body.

Normally you will ask respondents to rate foods on a scale from one to five for each attribute. For example, a procedure might include rating your series of foods (twenty to thirty items) in terms of healthfulness: (1) very unhealthy, (2) unhealthy, (3) intermediate, (4) healthy, and (5) very healthy. If you find that a five-point scale is difficult for your respondents to use, a three-point scale may be more appropriate.

This kind of rating task has been used successfully in communities with high rates of illiteracy, particularly when presented as a game. To do this, you could create a simple game board. You can use a wooden board, or perhaps simply a piece of cardboard, about twenty inches long and four or five inches wide. If you use a wooden board, carve out shallow depressions or slots corresponding to the five- or three-point ratings. The depressions should be large enough to hold the cards representing the different foods. If you construct

FORM 5.5

Individual Form for Free List by Attribute (M2)

Respondent's Name: _____ Respondent No.: _____

| 1st Attribute: | |
|-----------------------|-----------------|
| Food Name | Comments |
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |

| 2nd Attribute: | |
|-----------------------|-----------------|
| Food Name | Comments |
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |

| 3rd Attribute: | |
|-----------------------|-----------------|
| Food Name | Comments |
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |

FORM 5.6

Times Each Food Item Was Mentioned by Attribute (M2)

| Attribute: | |
|------------|--|
| Food Item | Number of Times Each Food Item Was Mentioned |
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |
| 10. | |
| 11. | |
| 12. | |
| 13. | |
| 14. | |

| Attribute: | |
|------------|--|
| Food Item | Number of Times Each Food Item Was Mentioned |
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |
| 10. | |
| 11. | |
| 12. | |
| 13. | |
| 14. | |

FORM 5.7

Summary of Food Most to Least Often Mentioned by Attribute (M2)

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|-------------------|
| Attribute: |
| 1. |
| 2. |
| 3. |
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| 5. |
| 6. |
| 7. |
| 8. |
| 9. |
| 10. |
| 11. |
| 12. |
| 13. |
| 14. |
| 15. |
| Attribute: |
| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
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| 9. |
| 10. |
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| 13. |
| 14. |
| 15. |

the gameboard from cardboard, you simply draw the five boxes in a series from left to right.

One disadvantage to the gameboard is that the cards that have already been rated cannot be seen by the respondent. You may find that the respondent feels more comfortable responding without the gameboard, with the cards lying adjacent to one another so that they are all visible. Another possibility is to create large enough slots on the game board so that all of the cards can be seen.

Preparation of Materials for the Rating Task

Use the same set of cards with food pictures that was used in the pile sort task. Before beginning the interview, you will need to select the attributes or concepts about which you wish the foods to be rated. You may want to get people's ratings of foods on concepts such as hot, cold, strengthening, healthful, nutritious, vitamin-rich, good for children, good for the eyes, etc. Of course, you will only use concepts that are appropriate in the local language(s)—those that have *emic meaning* and that you discovered in your key-informant interviews, pile sort, attribute module, and other interviews.

Select four attributes that you would like to learn more about, attributes that you have identified as important to the food culture of the community, or attributes that are most frequently associated with vitamin A-rich food. You may also want to choose an attribute(s) that you consider important and has not been mentioned by the respondents. Most of the attributes you select should have positive features or meaning(s) to the community, but include at least one attribute with a negative connotation. Another criteria is to select attributes that are most appropriate for the target groups, i.e., women and children. It is also important to keep in mind that since you are working with a small sample of respondents you want to limit the number of attributes.

Select three or four attributes that the team has chosen to explore and go through the module with the respondents. If you find, as you administer the module, that it is not necessary to gather additional information on one attribute, move on to another attribute that you have identified as potentially interesting. Always keep in mind that your goal is to gather more detailed information regarding people's perceptions and culturally-assigned beliefs about the key foods.

You may notice, for example, that certain concepts are gender and age specific. Women may associate some foods as making one *energetic*, or as being *dangerous*

for the baby. Differences by socioeconomic status, gender, or ethnic group can be explored in terms of their ratings of foods. At the same time, this task produces additional information about the foods themselves.

This module should take about fifteen minutes per attribute.

Administering the Task

- i. Explain to your respondent that you would like to conduct another interview or task. Tell her that you would like to get her opinion concerning concepts and attributes as they relate to the same list of food items employed during the pile sort and attribute modules.
- ii. Place the cards face-up on a flat surface in front of the respondent, leaving room for the gameboard, perhaps slightly to the side.
- iii. Explain the gameboard by pointing first to the left end of the board and saying, "This is the least, or lowest, or worst," then point to the other end saying, "This is the most or the best," for example, the "most delicious, or best tasting." Then point to the middle depression or slot and say, "Here in the middle is the average or the intermediate."
- iv. If you find, during pretesting, that people have difficulties in understanding the task, then choose an obvious, nonfood example from a different domain of information and demonstrate.

For example: "Let us take size of animals. Suppose I were to ask you to rate the elephant, horse, cow, dog, cat, mouse, and some other animals from very big to very little. (Demonstrate with a prepared set of cards). The elephant is the biggest, so you would put it here (at the right hand extreme of the board). And then the mouse would be over here (extreme left) because it is the very smallest. Now, where would you put the horse?" Continue with this demonstration if you feel the person does not yet fully understand.
- v. Use a separate form for each concept or attribute the respondents rated. Put the attribute name on Form 6.1. Tell your informant that you are interested in seeing how she would rate the food items according to, for example, their taste. Explain that to the extreme left you would like her to place a food item which is good tasting and to the extreme right a food item which is not so good tasting.

- vi. Once the respondent has placed a food item at each extreme, ask her to identify a food which could be positioned in between the food which is good tasting and the food which is not so good tasting.
- vii. Next ask the informant to choose a food which she feels fits between the middle food and the food which is the least good tasting.
- viii. To complete the range, ask the informant to choose a food that falls between the food with middling or average tastiness and the very good tasting food.
- ix. Continue the module by asking the respondent to rank the rest of the foods placed in front of him or her in the same fashion. If you find that the respondent has difficulty ranking all of the foods you may need to give encouragement and reminders on which attribute is being ranked. An approach that has worked well at the field level has been to ask the respondents whether the remaining foods have *friends* or *companions* that have already been ranked according to the particular attribute in question. At the same time, avoid forcing a choice. If you find that the respondent is unable to complete ranking all of the food items move on to the next attribute.
- x. Once the module has been completed and all twenty-five to thirty foods have been rated, record the responses on Form 6.1, including one food item and its number in each box. Fill in the range of scale from most to least. Ask the respondent to explain why she ranked the foods as she did and write the responses at the bottom of Form 6.1.
- xi. When the responses have been recorded, select a different attribute or concept that you have identified as being associated with vitamin A—rich food, and go through the same module.
- xii. Go through two to four attributes per respondent.

➤ *NOTE: When testing this module, we found that mothers have a tendency to rate items according to what foods can be cooked together. As the module is being conducted, be aware of how the respondent is rating the foods. If you find that she is not rating the foods according to the particular attribute you are investigating, remind the respondent of that attribute and try to redirect her.*

Procedures for Analyzing the Data

- i. Go through Forms 6.1 and record the responses on Form 6.2. You will need several copies of Form 6.2.
- ii. Once you have recorded all of the food items, calculate the responses on Form 6.3 by adding the number of times a food item was mentioned under a specific range for each concept. Jot down the food name and the number of times it was mentioned within each range in the appropriate box directly next to the food item. Again, you will use one form for each attribute or concept.
- iii. Go through the answers responding to why the respondents replied as they did. On a separate piece of paper write down answers which appear to be important or responses which constitute new ideas or concepts.

➤ *NOTE: Another possibility is to conduct the rating module with a group of respondents rather than with individuals. A focus group situation may give responses different from those gathered from individuals. Furthermore, discussion among a group in deciding suitable ratings of foods may provide additional insight into their perceptions of the food items. If you choose to administer this module in a focus group setting, it will probably be necessary to use a tape recorder in order to capture everything that is said. Do this unless you feel that it is inappropriate and will affect the participants' responses.*

M4. Household Food Acquisition

Purpose

The purpose of this module is to determine how households in the community acquire key food items—which are home-produced, which are collected or gathered, which are purchased, and from what sources. Additionally, the module will help to identify who in the household obtains the various foods on the list. There is also data collection on the cost of purchased items and the time of year that each food item is available in the area.

How to Get Information on Food Acquisition

This module is in the form of structured questions. As food acquisition is typically a daily activity, respondents should feel at ease answering the questions. You

may find that the sources of food vary according to the time of year. If so, record the different sources, together with information on pertinent seasonal variation.

The household member responsible for food acquisition may vary, or more than one family member may obtain the same item. If this is the case, record all individuals who acquire the food item most frequently.

➤ *For example, in Niger, while male household heads are responsible to provide foods used for daily meal preparation, during the day women may buy the same food items that they consume with their young children as between-meal snacks. This type of information can be useful for the development of intervention strategies and message development.*

In some parts of the world it is not acceptable, or it is unusual, for married women to visit the market. In many cases, the woman of the household generally sends a younger woman or a young girl to make food purchases. Despite the fact she does not physically go to make the purchase, since she is the decision-maker and is highly aware of the local food prices, she should still be recorded as the person who obtains the food.

For purchased foods, be sure to determine the quantity of food to which the price corresponds. For example, if you are questioning the respondent about the cost of liver, ask how large a piece and/or how many small pieces he or she is referring to. Once you have determined a standard quantity by which a particular food item is sold, encourage respondents to refer to the same quantity when responding to your inquiries. For example, people may generally purchase tomatoes three at a time. Staple foods, such as rice or maize, may be measured according to the size of the bag (for example one kg) in which the food is purchased.

Before carrying out this module you need to establish a list of key locations or places where people in the area acquire food. This information will be gathered primarily from key-informants, but you may find that the team has identified other locations where people acquire food items through participant observation and exposure to the community. While the module is being carried out you can also attempt to identify other ways in which items on the key food list are obtained. For example, during the mango season children may pick mangoes directly from the tree. Therefore, it will be necessary to inquire whether the respondent is aware of

other means by which members of her household obtain the items on the key food list.

If you find after carrying out the module with several respondents that the information gathered becomes repetitive, you should consider conducting this module with a group of respondents. If this is the case be sure to get a representative sample that includes respondents from the various neighborhoods in the study.

Expect to carry out this module in thirty minutes with one respondent.

Administering the Task

- i. Before carrying out the module, be sure to fill in the list of twenty-five to thirty food items on the left hand column of Form 7.1. Also include the season during which the interview is being conducted. If a photocopy machine is available, you will want to fill out the form and make photocopies before beginning.
- ii. Begin with the list of twenty-five to thirty key foods. Tell the respondent that you are interested in learning about how food of this household is obtained. Start the module by reviewing the various ways that food is acquired in the area. Go through the places where food acquisition takes place in the community and discuss in general the different foods that are obtained in these locations. It is also important that you ask whether there are other ways that food is acquired, such as gathering of wild food or picking of fruit from trees.
- iii. Explain to the respondent that you are going to ask a series of questions about each of the food items you have just been discussing in previous interviews. Since you are trying to get short answers, you can record the responses directly on Form 7.1.
- iv. Start with the staple foods which are often eaten daily and therefore must be obtained on a regular basis.

You may begin by saying, "As you know, I am interested in learning about where you obtain food eaten in the village. From my discussions with people in the community, I understand that there are several places where food can be acquired."

Read the list of places that you have established.

You may continue, "Let's begin with rice. Where does your family get rice?"

Once you have received the initial response, probe for other possible answers.

You may continue, "You said that you purchase rice at the local store. Are there any other places where you might get rice?"

v. Record the answer(s) by making a slash mark in the appropriate box on Form 7.1.

vi. Continue by asking, "Who in your household obtains the rice?"

After you receive the answer, ask "Is there anyone else who may obtain the rice?"

vii. Record the member(s) who obtain the food item in the appropriate box.

viii. Now ask, "I am interested in learning about the price of rice. Could you tell me how much you pay for rice?"

If the respondent is reluctant to answer, encourage her/him by using a concrete example.

You could say, "Did you buy rice yesterday or the day before yesterday?" If so, "How much did you pay for the rice?"

ix. Once you have the price, determine the amount of food purchased. The respondent may give the actual weight, the size of the container that the item was placed in, or the number of pieces or items that was purchased with this amount of money. As mentioned previously, once you have identified a standard portion in which the food is sold, encourage respondents to give the price for that portion.

x. Include the season that corresponds with the information being collected. For example, if the food item is mango and mangoes are only available March through July, March–July should be recorded in the box.

xi. Record the answers in the appropriate boxes on Form 7.1.

Keep in mind that your questioning will vary depending on whether or not the food is purchased. If a food is purchased or collected by more than one family member, be sure to include that information on Form 7.1 and 7.3.

Procedures For Analyzing The Data

i. Begin with the question regarding the place where food is acquired.

ii. Based on the responses on Form 7.1, list the important sites where food is acquired in the boxes on Form 7.2.

iii. For each food item, tabulate the totals corresponding to the site where the food was obtained. Place the totals in the appropriate box on Form 7.2. Once you have recorded all of the responses, calculate the totals in the final row at the bottom of the table.

iv. Similarly, tabulate the frequencies for each person who acquires the food items, the price and the quantity on Form 7.3. If you find that there is a wide range of food prices and food quantities, it may be necessary for you to design an additional Form (7.3A) to facilitate the standardization of food item prices per corresponding amount. You will want to develop a table that will graphically display the amount of each food item with a corresponding average and range of prices.

v. Finally, on Form 7.4 tabulate the months of the year that each food item is available, going through the foods item by item and placing an X in the appropriate box. This information should also be recorded for each food item in the Community Food System Data Tables.

M5. 24-Hour Recalls and Food Frequency

Purpose

The purpose of this module is to understand the consumption of the selected key foods by special members of the household: children ages six months to six years and women of reproductive age. This information will help determine vitamin A intake by individuals at high risk.

The reason that two exercises are conducted is to ensure that the information you are collecting is accurate and consistent. While respondents often overestimate food consumption when responding to food frequencies, 24-hour recalls present a means to understand actual intake in a one-day period. Furthermore, 24-hour intakes are a good introduction to food frequencies, allowing respondents to begin thinking about the consumption of particular food items by individual household members.

When conducting both modules it is important that the interviewer remain nonjudgmental. A non-threatening approach with the respondents will encourage an open and honest report of what was eaten at the household level.

FORM 7.2

Summary of Food Acquisition: Source (M4)

| Food Item | Source/Place where Food is Acquired | | | | Total |
|--------------|-------------------------------------|--|--|--|-------|
| | | | | | |
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
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| 24. | | | | | |
| 25. | | | | | |
| 26. | | | | | |
| 27. | | | | | |
| 28. | | | | | |
| 29. | | | | | |
| Total | | | | | |

FORM 7.3

Summary of Food Acquisition: Person, Price (M4)

| Food Item | Acquired by Whom | | | | Price | Food Quantity |
|-----------|------------------|--|--|--|-------|---------------|
| | | | | | | |
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
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| 30. | | | | | | |

Administering the Module

Part I: 24-Hour Recall

Interviewing for dietary intake should be done with women directly, not from a second party. For children six years of age and under, you will need to interview the primary caretaker, usually the mother.

This module should take approximately thirty minutes.

- i. Explain to the respondent that you are interested in learning what foods were recently eaten in their home, particularly by the young children and women living there. Start by asking the primary caretaker how many children six years of age or under live in the household. Gather the background information listed on the top of Form 8.1 (one form per child) including each child's name, sex, age, whether they are currently or were previously breastfed, and if they have received vitamin A supplements. Record the responses on separate copies of Form 8.1 for each child.
- ii. Continue by asking how many woman of reproductive age live in the household. Record each woman's name on a separate form, if the woman is pregnant or lactating, and whether the woman has received a vitamin A supplement(s).
- iii. Begin with the oldest child under six. You may start by saying, "Now I would like you to tell me about all the food and beverages that (name of child) had in the last twenty-four hours. We will begin with the most recent food or drink that (name of child) had and work back to this time yesterday. Can you tell me what he or she last ate or drank?"
- iv. Record the respondents answer on Form 8.1.
- v. Continue by saying, "What was the food or drink before that?"

Be sure to ask about additions to beverages, such as sugar or milk and what type these were. For example, you may say, "Do you add anything to your coffee?" You could continue by asking, "Is that white sugar or...?" Or, depending upon the respondents response, "Is that condensed milk or skimmed milk?"

When probing for additions to food items the interviewer could ask questions such as, "Do you put sauce on or add condiments to your rice?" followed by, "Could you describe the way in which

the sauce is prepared? What are the ingredients you include in the sauce?" If the individual named a complicated dish you will want to record the ingredients and approximate the amounts of the portions eaten at the bottom of Form 8.1. During the study, you will want to collect information on ingredients and the quantities frequently used for sauces.

Be sure to use probing techniques to get detailed and accurate information. In the case of children, between meal snacks, such as fruits, may be a particularly important source of vitamin A. Therefore you will want to probe the caretaker to gather information on ways in which the child acquires food outside of the household, what food is obtained, and the quantity of between meal snacks the child consumes. When eliciting information on snack foods you may try to interview some of the older children (five- to six-year olds) to confirm that the responses are accurate and consistent. If alcoholic beverages are commonly consumed in the area, additional probing may also be necessary when carrying out intakes for women.

- vi. Continue to question the respondent, gathering information on all foods consumed over the past twenty-four hours by each child (age six months to six years) and woman of reproductive age living in the household.
- vii. Record the answers on Form 8.1 as the information is collected. When recording the data it is important to be as detailed and precise as possible.

Part II: Food Frequency

This module makes use of structured questions, that are directed to the primary caretaker/food preparer of the household. The amount of time it will take to go through the food frequency list will obviously depend upon the number of children living in the household. Carrying out this module for an individual child should take about fifteen minutes.

- i. Begin with Form 8.2 by entering the list of key foods in the left hand column. If a photocopy machine is available it will save time if you can make copies of this master form.
- ii. Fill out the appropriate information at the top of Form 8.2 for each child (age six months to six years) and woman of reproductive age living in

the household. You should be gathering information on the same individuals with whom you carried out the 24-hour recalls.

- iii. Explain to the respondent that you now want to find out how often the foods you have just been discussing are eaten by the same household members.
- iv. With Form 8.2, begin with the oldest child under six and the first item on the list. You may say "During the last week, how many days did you serve (child's name) (food item)?" To ensure that the question "how many days per week..." is understood and to give the respondent confidence in her responses, start with the staple foods or the foods which are most commonly eaten.
- v. Record the number in the appropriate box.
- vi. Continue by saying, "How many times was (food item) served?"
You should also inquire whether somebody else feeds the child occasionally. You may say, "Are there times when the child is not with you? Do you know what he or she eats then?"
If the child in question is old enough, you may want to speak to him or her directly.
- vii. Record the answer in the appropriate box on Form 8.2.
- viii. Next, ask how much of that food item was actually consumed and record the response in the right hand column under quantity.
- ix. Then, ask about the consumption of the same food item by the next oldest child (if there is more than one child under six in the household) and fill in the responses on a separate form. Going item-by-item, continue the series of questions with all of the children under six years of age in the household and complete the interviews by administering the questions to the children's mother, recording the responses in the appropriate boxes as the interview is being carried out.

Analysis

The main purpose of the analysis is to describe the consumption of individual food items by categories among individuals at risk of deficiency and to identify patterns of use. An estimate of vitamin A intake will be made by calculating the number of times vitamin

A-rich foods are consumed on a weekly basis for each child multiplied by the content rating you have assigned that food. You should use a five point scale rating where (0) no vitamin A content, (1) a trace of vitamin A, (2) a small amount of vitamin A, (3) a medium amount of vitamin A and (4) a large amount of vitamin A. (See Appendix 8 for rating vitamin A-rich foods). The final rating should be based on the frequency and quantity of the particular food item consumed, and the vitamin A content rating of the item found in your source table.

i. Estimating Vitamin A Intake

- a. For each food item, multiply the number of days the food is eaten per week by the number of times the food is eaten each day. For example, if rice was eaten six times during the week, two times per day, you would multiply six by two to get a total of twelve times during the week. Since rice does not contain any vitamin A, you would multiply this figure by the content rating zero and get an individual rating of zero.
- b. The total for each food item, in this case zero, should be recorded in the right hand column marked rating on Form 8.2. Remember that you are interested in the number of times that vitamin A-rich foods are consumed per week, as well as the vitamin A content. You should also take into account the quantity of the food item consumed when determining the vitamin A rating.
- c. Go through the entire list calculating the totals for each food item, and record the answers in the appropriate boxes.

In summary, the scoring will depend upon the availability of vitamin A-rich food items in the region/community, the frequency each is consumed, the vitamin A content, and the quantity consumed.

ii. Patterns of Use

- a. This module is constructed to give you a better idea which groups under six years of age are at greater risk for developing vitamin A deficiency. Divide preschool aged children into three groups: (1) infants or zero to eleven months, (2) one to three years, and (3) four to six years. Also include a separate analysis of the intake of women

- of reproductive age, according to whether the woman is pregnant, lactating, or neither.
- b. Take the responses from Form 8.2 and separate the forms according to the age groups listed above. Using Form 8.3 record the responses for each age group. Determine the median (see Glossary) for each food item.
 - c. Find the medians by subgroup for each food item. Once you have determined all of the medians, rank order them as you did in the free list module. (The highest ranked food will have a #1 in the ranking column). Place the food items from the highest to the lowest median on Form 8.4. Find the vitamin A food rating (using the five-point scale) and place the corresponding number in the second column. Remember that the list will range from food item #1 (ranked one in Form 8.3) to the number corresponding to the number of foods that you have on Form 8.1. You should be generating six different lists, one for each subgroup of the population at risk for developing vitamin A deficiency.
 - d. At the top of the same form, include the attributes/concepts that were rated in Module 3. Do a cross-tabulation comparison between the rank order of median vitamin A scores and the way that the foods were rated in Module 3. In the appropriate box, include the rating (most, between most and intermediate, intermediate, between intermediate and least, and least) that best characterizes each of the food items listed in the left hand column.

Combining vitamin A scores and ratings of food attributes are important data for developing intervention strategies and designing nutrition education messages.

➤ **NOTE:** *In some community assessments, researchers may already be familiar with food evaluations generated by IVACG. This can also be used, provided the list of food items is the same as those used for the other modules.*

M6. Hypothetical Health Case Scenarios

Purpose

This module is intended to get information from the mother or the primary caretaker in the household on:

- i. Whether the primary caretaker recognizes signs and symptoms of vitamin A deficiency?
- ii. How she would respond if a child showed signs and symptoms of vitamin A deficiency, including whether she would administer care in the home or seek help elsewhere?
- iii. How she would respond if this applied to herself; in other words, if she showed signs and symptoms of vitamin A deficiency?
- iv. At what stage would care be administered?
- v. What would be the sequence of action in providing homecare, or seeking care outside of the home?
- vi. What factors would determine her decision to seek care?

It should provide an understanding of the preferred choices for healthcare for signs and symptoms of vitamin A deficiency. This task is a means to examine beliefs in the area related to health-seeking behavior for eye problems and some of the diseases associated with vitamin A deficiency.

After you have asked the respondent to identify the healthcare provider(s) that she would seek, have the respondent explain the reason for each choice. This format should enable you to find out about health practitioners, such as traditional healers, which mothers may normally be reluctant to discuss or admit using. It also permits identification of both negative and positive attitudes on the various health resources available, and the locally-perceived ability of health practitioners to administer treatment for signs and symptoms of xerophthalmia.

In some communities, especially in rural areas, the population may not have health resource choices available to them or there may be only one option, such as a traditional birth attendant, in the area. If this is the case, you may want to adapt the module to include resources outside the community. Try to determine when the respondent would travel outside of the community to seek help, and where and to whom they would go.

The case scenarios are presented to the respondent, followed by a series of questions to elicit the information mentioned above. The first question asks the respondent what is wrong with the child. The respondent should then be asked for other information she may want to ask of the sick child's mother, other signs to look for in the child, and advice she may want to give

FORM 8.4

Summary Ranking of Food by Age Subgroup with Attribute Comparison (M5)

Subgroup: _____

| Food Item | Vitamin A Rating* | Attribute Ranking | | | | |
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| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
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| 25. | | | | | | |
| 26. | | | | | | |
| 27. | | | | | | |
| 28. | | | | | | |

* Ranked from most to least using a 5-point scale (4=highest, 1=lowest, 0=none)

regarding what should be done for the child who has shown signs of vitamin A deficiency. Additional questions should be asked to discover what subsequent steps the mother, or primary caretaker, would take in providing for this child and at what stage these actions would be initiated. It is important that the interviewer record on the form whether the respondent would initially react by administering a home remedy or by seeking an outside source for treatment.

During the study, the team can identify factors important in health decisions. Note that one of the scenarios focuses on a pregnant women suffering from nightblindness. The same information should be elicited for this scenario and the questions should be directed to the mother in the household. The case scenarios were developed to represent situations which commonly occur in regions where vitamin A deficiency is prevalent and to depict illnesses that typically accompany vitamin A deficiency. The intention is to gather information about the best or most suitable course of behavior and action that the respondent sees appropriate in each situation. Hypothetical case studies are used to diminish inhibitions that the respondent might experience if she were asked to respond to questions about her own family situation.

During the pretesting of this module with key-informants, you will be able to assess whether or not the respondents are likely to be comfortable with the situations. If you find that hypothetical situations do not work, experiment with other possible ways to conduct the module. Since each scenario was developed for a different purpose, it is preferable that you follow the same general story line.

The case scenarios are varied to represent the signs and symptoms at different stages of vitamin A deficiency. The responses will provide an idea as to when mothers recognize the danger signs and how their advice differs according to the specific sign that is presented. The information will also show whether respondents identify some of the accompanying diseases as eye problems, and how they perceive these diseases. The age and sex of the children mentioned in the scenarios is also varied to get information on how these factors influence perception and action.

Each mother should respond to *three of the five scenarios*. The time allotted should be approximately one hour.

How to Prepare the Scenarios

The set of enclosed visual aids illustrating xerophthalmia should be used to go over the local terminology with the key-informants. The goal is to identify terms associated with the various stages of xerophthalmia depicted in the case scenarios. You will additionally need to identify local terms used for the other illnesses described in the scenarios, such as measles and diarrhea. You should also assess with key-informants the extent to which people recognize these stages, and according to their suggestions, you may change the story line. You may find that certain case scenarios are not appropriate for particular geographic locations.

Modify the scenarios to the local context:

Follow the basic format of the case scenarios below for the age and details about signs and symptoms of vitamin A deficiency. Include specifics to give *local context* so that the cases become more believable to the respondents. You will need to modify the text as follows:

- i. Give the persons mentioned in the scenarios names which correspond with common male and female names in the region.
- ii. Use appropriate local terms for the signs and symptoms and other features in the scenarios.

For example, *dundumi* is the local term for nightblindness in Hausa-speaking regions in West Africa. You would therefore substitute *dundumi* for *nightblindness* in Hausa-speaking regions.

Troubleshooting for problems that may come up:

- i. *Confusion about hypothetical cases.* In some cultures, people feel uncomfortable responding to hypothetical situations. For example, mothers in one village were confused when the researcher said, "...when Elana, the mother, returned late at night from work." Their response was, "Women don't work and they certainly don't stay out at night."

Possible alternate solutions to the problem:

- ◆ As stated above, make slight alterations so that the situation described in the scenario corresponds with local conditions and practices.
- ◆ If the respondents indicate that the situation described is at variance with their lifestyle, present the situation as though it occurred in another region or as though it took place in the past.
- ◆ It is important to use pictures or diagrams to depict the situation. Identify a local artist to

draw pictures (photographs are another possibility) and create the case study around the characters illustrated. This will depersonalize the situation, making it more objective.

- ◆ When making use of case scenarios which include the various stages of xerophthalmia, it is critical that you use the pictures provided with this manual illustrating the progression of the disease. While describing the scenario and getting responses to the series of questions, you will want to make continual reference to these pictures.

- ii. *Fear of giving bad advice or giving the wrong answer.* You may find that the respondent is concerned that the answers she gives may be considered wrong and as a result she answers the same way for each case scenario. In this case, the module may get better information if the format is changed.

Possible ways to deal with this situation:

- ◆ You may find it easier to gather information if you personalize the situation. You may say, "If your child was suffering from nightblindness, what would you do?" Another possible approach is to ask the respondent how she would advise a friend or neighbor with a child suffering from the illness or problem given in the scenario. For example, you may say, "If a good friend's child had these signs or symptoms how would you advise her?"
- ◆ Use additional probing techniques to get the action that the respondent would take.

When testing this procedure one of the researchers found that mothers responded more readily when the module began by saying, "I saw a child in (town name) the other day. I'd like to ask you about this child."

Scenarios

Words and phrases marked with brackets [] *should not be changed*, as these are the basic features, signs, and symptoms to be explored. You can change names, gender of child, etc. to make it culturally appropriate.

- i. Miguel is [three years old.] He is a [very active little boy] who has many friends in the neighborhood to play with. But [for the past week, as the day ends and the sun sets], Miguel [chooses to stop playing] with his friends. [He just sits alone.] Miguel [seems frustrated and sad and is afraid to move

around.] [His mother], Fey, [has noticed his recent inactivity at nightfall and wonders what should be done. What do you advise?]

(When describing this situation, make sure that it is understood that there is something wrong with the child, not that the child just did not like to walk at night.)

- ii. Maria's [mother] Elena returned to work [two months after] Maria [was born.] Maria's grandmother [takes care of her when] Elena is at work, [feeding eight-month old] Maria [formula from a baby bottle.] [Recently,] the grandmother [has introduced] Maria to white corn tortillas [a dietary staple low in vitamin A]. Since her mother returned to work Maria [has had frequent bouts of diarrhea.] [Four days ago,] Maria [got a fever, runny nose, and cough, followed by a sore mouth and diarrhea. Her appetite has decreased, and due to her sore mouth it is painful] for Maria [to eat. Today, a rash has appeared around] Maria's [eyes and on her neck.] Her grandmother [is concerned. What should she do?]
- iii. Moussa [is small for a five year old. He has had a very difficult childhood suffering from continual bouts of diarrhea and malnourishment.] Moussa [was sick with a fever and rash but he is now better. Yesterday,] Moussa's mother Fati [noticed a white foamy patch on the white part of his eye. This afternoon the white part of] Moussa's [eye appears to be dry and the white foamy area has gotten bigger.] Fati [recognizes that this is unusual but doesn't know what to do. What do you recommend that she does?] Use the pictures in the manual to show Bitot's spots or corneal xerosis.
- iv. Maimouna [is seven months pregnant. She is more tired than she was during her first pregnancy, and is finding it difficult to keep up with her fifteen-month old son] Ali. [Furthermore, as her pregnancy progresses she has noticed that it has become impossible to see at night. As the sun sets,] Maimouna [is swept into darkness and is unable to continue the household chores, particularly the preparation of the evening meal.] (Normally the lamp is not lit at that time, in order to save fuel and money.) Maimouna's husband Ahmed expects the evening meal to be ready for him when he returns home from a long day of work. [What is wrong] with Maimouna? [Do you have any advice for her?]

v. Caesar [is two and a half years old. He was a happy baby full of vigor and good health until his second birthday when he was abruptly weaned. Since that time he has experienced a series of health problems including chronic diarrhea, and most recently a severe respiratory infection.] Caesar's mother Edna [perceived a white spot in his eye a week ago. Within a day the spot enlarged and his eye became noticeably dry.] Edna [noticed the dry texture of the eye but felt that it was a temporary affliction that would resolve itself with time. Quickly] Caesar's [eye began to deteriorate and today, only several days later,] Caesar [is blind in one eye. What happened to] Caesar? [What should] Edna [have done? Do you have any advice for her now?] Use the pictures in the manual to show Bitot's spots, corneal xerosis, and keratomalacia.

Procedures for Administering the Task

Before beginning this module it is important to ensure that the field assistants feel comfortable conveying the messages in each case scenario and have developed methods to deal with potential obstacles or problems when telling the story lines to the respondents. Additionally, in order to facilitate the recording of responses, it is important that the interviewers are familiar with local home remedies and ways in which traditional practitioners respond to the stages of xerophthalmia before conducting the interviews. It is therefore recommended that the research team go through many practice sessions before conducting the interviews among the respondents. When going through these sessions, keep in mind that a primary objective of this module is to identify local perceptions and practices related to vitamin A deficiency. In other words, the research team will strive to capture emic language and information which reflects the local population's vocabulary, conceptual categories, and belief system (see Glossary). It is suggested that the scenarios be translated into the local language before training the assistants.

As was already mentioned, in some cultures people are less comfortable with hypothetical situations. When conducting the pretest, you will have to determine the most appropriate way to present the scenarios. You will have to remain flexible and modify the scenarios to fit with conditions and terminology in the local population, but do not change the basic elements that are inside the brackets.

i. *Prepare the recording forms* by circling the three scenarios that have been chosen on each form. At-

tach three forms for each mother. If you plan on visiting several households, you will need to prepare accordingly.

ii. *Introduce the scenarios* by letting the respondent know that you are going to read (tell) several stories to her. Explain that after reading each story, you would like to ask her some questions. You might add that you have already gathered some information on problems associated with eye problems, including nightblindness (use the local term), and would now like to learn more about how these problems are handled.

iii. *Read the scenarios, one by one*, to the respondent. Record the mother's responses on Form 9.1 immediately after she has answered the questions for each scenario. Be as detailed as possible and be sure to record emic information.

iv. When the mother has finished responding to the first question, *continue by asking additional questions* which are included on the form in the order which you think is most appropriate and which will get accurate information.

v. You may find it necessary to *probe for more information*. The following suggestions may help to encourage the respondent to give more content:

- ◆ What do you think is wrong with the child or woman (if you are referring to the scenario involving the pregnant woman)?
- ◆ Is there any other information you would like to know about the child and mother before you give advice?
- ◆ When should the mother (or caretaker) have sought care for the child?
- ◆ What are some other signs that the mother should watch for?
- ◆ Who (in your household, in your neighborhood) knows a lot about these kinds of eye problems?

If a home remedy is suggested:

- ◆ How long will it take for the home treatment to take effect?
- ◆ If there is no change in the child's condition, what are the next steps the caretaker should take? When should these steps be taken?

FORM 9.1

Scenario Form for *Individuals* (M6)

Use one form for each scenario presented to the respondent

Interviewee: _____ Date: _____

Respondent No.: _____

| Scenarios (circle the appropriate letter): | A | B | C | D | E |
|---|---|---|---|---|---|
| Initial Questions | | | | | |
| Illness the child or woman has: | | | | | |
| Other information requested by the respondent about the individual with the eye affliction: | | | | | |
| Other signs or symptoms that may accompany the eye affliction: | | | | | |
| Advice given to the mother, including what is causing the problem: | | | | | |
| First action suggested, home remedy, or an outside practitioner: | | | | | |
| Home Remedies | | | | | |
| Action or treatment: | | | | | |
| How soon improvement expected: | | | | | |
| Evidence that health has improved: | | | | | |
| What to do if no improvement: | | | | | |
| Signs or symptoms that would inspire additional steps: | | | | | |
| Household decision-maker: | | | | | |

FORM 9.1

Scenario Form for *Individuals* (M6) (continued)

Care Seeking

Describe the healthcare provider sought:

Why this healthcare provider was chosen:

Treatment expected:

Does this usually help? If so, how?

Signs of improvement:

What to do if no improvement:

Is there anybody else to seek treatment from?

How does this healthcare provider compare to others?

- ◆ What are the signs that would inspire the mother to take these steps?
- ◆ At what point should the caretaker seek outside treatment? Who in the household makes this decision?

Care administered by a health provider (traditional or modern):

- ◆ What type of healthcare provider would you seek advice from?
 - ◆ Why would you choose this provider?
 - ◆ What is the usual treatment for this problem?
 - ◆ Does this treatment produce a cure for the condition?
 - ◆ If so, how long does it take?
 - ◆ What are some indications that the child/woman is getting better?
 - ◆ If there is no improvement after a treatment what should the mother do?
 - ◆ Is there anybody else she should seek treatment from?
 - ◆ How does this health provider compare to others? Who are some of the other healthcare providers she might go to? (Probe for differences among the healthcare providers).
- vii. If you find that respondents give more than one response to the questions, be sure to record all of the answers and comments that the respondent makes on Form 9.1. Through this module you may uncover valuable information related to the perceived seriousness of the problem, factors involved such as access to health facilities, costs, reception of the client by the health practitioner, time involved, etc., in deciding whether care outside of the household is necessary; who the decision-maker is in the household regarding healthcare, and other factors which influence health-seeking behavior. Remember that it is important to conduct this module in an informal, conversational fashion.
- viii. Once the modules have been completed and the team returns to the team meeting site, go through the individual forms to ensure that the responses are complete and legible.

Procedures for Analyzing the Data

- i. For each case scenario, create a list of all of the responses to the initial group of questions. Group similar responses together and tabulate the answers on Form 9.2, putting a check in the appropriate box. To make a clearer illustration of health-seeking behavior you may find it useful to present similar responses on separate tabulation forms.

For example, answers to the question, "What illness does the child have in case scenario A?" could include:

- a. "The child is tired and the body is weak."
- b. "The child is suffering from nightblindness."
- c. "A spirit has done this to the child."
- d. "A part of the child's body hurts, is not well."
- e. "This is the illness which affects children when the sun sets."
- f. "The child has been affected by bad spirits."
- g. "The child has a fever within his body."

The responses could be grouped as follows:

1. Child is weak or ill. (a, d, g)
2. Child is suffering from nightblindness. (b, e)
3. Child has been affected by a spirit. (c, f)

Separate all of the responses to the initial questions according to similarities and tabulate the responses for each case scenario on Form 9.2.

- ii. For each scenario, make a list of all of the responses to the questions about homecare practices. Group together responses that are similar and assign a label to each such category. Using your categories, tabulate the responses on Form 9.3. If you find it easier to use a separate tabulation form for each home remedy mentioned, by scenario, you will need many forms to analyze the data.

For example, responses to the question, "Who in the household makes the decision to seek outside assistance?" could include:

- a. "The father of the household."
- b. "The menfolk."
- c. "The uncle."
- d. "The husband."
- e. "Husband and his father."
- f. "Mother of the child."

- g. “Grandmother.”
- h. “Mother-in-law.”
- i. “Husband’s mother.”
- j. “Wife’s mother.”
- k. “The older women who know...”

In this case, your categories will be:

1. Male household heads (a, b, c, d, e)
2. Senior women (g, h, i, j, k)
3. Mother/caretaker of the child (f)

Responses about treatments could include the following:

- a. “The child should be fed *hot* foods.”
- b. “The child should stay in bed until he or she feels better.”
- c. “The child should be fed some grilled liver.”
- d. “The child should be given medicine in the form of a capsule.”
- e. “The nurse would tell me to feed (child’s name) foods that are vitamin-rich and will allow him or her to regain his or her health.”
- f. “The child should be administered an injection.”
- g. “Give the child palm oil.”
- h. “Should give some _____ (medicinal) tea.”
- i. “The _____ ceremony.”
- j. “Strong medicine from the pharmacy.”
- k. “Those red and yellow pills we see at the market.”
- l. “Give the child eggs.”
- m. “Rub lightly with _____ leaves (a local plant).”
- n. “Feed the child *rich* foods (a local emic category).”

These responses can be grouped (categorized) as:

1. Foods (a, c, e, g, l, n)
2. Rest/bed (b)
3. Medicine (capsules, tablets) (d, j, k)
4. Medicine (injections) (f)
5. Teas (h)
6. Other (i, m)

- iii. Continue by coding and tabulating the remaining responses to the open-ended questions. Make a list

of all of the individual answers to each question and combine (group) any responses that are similar in their general meaning. If you are doubtful whether responses are similar enough to be combined, list all of the answers separately. Use a code to tabulate responses about time needed—for example, one to three days, four to six days, one week, etc.

- iv. Tabulate all the answers and record them appropriately in Form 9.2. Be sure to mark the scenario to which the response corresponds.
- v. Make a list of all of the practitioners/healthcare providers or health services that are mentioned in each scenario. Combine any health providers that could be categorized under the same term. For example, if *nurse* is mentioned frequently, as well as *health clinic*, and you know that the nurse is the only person who administers healthcare in the health clinic, combine these two responses in a single category. Use codes to record time needed for improvement.

Tabulate all of the answers to healthcare providers and record them on Form 9.4. Once again, since the space is limited in the table, you may need to create your own form following the same format or use a separate form for each of the grouped responses. Be sure to mark the scenario to which the response corresponds.

- vi. The following example illustrates how you would analyze *why* people choose to see a particular healthcare provider.

Content Analysis of the Explanation for the Choices

- a. The question, “*Why* do people choose to see a particular healthcare provider?” generally results in brief statements.

Examples are: “Cheaper.” “She always provides a cure.” “He speaks my language.” “He is easy to get to.” “She has the strongest medicines.” “He is better able to assess the problem.”

- b. Make a list of all of the responses and group them into categories. The following categories should cover most of the responses, but you may need to create additional categories:
 - ◆ Economic reason (“Cheaper.” “She will accept gifts.” “You get your money’s worth.”)
 - ◆ Belief in modern drugs (“She has the strongest medicines.” “His medicines always cure.”)

- ◆ Belief in traditional medicines and practices (“Traditional medicines are more powerful.”)
- ◆ Convenience, social access (“She lives very close to my home.” “She understands my needs.”)
- ◆ Special qualities of the practitioner (“She knows some very important people.” “She is better able to evaluate the problem.”)
- ◆ Negative qualities of the practitioner (“She yells at me every time my child gets ill.” “I saw her ridiculing another mother.”)

c. Record the descriptive paragraphs.

Of course it is quite likely that the significant categories in any particular local area will be different from this hypothetical example. You should modify these groups or categories to take into account the special features of your area.

- vii. Code and tabulate the remaining responses to the open-ended questions as you did on Form 9.3.
- viii. Tabulate all the answers and record them on Form 9.4. Be sure to mark the scenario to which the response corresponds.

D. Preparing the Assessment Report

The procedures described in this manual are for assessing natural food sources of vitamin A and their effect on vitamin A deficiency in communities. The purpose of the assessment is to assist health personnel in developing programs at various levels to address vitamin A deficiency. Important outcomes of the research are suggestions for vitamin A interventions and policies, including recommendations for homecare messages for healthcare workers to employ when working with mothers. Using emic data, suggestions can be made for messages on vitamin A–rich food, and why this food should be consumed, and treatment for the stages of nutritional blindness. Conclusions about the various sources for vitamin A in the food system and information on perceptions and beliefs surrounding vitamin A–rich and staple food that can constrain or enhance intake, as well as food consumption patterns and behaviors, are the most important aspects of the report. Another outcome is the identification of and explanations for health-seeking behavior for the signs and symptoms of xerophthalmia.

The information in the assessment report should be presented in a clear and concise way. At the same time, it is critical to preserve the emic approach, including local terminology and cultural meanings attached

to both the food that you have chosen to study and the signs, symptoms, and treatment for vitamin A deficiency diseases. Be sure to avoid direct conversion of local terms or concepts into Western (biomedical) terminology, as original meanings and concepts may be lost.

Organization of the Assessment Report

The team manager will determine the degree of detail required in the report and the amount of summary data to attach. This will depend on the intended reader(s) of the report and whether or not they are interested in the process of the assessment as well as the conclusions. The length of reports from this assessment can vary from ten to fifty pages, or more. This should be decided before writing the report.

The report should include the following sections:

1. *Table of Contents.*
2. *Executive Summary.* The executive summary should be no longer than three pages, highlighting key findings from the assessment. This summary should direct the reader to important sections of the report which warrant further attention. If any unusual findings or surprises were uncovered during the study, they should be mentioned in the executive summary.
3. *Introduction.* This section includes a description of the area in which the study was conducted along with a discussion of the study population and community resources. Important elements of the background data gathered are presented, with special note of existing information on the vitamin A situation in the area. Highlight the seriousness of the vitamin A problem, if known, and the need for intervention.
4. *Procedures Followed.* Summarize the procedures followed, which are contained in the data-gathering sections of this manual. You may choose to justify the use of this focused, somewhat rapid ethnographic assessment, because of the value of the results uncovered. See Appendix 11 for notes to assist with this section.
5. *Questions and Answers Addressed in the Assessment.* Each of the questions presented in Section I-A should be stated and answered. An assessment of how the results can be applied through vitamin A improvement interventions to the specific community and to locations beyond the research area should be made clear.

Since the report will be used by a variety of people from a range of backgrounds, these assessment findings need to be presented in a clear, succinct way. Because you are using a basic emic approach (see Glossary), it is also important that the richness of the data be preserved. The report therefore will include tables which capture the descriptive data, and summaries examining and explaining both the quantitative and qualitative data can be incorporated in the answers to these questions.

The summary tables and tabulations found at the end of each research procedure, as well as the field notes you have gathered from key-informant interviews, should be reviewed and thoroughly analyzed before responding to the questions. Results from all the data-gathering procedures (Sections II and IV of this manual) should be evaluated and integrated, providing the basis for answering the research questions. In order to give thorough and accurate responses, most questions require that you use data from various sources, including results from different procedures and findings from the interview and observation field notes. It also may be effective to use excerpts from in-depth interviews that capture local beliefs or illustrate practices.

6. *Discussion and Recommendations.* This section includes interpretation of all data from the assessment procedure and the identification of factors that constrain or enhance consumption of vitamin A-rich food, particularly among women and children. This section should clearly point to ways in which diets can be modified to improve vitamin A status in the context of the local ecology and culture. It includes discussion of factors affecting the intake and/or content of vitamin A-rich food such as cost, seasonality, food distribution, and preparation and preservation techniques. Try to be succinct and to the point when describing these key issues.

A critical aspect to the data analysis, answering the assessment questions, and the discussion, is the identification and evaluation of intragroup variation. Remember that you are interested in locating *general tendencies* within the population that have implications for program planning and can help to facilitate the development and application of interventions. At the same time avoid distorting or ignoring differences in responses in order to illuminate trends that could be useful for programmatic purposes. Although you will be able to identify some evidence showing intragroup variation, the samples

of open-ended and of structured interviews are too small to allow the researcher to form exact conclusions about all community beliefs and behaviors. You will need to make item-by-item judgments as to when and to what extent variation is important and should be incorporated into the report. Include tables and text from the interviews to substantiate your results and show the way in which you reached your conclusions and developed generalizations. The degree to which you justify and back up your conclusions will vary according to each question and the way that it is addressed in the assessment procedure.

An optional inclusion to the report could be a diagram showing how the various food sources fit into the overall dietary scheme. You may want to attempt to illustrate characteristics or qualities of the foods that affect intake, particularly among the principle target age/gender groups.

7. *Appendices.* Appendices are added that include the research methods and other materials used that were relevant to the research, which may be helpful to the reader of the report. These can include a list of the food items contained in the Community Food System Data Tables and perhaps the Tables themselves, a list of attributes of foods recognized by the community, a list of the government offices/officials/other professionals who participated in the assessment, maps of the area, and summary tables from the assessment procedures. Appendices in this report will assist the reader in understanding the results and show where further information might be found.

There should not be so many appendices as to the report to make it too bulky for easy distribution. It is important that the report be distributed, read, and considered by a wide range of policy makers and program planners.

The synthesis and presentation of the study results is a creative act involving both judgment and interpretation. The final product should reflect the input of the supervisors, team manager, and field assistants who participated in the study, and members of the Health Ministry and other key officials at the local and national levels. To assure that the final report is sufficiently accurate and thorough, it is critical that the assessment supervisor facilitate effective and continuous communication among these individuals.

Part Two

Managing the Project

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III

Organizing

A. Personnel

This manual is designed for use by anthropologists, social scientists, field nutritionists, and other researchers with a background in qualitative research methods, who are trained in the manual's methods. Managers of national, regional, and local programs have important roles in decisions for the research areas, and will need to designate the research manager.

Since the research manager may come from a range of backgrounds, the procedures included in the manual are explained in detail. The protocol should be carried out by individuals familiar with the cultural setting and conversant in the language spoken in the area.

Since the research questions concern vitamin A deficiency in the food system and its effect on nutritional status of infants, children, and women in the childbearing years, the individual responsible for data management, data review, and writing of the report should have suitable background in nutrition.

1. *Qualifications and Training*

The individual responsible for data management and the report should be someone who has a background in nutrition and expertise in ethnographic procedures. This individual could possibly be an official in a relevant agency, who will then recruit a field team leader and two field assistants. Alternatively, the individual responsible may be the team leader who will supervise and conduct field work with field assistants.

Conducting all of the procedures of the protocol within a limited time period will require the full-time participation of three individuals: the field team leader and two field assistants. The availability of two full-time assistants for a six to eight week period, who possess the requisite level of expertise, may vary from place to place. Criteria for selecting assistants depend on the local situation, but the following criteria should be considered:

- i. From the same linguistic group as the population under study and familiar with the local culture, particularly the local food culture.
- ii. At least a high school education and ideally some college education.
- iii. Individuals who are open and personable, nonjudgmental, and sensitive. A key to ethnographic research is that the interviewer demonstrates empathy and displays an interest in the subject matter and the needs of the community.
- iv. Individuals who are nonthreatening to the respondents. Therefore, it is important to avoid choosing assistants who are in a position of leadership or authority in the community.
- v. Previous experience in interviewing.
- vi. Have a background in healthcare and/or nutrition and previous word processing/computer experience (this is not essential).
- vii. Since the respondents to the structured interviews are primarily women, it may be important to choose female assistants, depending upon the cultural context.

Some examples for selecting field research assistants are given in Appendix 9.

The success of the research relies on good interviewing. Therefore, it is critical to identify individuals who are skilled in interviewing or who demonstrate some of the qualities listed above, that would allow them to develop good interviewing techniques. The types of interviews that the assistants will be conducting are as follows:

- Qualitative, open-ended interviews with key-informants.
- Open-ended and structured interviews with mother-respondents to carry out procedures eliciting food categories and attributes.

- Open-ended and structured interviews with mother-respondents to collect information on acquisition of vitamin A–rich foods and household consumption patterns.
- Open-ended and structured interviews to gather information on perceptions about the stages of xerophthalmia and treatment sought.
- Open-ended and structured interviews to gather information from market vendors on availability and prices of food.

Since the time allotted for the study is limited, formal training of the field assistants will have to be brief. Much of the training will take place on the job in the community, while the team leader is actually conducting interviews. The assistants should accompany the investigator on key-informant interviews and observe and take notes while the interviews are being administered. After the interviews, the field team leader should review the notes of the field assistants and give individual feedback. During these sessions, information can be taken from the field assistants about their observations during the interview. Team meetings can take place with the field assistants related to field observations and interviewing techniques. The team leader should highlight segments of the interview where probing techniques were used effectively. At the same time, information from interviews can be interpreted and consolidated.

Once the assistants have participated in several key-informant interviews, they can carry out practice interviews. The team leader should accompany each assistant on interviews with local community members. Following the interview, the investigator and the assistant compare notes and discuss the information that was gathered.

The success of the research depends on the relationship established among the project team members. It is vital that the assistants have a full understanding of the goals of the project and essential that they receive the necessary support to conduct the research. Team meetings should be held three to four times weekly to discuss problems, address questions, and give feedback to the field assistants. During these meetings, data can be reviewed and emerging patterns in the data considered.

Good probing techniques assure the success of open-ended interviewing. Although it is difficult to determine in advance how much effective probing the

assistants will be able to carry out during the interviews, the team leader/manager can assess how successfully these techniques are employed by reviewing field notes and conducting discussions with the assistants. Abilities will vary depending upon the assistants' skills and previous experience. In some cases, it may be prudent to have an assistant focus only on structured interviews, until further training on open-ended interviewing is provided.

2. Translation

In most cases, it will be necessary to use a translator, adding another element that requires special attention, to the fieldwork. Since the research is concerned with the local food culture and the meanings the local population attaches to food, it is critical to get accurate and literal translations.

The translator must be experienced in providing *literal* rather than *interpretative* translations, a mode of translation that is often difficult to capture. A common problem is that mistranslations occur because the translator is trying to be helpful. The translator must understand that the purpose of the research is to understand the concepts that the community associates with select foods and the treatment of these foods within the local culture. The researcher must emphasize to the translator that translations that are too interpretive can damage the research and therefore, should be avoided at all costs.

Appendix 6 gives some notes on translation from local to national languages.

It is important to select a translator who is *fluent* in both the local dialect and a language that the researcher speaks. If the translator is from the area, another consideration is to choose someone who is well-accepted by members of the community. The translator, by presence alone, should not influence the quality of the interview.

Phrases and terms about the signs and symptoms of vitamin A deficiency should be preserved in the native language in the researchers' notes, with a translation.

Even if the translator is experienced, it is important to train him or her. Examples should be used to emphasize the importance of conducting literal translations. Gather a series of examples that underscore the difference between literal and interpretive translations, illustrating the way that interpretation can alter the meaning of the translation, thus misrepresenting the local perspective and affecting the research. Conduct practice sessions during which you review these

examples with your translator. Go through the examples asking the translator to identify the differences in the two translations. Through these examples discuss with the translator reasons that it is important to conduct literal translations.

The researchers must emphasize that if the translator is unsure of what the respondent is saying, he or she must probe further to get an accurate understanding. The translator needs to comprehend that the researcher's primary concern is to get authentic information. It may be necessary for the translator to take notes during the interview, particularly if there is terminology that he or she is unfamiliar with, or if long answers are being given.

In order to gather exact terminology and phrases associated with vitamin A-rich and other food items, as well as vitamin A deficiency, the translator should be encouraged to ask questions more than once. As mentioned above, stress that your primary concern is to collect information that is representative of the community.

B. Administrative Preparation

1. Networks and Interactions

In the initial phases of the research, it will be necessary to spend some time in reconnaissance with relevant government offices in health and agriculture at the regional and local levels. This will inform the necessary officials of the work, and also permit the location of existing data in published and unpublished reports to complete the background needed on the historical, ecological, and cultural setting of community food use at the selected site. (See section II-B and Appendix 2). Individuals in these regional and local offices can assist with locating potential research assistants who have good rapport in the community. They can also help to locate the closest professional experts to assist

with food identifications and composition needed for the Community Food System Data Tables.

Interaction with these offices will also help to identify acceptable specific locations for the research to meet requirements for transportation, safety, telecommunications, etc.

The appropriate permissions and consent for the assessment procedures need to be obtained from the relevant officials. Appendix 3 discusses some reminders about these and other issues of data-gathering within communities.

2. Facilities, Equipment, and Supplies

The field team will need a place to meet for training exercises, discussions, and review of the research data on a daily basis. This can simply be a room with desks or tables and chairs, electrical power and lighting, and a comfortable, ambient environment. Often the team may want to meet in the evenings after returning from the field. Telephone communications are helpful among team members or to reach others associated with the project.

The equipment and supplies needed are:

- i. Notebooks, file cards, a game board for the rating exercise, pens and pencils.
- ii. Transportation as required.
- iii. Hand calculator to calculate percentages and proportions.
- iv. Portable computer if available.*

* Although data collection has been set up so that a computer is not necessary, a computer would facilitate data recording and management of data. See Appendix 12 for information on helpful computer hardware, software, and skills using microcomputers.

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IV

How To

A. Select Key-Informants and Conduct Key-Informant Interviews

Selecting Key-Informants

The team leader/manager should work with six to eight key-informants. The most appropriate key-informants for addressing issues related to consumption of vitamin A-rich foods and beliefs about vitamin A deficiency are:

- Mothers of preschool-aged children, or mothers who have raised a number of children within the community.
- Other primary caretakers, such as grandmothers or older siblings who play a key role in the care of the children under six years of age and living in households in the community.
- Fathers of preschool-aged children in the community.
- The local *outsider* health professional, agricultural extension worker, or vendor, who is knowledgeable about the topics under review.
- Traditional health practitioners.

Depending upon the ethnic variation within the community, it may be important to choose key-informants from different ethnic backgrounds.

A way to identify appropriate key-informants is to ask either local community leaders or government officials with whom you meet during your initial introduction to the community, about people living in the area who may be good sources of information. For example, you may ask, "Do you know of any mothers who are active in the community and who would be willing to talk to me at length about food beliefs and household consumption?" If there is a local health clinic, you may find that the health personnel can help you select mothers who are active within the community and would be available to participate in the research.

Once you have chosen two or three key-informants who are mothers in the community, they can assist in the selection of other community members who fit the criteria listed above and who have appropriate characteristics for interviewing. When individuals are identified, you will need to test their willingness to talk and their ability to respond to questions concerning the topic. You may begin by asking them very broad questions about food within the community. For example, you may say, "How would you describe the standard diet in the area?" Short, terse answers, such as "We only eat millet," and an unwillingness to elaborate when prodded, may indicate a resistance to discuss subjects with strangers to any great length.

It is important to work with key-informants who are nonjudgmental and sensitive to differences within the community. In other words, you need to identify individuals who are highly aware of what goes on in the community and interact with a range of community members from different backgrounds. When choosing key-informants, keep in mind that these individuals are representing the perspective of the general community on food use.

Procedures for Key-Informant Interviewing: Principles of Open-Ended Interviews

Key-informant interviews will be conducted throughout the duration of the research design and data will be collected in the form of written field notes. The interviewer should record as much as possible during the key-informant interviews, in the informant's exact or near-exact words. Words, phrases and whole sentences should be written down as they were stated.

Note taking is an important element in the interview process. Remember that you are looking for vocabulary and local terms that may allow you to capture important insights into the local culture and belief system. When such terms are mentioned, insure that you have an accurate understanding by probing for specific examples or illustrations. You may say, "What do you

mean by _____?” or “Could you give me an example of where _____ is found in this community?”

Often interviewers find that taking good notes requires time, leading to brief pauses while the interview is being conducted. While the notes are being recorded, the interviewer may feel that these short interruptions cause some discomfort for both the interviewer and the key-informant. If this occurs, explain once again to the informant that what they have said is important and in order to capture the information you need to write it down in its entirety. It is also important to remember that as the interviewers and the key-informants become more familiar with one another, these short periods of silence will become less noticeable. Furthermore, with time the interviewer will become more adept at notetaking. Always keep in mind that when trying to capture the local belief system and gathering data on health and nutrition concepts (see *emic* in Glossary, Appendix 13) that it is critical to get information in the words of the key-informants.

During the interview you may also find the body language or the hand motions of the key-informant to be significant. If this is the case, record observations that you have identified as important.

You may find that the information you gather from the key-informants may vary according to the location and the timing of the interview. For instance, when talking about food, it may be useful to carry out interviews with the key-informants in settings where the foods are purchased or gathered, such as in the market or during a visit to the local garden. Another possibility is visiting other women in their compounds with the key-informant. Conducting the interview while the informant is preparing a meal may also enable the interviewer to elicit different and pertinent information. As you become more familiar with your informants and the activities in which they are involved, explore the possibility of conducting the interview in different settings that may enhance the interview or allow you to expand upon the information gathered.

Key-informants should also be consulted for the testing of protocols used with the mother-respondents noted in section II-C-6. Discussing the procedures and conducting exercises with the informants will help the researcher determine what revisions and modifications need to be made so that the research instrument is appropriate for the community under study. You may want to choose two or three of your best informants to test the research procedures. Once you have administered the exercises ask for advice on how to

modify the procedures so that they are appropriate for the local audience. Get suggestions about specific terms or phrases and whether there are ways to make the questions more clear.

B. Conduct a Free List of Foods

1. *Creating the List*

- i. To collect an initial list of foods eaten in the area, begin by administering the task with Type I informants. Start by asking the informants to name all of the foods they consume, and use Form 1.1 to record responses for each individual interview.

You may want to begin by saying, “People in this area eat quite a lot of different foods. Can you list for me the different kinds of foods that are eaten?”

- ii. Once you have collected a list of foods, you should find out what foods are eaten during other times of the year. Most likely, the staple foods will not vary, but the list of vitamin A-rich foods can differ significantly depending upon the time of year.

You may begin by saying, “Now that it is (current season), there seems to be quite a lot of (common seasonal food) available. Are there any foods (or other foods) that are not available now that people eat in (season)?”

If you find that the informant does not respond with precision, you may want to use more concrete situations.

For example, you may say, “Pretend that it is (name a season or time of year). Can you tell me what foods are eaten during this time of year? How does the produce differ from the foods you have just described to me? Are there any foods in particular that are abundant during that season which you cannot find in the area now?”

- iii. When the informant stops, you can continue probing for further information. Use the data you have gathered during the initial interviews with Type I informants as background information for probing to identify additional foods with Type II informants. The types of questions to ask may include the following:

- a. “Many of the foods on the list seem to be foods people eat every day. Are there some foods that people eat less often?”
- b. “In some places people like to eat food from the forest or food that grows wild. Are there any foods like that around here? Are there any foods that

people don't like to eat, but you could eat them if you were very hungry, or when food is scarce?"

Once you have recorded the response, you may continue by saying, "Once again, try to think of food grown in the wild which is available at different times of the year."

- c. "Are there any plants that people use when they are sick? That they use for making teas or special dishes to help them get well?"
- d. "What about food for babies and small children? Have you already given me the names of all the foods that are eaten primarily by them? How do they differ according to the season or time of year?"

⇒ *Keep in mind as you are going through this procedure that some items that are an important part of the diet may not be recognized as food in the area. For example, when conducting this procedure in West Africa, people neglected to mention those foods that are used to make a sauce. Since the researcher knew that certain food items included in the sauce are rich in vitamin A (such as green leafy vegetables) and other foods such as oil are critical to the absorption of vitamin A, she used probing techniques to get the additional information.*

This initial list will not give you an exhaustive inventory, but will allow you to create a working inventory of food names and categories. It may also illustrate the importance of the various food items and give you some ideas about the frequency with which they are consumed.

- iv. Use the list of foods developed during the first interviews to establish a more comprehensive list. Keep a running list of foods that are added, after each interview. At the same time, keep a list of attributes (adjectives) mentioned when your Type II or key-informants are describing these foods. Be aware of the order in which the foods are listed and look for patterns. Keep in mind that the items that are mentioned first and by more informants are likely to be important in some respects. At the same time, remember that the order may also reflect the time of year during which the interview was conducted. With the use of probing techniques, you should be able to ascertain which foods, par-

ticularly vitamin A-rich foods, are important at other times of the year.

⇒ *For example, you may conduct the interview at a time when mangoes are not available. But, once you have administered the interview and have probed for seasonal variation, you may discover that mangoes are plentiful during three months of the year and are then eaten on a daily basis by preschool-aged children. The daily consumption of a rich vitamin A source such as mangoes could not only ensure a healthy vitamin A status for children during these months but could allow for adequate vitamin A storage to sustain children for later months. Certainly, in this case, mangoes should be included on the list of key foods.*

2. Expanding the List through Observation

In addition to obtaining the food lists through verbal exchange, observe the food with key-informants. For example, it may be possible to suggest to a particularly friendly and relaxed informant that he or she go with you to the market so they can show you some of the foods firsthand. A walk through home gardens is also a useful way to obtain some food terms and provides an opportunity to observe the types of food grown in home gardens. A visit to the surrounding bush area with children who forage for wild food may give useful information. During these tours, it would be advisable to once again probe for food found in the market and gardens at other times of the year. With some Type II informants it may also be possible to observe household food stores, which can lead to further useful discussion about food availability.

Depending on what part of the world you are in, it may be important to spend some time with your key-informants at home observing food purchasing and food-related activities at the household level. Home visits will allow you to observe household practices that may guide your research, including food preparation and preservation, consumption patterns, and sanitation practices. Additionally, certain food may not be sold in the market or in local stores but may be sold by vendors traveling from household to household. Conducting household observations will also give you an opportunity to observe firsthand those wild foods that are collected and consumed by members of the household, but may not necessarily be marketed in the area.

During the interview, write the names of the food items as people list them and note all comments about food. You can record the list of food directly on Form 1.1 or transfer the data to the form after the exercise is conducted. Also, record other information you think may be important. It is critical that the interview be written up in detail, either by hand or on the computer, as soon as possible following the interview. Write out phrases and terms precisely as they were articulated and avoid making interpretations.

3. *Analyzing the Free List Data*

- i. If you did not use the form during the interview, transfer the terms to the data collection Form 1.1 with the name of the informant(s) who was(were) interviewed.

It is important that the free list be carefully and accurately recorded. It is often an advantage to tape record the interview so that you can check pronunciation of terms with which you may not be familiar. However, the use of a tape recorder can also be difficult, particularly in a first interview with a local community member, so you will need to use judgment about when and whom to tape.

By the time you have completed this exercise you will probably have an extensive list of foods. This list will be used as part of the criteria in choosing the key list of vitamin A-rich and staple foods. You will not want to restrict or reduce the list of foods until you have completed a round of free listing exercises with all Type I and Type II informants.

- ii. Form 1.2 is used to tabulate the number of times each food was mentioned. Go through Form 1.1, beginning with the first food mentioned on the list. For each food item, count the number of informants who mentioned the food. Write the name of the food item in the left hand column on Form 1.2 and the total number of times it was listed in the right hand column. Be sure to include the number of informants interviewed at the top of the page.
- iii. Using Form 1.3, arrange the food items in order, beginning with the items mentioned most frequently. Remember that the research team members will make use of this list when making final decisions regarding the selection of the twenty-five to thirty key foods. On the right side of the form, record attributes or special qualities mentioned.

- iv. All items mentioned in the free list should also be entered in the Community Food System Data Tables on separate Food Data Sheets.

In addition to the food items that you have assembled on this list, you will be able to use other information from these interviews to develop some initial hypotheses about local beliefs and practices concerning staple and vitamin A-rich food. For example, while conducting the free list Type II informants may offer information regarding qualities they associate with particular food items. As mentioned previously, the order in which the food is listed may be of importance to the research. You should also take note of those food items that are widely consumed and which constitute a significant component of the population's diet, but which took much probing to elicit.

➤ *In order to get a different perspective, conduct the exercise with primary school-aged children. Children in primary school may bring a different dimension to the food list.*

C. *Select Key Foods*

In the following modules you will use a list of twenty-five to thirty food items. Selection of these local key foods must take place before beginning the structured interviews. The determination of the key food list is based on information gathered from your key-informants, including the free list of food plus the data collected for the Community Food Systems Data Tables. Observations made by the research team made during Phase I are also likely to be useful.

The list of key foods is chosen using the following criteria, with the first four items on the list being of particular importance:

- i. Include fifteen to twenty vitamin A-rich foods (if there are that many available in the area). For clarification see Appendix 8 on vitamin A-rich food. The list should especially include those that are eaten by a large part of the population, that are available at affordable prices, and for which vitamin A is known to be available to the body.

Team members should read through the Community Food Systems Data Tables, using the information as a guide in choosing these foods. In particular, you should examine the vitamin A content of the foods, the availability including seasonal variation and cost,

FORM 1.1

Free List Record Form for Food Names by *Individual* Key-Informant

Name: _____ Age: _____ Profession: _____

| Food Item | Comments |
|-----------|----------|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |
| 10. | |
| 11. | |
| 12. | |
| 13. | |
| 14. | |
| 15. | |
| 16. | |
| 17. | |
| 18. | |
| 19. | |
| 20. | |
| 21. | |
| 22. | |
| 23. | |
| 24. | |
| 25. | |
| 26. | |
| 27. | |
| 28. | |
| 29. | |
| 30. | |

FORM 1.2

Food List by Number of Key-Informants Who Mentioned the Foods

Number of people interviewed: _____

| Food Item | Number of Key-Informants Who Mentioned the Food |
|-----------|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |
| 10. | |
| 11. | |
| 12. | |
| 13. | |
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| 18. | |
| 19. | |
| 20. | |
| 21. | |
| 22. | |
| 23. | |
| 24. | |
| 25. | |
| 26. | |
| 27. | |
| 28. | |
| 29. | |
| 30. | |

FORM 1.3

Food List from Most to Least Often Mentioned by Key-Informants

| Food Item | Attributes or Qualities Mentioned |
|-----------|-----------------------------------|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |
| 10. | |
| 11. | |
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| 27. | |
| 28. | |
| 29. | |
| 30. | |

and the extent to which the foods are used by the local population.

- ii. Also include seven to ten staple foods that constitute part of the daily diet (see the *Glossary* for definition of staple foods). Staple foods are included to understand how vitamin A-rich foods fit into the local food structure or food culture.

Examine the distribution of responses to the free list exercise. Items that are mentioned most often are probably very common and should be part of the key food list. The Community Food Systems Data Tables should, once again, be used as a reference when selecting the seven to ten staple foods.

- iii. Food eaten by the majority of the population should constitute about 80% of the food list. This will depend upon price, availability, and seasonality of the food, as well as local acceptance.
- iv. Those items most frequently mentioned in the free list exercise are probably important to the local food culture and should be taken into consideration when establishing the list of key foods. Items that are only mentioned once or twice may not be widely available. However, they may be important for you to study if they contain significant amounts of vitamin A.
- v. Try to include at least two vitamin A-rich foods that are not regularly eaten, but were formerly eaten by the population or are possible important sources of vitamin A. These may include foods that have been phased out over time or foods that have been recently introduced to the community. Information on local foods that were formerly important to the community should be gathered from village elders. The research team should consult with key-informants when identifying sources of vitamin A that are relatively new to the community.
- vi. Depending upon the situation in the area, it may also be important to include one or two fruits or vegetables that have been recently introduced to the area and are widely consumed, but low in vitamin A. For example, during the garden season cabbage and lettuce are extremely popular new foods in West Africa. It may be important to study how people view these and compare them to foods that are grown at the same time of year but which are rich in vitamin A, such as red sorrel or amaranth.

Consult the Community Food Systems Data Tables for detailed information on the items identified through the free list and make decisions based on the criteria outlined in this section. When selecting food items identified during the free list, consider how each food fits into the community food culture.

- vii. Consider local food group categories. Examples of local food groups might include fruits, vegetables/greens, meats, carbohydrates, and dairy products. When determining the key list you should select foods that represent the food groups consumed in the area. If a category is totally missing, you may want to add a food item from that category.

See Appendix 7 for an example from Peru on selecting the key thirty food items.

D. Identify Food Plant and Animal Species

There is usually little problem in identifying well-known foods by the names used in food composition tables, but indigenous crops and wild species probably cannot be identified without collecting specimens and/or enlisting the assistance of a botanist or zoologist for their scientific identifications.

Plant and animal foods are generally referred to by two Latin names, e.g., *Daucus carota*. This specific pair forms the scientific name for the carrot, *Daucus* being the genus and *carota* being the species. Food composition tables may list foods by English or other names. Scientific names, properly applied, avoid confusion and the need to translate among different languages.

Interviews with key-informants will ideally give you a complete list of food items used in the area. Each food will be entered on a Food Data Sheet for the Community Food System Data Tables. Existing data and your interview data are then used to complete the table as much as possible. Very often, scientific identifications are required and assistance will be needed, as noted above.

1. Plant Identifications

To facilitate the identification of plant foods, specifically, the following steps are recommended:

- i. *Careful recording of plant names in the common local language and any other languages known by the interviewee.* Be sure to ask for the name of the plant, not just the part eaten, as they may be different. Many local cultural names can be found in ethnobotanical reports and it is useful to familiarize your-

self with any ethnobotanical literature available for the study area. Many regions were the focus of botanical studies from the late 1800s to the early 1900s. The descriptive results of these studies are often located in botanical journals or local museums. It is of value to ask individuals of both genders and all ages about the plant names and their location as the identification, collection and preparation of plants can be a collective effort within the family and/or community.

- ii. *Contact a botanist familiar with the local flora as early in the study as possible.* In most countries such specialists are on staff of museums, herbaria, or departments of botany or pharmacology in the universities. It may be possible for the botanist or botany students to accompany you to the field at the appropriate time, especially if travel funds are available, although you should be prepared to bring samples to him or her. Botanists at major international institutions are also familiar with flora from many different regions, although the arrangements for working with them may be more complicated.
- iii. *Collect herbarium specimens for identification by the specialist.* Botanists are accustomed to working with dried, pressed specimens, although the quality of the specimens you bring them will greatly determine success. A botanist can advise you on proper collection and specimen preparation techniques. For collecting plants in the field, a supply of large plastic bags will come in handy. To make herbarium specimens the plants, or parts cut from larger plants, are spread out between folded newspapers and pressed in a plant press, minimally two wooden frames (30 x 45 cm) bound by straps or rope. Corrugated cardboard or metal may be placed between specimens to increase aeration during the drying process. Plants can be dried in the sun, particularly if they are few in number and the ambient humidity is low, or placed over an external heat source, such as a portable stove. Specimens should be representative of the plant and ideally include distinguishing features such as flowers and fruits. In the absence of flowers and fruits, the best substitute is a detailed description by the interviewees. Collect specimens that fill the 30 x 45 cm sheet or enough of smaller plants to fill the sheet. Careful notetaking can make the botanist's job easier. The form of the plant, whether it is a herb, a shrub, or a tree, and its size should be noted, along with other distinctive

features such as flower color (color may fade as the plants are dried). The date and the place the specimen was collected along with the details on the habitat in which it was growing should be recorded. Good quality photographs may assist the botanist but they are not a substitute for good specimens. However, photographs or drawings are valuable additions to the food systems data tables and may help in your interviewing within the community.

2. Animal Identifications

It is more difficult to collect unknown animal species for identification, but it is less likely that animal food will be unidentified. Possible exceptions are insects, fish, and small birds. Begin with the local names and photographs of the intact animal before it is prepared for eating. Some animals will have variations in color according to the season and/or gender. Additional descriptions may be obtained from the interviewee. Put a small ruler next to the animal in the photograph to characterize size of the species. Check these with local experts and zoologists (same location as botanists) for formal identification.

E. Determine Nutrient Content of Food

If the food item of interest appears in the food composition tables, determination of their potential as vitamin A sources is straightforward. However, for many indigenous and wild species, data may not be available in this form. In many cases, the species have not been studied for vitamin A content, although data may be available in scientific papers that can be located through a careful literature review. Leafy, green vegetables and fruits, flowers, juices, vegetables, and tubers that are red or yellow in color, and animal organs and fats, and some milk products have the greatest potential as sources of provitamin A and vitamin A and should be considered the most carefully. Laboratory analyses are beyond the scope of a rapid survey such as this, although foods with high potential that have not been examined for vitamin A content should be ultimately studied. If the opportunities are available for collaborating with food analysts, you are encouraged to explore with them the proper manner to collect specimens for analysis.

If you are compiling vitamin A contents of food for your data tables, it may be valuable to consult with the national food analytical laboratories for advice on the accuracy of the data from your references. Analytical methods are quite variable in their accuracy and caution is advised.

Appendix 8 gives some guidance on general levels of vitamin A in food.

F. Select the Sample of Mother-Respondents

Approximately twenty-five to thirty households should be selected for the structured interviews. The interviews will be carried out with mothers or other primary caretakers, of children ages six months to six years. Ideally, a random sample would be taken from the community to insure representativeness. However, random sampling is often not feasible unless a full (recently updated) list of all households is available. If such a list of all the households is not available, you can develop a method such as selecting every third or fourth house, (depending on the size of the community) in order to get a representative sample. See Appendix 10 for further discussion of the sample selection strategy.

Avoid including minority ethnic groups that comprise a very small percentage of the local population. On the other hand, if the community is composed of ethnic groups that constitute significant numbers, it will be essential to select sub-samples of these groups to be interviewed. If this is the case, it is important to include a large enough sample of respondents representing a particular ethnic group for the analysis to be meaningful. For example, if 25% of the population constitute a minority ethnic group and the rest of the community comes from the same ethnic group, you should select 50% of the respondents from the minority group and 50% from the rest of the local population.

In communities where the nuclear family is the dominant pattern, the principle caretaker of infants and children is generally the mother. In many areas, however, the grandmother or older siblings may play a key role in the care of children. Depending upon the situation, it may be necessary to conduct the structured interviews with other caretakers as well as the mother. If you determine that it is appropriate to interview more than one caretaker in a household, be sure to record the responses on separate data collection forms. However, if more than one interview is conducted in one household, for sampling purposes, they are counted as one household.

In selecting households (mothers) for the sample remember the following criteria:

- i. There must be at least one child six months to six years old living in the household.
- ii. The woman you interview should be a permanent member of the community, not a visitor, and preferably have resided there for several years.
- iii. Each respondent (mother or other caretaker) should be available for a *series* of interviews over the next five to six weeks (anticipate approximately one hour per visit). When you first meet with the mother-respondent, ask whether she will be available and willing to participate in the study.
- iv. Mother-respondents should represent ethnic groups living in the community, as noted above.

For further suggestions, see the sample section in Appendix 1 which illustrates how the research team in Peru selected the study sample.

G. Manage the Data

Preparation of the report from this research is greatly enhanced by the use of the data-collection forms and data tabulation sheets with the modules. The research team will need to establish systems to manage the forms which can quickly accumulate and become unruly. It is important that the research assistants include the respondent numbers on all individual forms and that the completed forms be filed in an orderly and simple fashion. The forms can either be separated according to respondent or procedure. This depends on what your particular research team finds most logical and convenient.

Many of the forms need to have the list of the twenty-five to thirty key foods written on the form prior to the interviews. Remember that the food items retain the same order on the food list and do not change. If a photocopy machine is available a tremendous amount of time is saved by making master forms that can be copied for the sessions with the respondents.

It is also useful to keep a table or log with a list of all of the respondents, with important background information and notes showing which procedures have been carried out with each individual. This table or log is updated on an ongoing basis and can be kept in a notebook and/or presented on a blackboard or flip-chart.

It is recommended that every evening after interviewing sessions the team meets to review what was accomplished during the day and to discuss the following day's events. At this time the research manager ensures that the forms have been properly filed and that new forms are prepared for the next day's activities.

Other Considerations

Remember that your goal is to capture emic language and information. Therefore, to preserve the integrity of the data you will want to conduct the exercises and record the responses in the local language. Translations and interpretations will need to be made later when the data is analyzed and for the writing of the final report.

You will find that the exercises are more effectively carried out with two people, one conducting the interview and the second recording the responses. Before beginning interviews with mother-respondents decide who will record the responses. This should depend upon the skills of the field assistants and determined in practice sessions. Determine which modules require two interviewers and which can be carried out by one interviewer.

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Appendices

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Appendix 1

Examples of Research Site Selection

Selection of an appropriate research community is a crucial first step in the process of using this manual. The basic aim is to identify a location that is: a) a population with significant vitamin A deficiencies, and b) a community that is typical of a wide area of similar communities. Government planners who sponsor the assessment and the expected intervention program will want information that can be generalized quite widely to other communities.

For example, the pilot study in India was located in a semi-arid region in the state of Andhra Pradesh. Although Andhra Pradesh is sometimes referred to as the *Rice Bowl of India* because of its fertile regions, there is a large semi-arid region in the state, in which agriculture is not as productive and where problems of vitamin A deficiencies are generally more prevalent. Dr. Pushpamma and her associates reported that “In a recent study assessing the prevalence of vitamin A deficiency...[in the study area] it was found that villages...had a prevalence of around 4.5% Bitot’s spots in preschool children...But during a recent survey (1993) the prevalence of Bitot’s spots in preschool children in Sheriguda [the research community] was found to be 4.2%.” Describing the ecological situation of the region, they said that “many villages in the Ranga Reddy District in Andhra Pradesh...[including the research site]...are dry lands and grow mostly staples such as sorghum (*jowar*) and pearl millet (*bajra*) which do not require as much water as rice.” They also note that “Sheriguda is one of the typical villages of Ranga Reddy district, where all religion and caste groups are represented in the community.”

The village of Sheriguda thus met both of the criteria above: having signs of vitamin A deficiency and being typical of a wide range of villages in the semi-arid ecological zone. They also noted that the village is

almost 100% Hindu and the caste composition of the village is broadly similar to the usual patterns in that part of India. “Looking at the caste distribution of the village, it was found that about 40% of the families belonged to the...[upper castes], 30% belonged to...[lower castes]...which includes...blacksmiths, carpenters, goldsmiths, shepherds...” The rest of the population consists of Harijan households and a few tribal families. The occupational structure of the village also corresponds to the typical village pattern of the dry region.

The village of Sheriguda also fits well with the other selection criteria: the area has a considerable range of vitamin A-rich foods, whose consumption could be increased; the locality is served by the governmental health structure; and it is accessible by road—about one hour’s drive from the researchers’ headquarters in Hyderabad (at the National Institute of Nutrition).

If a comprehensive intervention program is planned in an area with important cultural or ecological variations, it may be desirable to conduct data-gathering in two different communities. In testing this manual in northern Peru, the researchers felt that it would be very useful to get information from a rural highland village and also a low-income suburb of the city of Cajamarca. The latter community represents a rapidly growing type of population, in which people are partially cut off from traditional rural, low-cost food sources.

Setting up research in two different communities required additional assistants, but the Team leader was able to serve both sites, as they were only about two hours walking distance from each other. Training of the two research groups, supervision of operations, maintenance of the secretarial support were easily coordinated as all the team members were residents in Cajamarca.

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Appendix 2

Checklist of Important Background Information

The following is a list of information that will help to understand the people of the study community, their food system, and their vitamin A situation. It may not be possible to get all of this information from existing documents. In the background paper from the Philippines, interviews with village leaders and elders helped to complete the picture.

1. The national vitamin A situation
2. Geography of the area
3. Brief history of the people in the study
4. Current situation of these people
 - a. Village structure in context of the region
 - b. Transportation; communications
 - c. Census/information for the area
 - d. Family structure and way of life; recreation
 - e. Material culture; housing, clothing, etc.
 - f. Persistence of tradition
 - g. Agriculture/livelihood/income
 - h. Gathering and hunting
 - i. Customs and healthcare
 - j. Education
 - k. Water, sanitation, hygiene
 - l. Political/administrative structure
 - m. NGO's aid programs in the area
5. Food availability
 - a. Major crops
 - b. Livestock
 - c. Market areas
 - d. Storage facilities in village
6. Healthcare
 - a. In the community
 - b. Closest doctors, hospitals
 - c. Immunizations, local campaigns
 - d. Vitamin A distribution

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Appendix 2A

Example of Background Information from the Aetas of Canawan, Morong District, Philippines

The Vitamin A Problem in the Philippines

Vitamin A deficiency is the leading cause of blindness and eye disorders among children in the Philippines, with about seventeen of them losing their eyesight daily from the problem. Nutritional surveys in the early 1980s conducted by the Nutrition Center of the Philippines show that 3.9% of 33,778 Metro-Manila children zero to six years of age and 4.4% of 9,103 from the provinces were deficient in the vitamin. Although there are no recent data available, increasing proportions of these children have become malnourished (using such parameters as weight and height) as the economic recession of the mid-1980s still persists today. The distribution of the children who are deficient is not known, though certain communities (i.e., remote rural *barangays* or villages, urban slums) and population groups (children from large families, with poorly educated mothers, from unlanded farm or small/hired fishing households) are considered at higher risk than others.

The current management strategy of the Department of Health is to provide 200,000 IU of vitamin A in a gel capsule every six months. This is given to children identified as suffering from deficiency or at high risk of developing the deficiency (such as those who are mildly, moderately, or severely malnourished; those with chronic diarrhea or recent measles). However, the policy is curative in approach, seeking to correct the deficiency when it already exists. More recently, a *Sangkap Pinoy* (literally, "Filipino ingredient") campaign was launched that would administer the high-dose vitamin A capsule to all children, with or without deficiency. As in other interventions of this nature, problems of supply and distribution affect its effective implementation. Moreover, administration of large doses must be adequately supervised because of the danger of toxicity.

Aside from the visual impairment, vitamin A deficiency also places the child at greater risk for infectious diseases, such as diarrhea and pneumonia and their complications. These infectious conditions are

among the top ten leading causes of morbidity and mortality in the Philippines.

The Geography of Morong, Bataan

Morong is a municipality in the province of Bataan, about 150 km northwest of Manila. It lies at the foot of the tail end of the Zambales mountain range that extends from the north of the province of Zambales down the western side of the island of Luzon to end in Bataan. Morong has a population of about 19,000, living in five *barangays* or villages. It is bound on the north by the Subic Naval Base forest (which until 1992 was American territory), on the west by the Subic Bay (which opens into the South China Sea), on the south by the municipality of Bagac, and on the east by Mt. Natib (a dormant volcano). Morong's *barangays* are laid out in such a way that a portion of each lies along the coast and flat land, with larger areas at the foothills or mountain slopes. This is typical of many coastal towns in the country.

The study site is the *sitio* (a sub-unit of a *barangay*, usually delineated by a cluster of households) of Canawan, in the mountainous part of Barangay Binaritan. There is only one dirt road to Canawan, leading to a suspension bridge that can be crossed only on foot. After the bridge is an uphill climb to the cluster of houses that identifies the *sitio*. The whole area is about 165 hectares, designated by Presidential Proclamation #192 as the Canawan Negritos (the racial group to which the Aetas belong) Reservation Area.

A Brief History of the Aetas

Philippine history identifies the Negritos as the original inhabitants of the islands, thought to have crossed land bridges from central and south Asia before these were covered by water from the melting glaciers of the Ice Age. Subsequent waves of migrants of Malay origin came to the islands by boat and, largely by force, drove the Negritos towards the mountains. This was the situation when the Spaniards arrived in the 1500s

and conquered the islands. Hence, much of the earliest written historical and cultural accounts of the Negritos come from the Spanish friars who attempted to convert them to Christianity, with little success.

Present-day Negritos can be found in the mountains of the Philippine islands of Luzon, Palawan, Mindoro, Mindanao and Negros, Panay (among others) and are called by various tribe names (Aeta, Aeta or Ita, Batak, Sambal, Mamanua, etc.) These different groups have their own language and ethnic identity. What characterizes them all as Negrito is their appearance. The following is a description given by Fray Antonio de Mozo (1763), a Spanish friar, as quoted by R. Rahmann: "...their color is a brownish or pallid (*descolorido*) black, their hair like that of a mulatto; their lips are not thick; many of them are very corpulent and all have large abdomens and generally both men and women appear feeble...."

The original Negrito population is believed to be hunters and gatherers and to date, certain groups like the Agtas are thought to partially subsist on this way of life. But even as early as the Spanish times, the Negritos have been known to practice swidden or slash and burn (*gasak* or *kaingin* in Tagalog) agriculture. Among the Morong Aetas, crops are raised mainly for their cash value and the money used to purchase meat, tobacco, and other occasional needs. In the past, when game could still be found in the forests, there was no need to purchase meat. But at present, the most likely source of animal protein in the wild are small birds and freshwater fish or shrimp, hence the dependence on market-bought meat. Gathering is limited to obtaining honey (*pulut*) from hives of wild bees. This process known as *pukyut*, *namumukyutan*, or *namumuay* is generally done on dry, nonwindy days. The bees are driven away by smoking the hive and the whole hive is obtained and the honey collected and sold for about Phillipine Pesos 1000 (about US \$40) per gallon. Although foods from the wild are still part of their diet, the rapidly dwindling forest resources are forcing the Aetas to depend more and more on market foods.

The Aetas of Morong

History

It is believed that the Aetas were the first people to have lived in Morong before the coming of the Spaniards. Little is known of their history before the twentieth century except that the Aetas were known to have lived independently of each other and that they

settled over a vast expanse of land covering the hilly terrain of Morong. The different places they previously occupied are known today as the sitios of Dose, Binugsok, Canawan, (in Barangay Binaritan), Gantuan, Marucdoc, and Hulong Baryo, (in Barangay Nagabalayong) and the plains of Barangay Poblacion. Some of these places are difficult to reach and are known locally as *hulo*.

It was during the term of the late President Manuel Quezon during the 1930s that most of the Aetas living in Morong were gathered at the prodding of a *kabesa*, or local chieftain, Pablo Sulangi (also known as *mayor*). They resettled together as one community in the hills which they called San Isidro (now known as Ukod, near the sitio of Sibol) which was by the Morong River. They were able to live here until the Japanese occupation during World War II. They were forced to hide from the Japanese and suffered from hunger as they were not able to practice their slash and burn method of farming (*kaingin*) for fear of being found.

Accounts are sketchy as to whether they were really able to return to their land after the war. But at the time of the Hukbalahap rebellion, they were forced to go down to the town or *bayan* (Poblacion) in order to flee from the armed conflict in the highlands. This occurred during the time of President Magsaysay (in the early 1950s). Eventually, the Huks decreased in number and surrendered. As the rebellion ended, they were able to return to their land in San Isidro.

They finally chose Canawan, a nearby piece of land which is situated a few kilometers away from the site of the PRPC. Eventually, the government, through the issuance of Proclamation #192, allotted 165 hectares of land from the Bataan National Park Reservation for the creation of the Canawan Negritos Reservation Area. It ordered the exclusive use of the land for the benefit of the Negritos living within the area. The administration and management of the land was put under the Department of Environment and Natural Resources (DENR) and the Office of the Northern Cultural Communities (ONCC).

Geography of Canawan

Canawan (also Kanawan) is a sitio (a subunit of a barangay, or barrio) of the barangay of Binaritan in the municipality of Morong. Its total land area is 165 hectares. It is bounded by the municipalities of Hermosa, Orani, and Samal and the adjacent sitios of Nagbaytu, Nocil, Repacpac, and Tiaong which are all

found in the barangay of Binaritan. The predominant terrain is composed of hills of denuded forests. A nearby mountain, Mount Natib, is also a dormant volcano.

There is a single dirt road accessible to vehicles. It leads from Neighborhood Five of the PRPC to Sitio Nagbaytu where a newly renovated hanging bridge (suspension type, only for foot travellers) about thirty to forty meters in length, serves as the only link to Canawan from the lowlands. This crosses the Batalan River which is a tributary of the Morong River. Another path for travellers is accessible only by foot from Neighborhood Four of the PRPC to Nagbaytu. It takes about twenty to thirty minutes uphill from the bridge to reach Canawan proper where most of the families have built houses. Other houses, which are situated in the hulo or in places farther away from the center of the sitio, are built near the fields they cultivate. In order to get to the hulo, it takes another thirty minutes to about an hour of hiking through rolling hills.

There are no official census records of the actual number of people living in Canawan. However, it is of common knowledge that Canawan is almost exclusively inhabited by Aetas, except for some families of interracial marriages (i.e., of Aetas and the lowlander Tagalogs). There are also about five to six of pure Tagalog origin in contrast to a generally accepted estimate of thirty Aeta families with families of an interracial nature regarded as of Aeta origin.

The Aeta Way of Life

The Family and the Preservation of Culture

The life of the Aetas of Canawan specifically revolves around the structure of the extended family. Almost all members of the tribe are related in some way to each other, as they often share the same family (last) names (e.g., Malunik, Quintain, Cayetano, Alejo). This may be due most probably to intermarriages among the families of the tribe. It may be gathered from the small number of families (about thirty) living in Canawan, that support is obtained through family relations. This realization would be helpful in defining how the preservation of their culture is based on a concept of clan unity.

With regards to their material culture (i.e., agriculture, working tools, manner of dress, decorative ornaments), there seems to be a paucity of evidence for the persistence of tradition in their culture as the culture of the lowland Tagalogs has already pervaded the Aetas. The presence of the Tagalogs and the degree of inter-

action between them and the Aetas have occasionally influenced the latter's acceptance of change. This may be indicative of how the Aetas may selectively value certain aspects of their culture while regarding others as less important.

Agriculture

The means of livelihood of the Aetas is essentially agricultural with the use of the slash and burn practice (kaingin or gasak), that has been used for many generations, as their preferred method of farming. Produce are mainly root crops (mostly sweet potatoes, or *kamote*), bananas, and a variety of vegetables. Rice is not commonly planted and is usually bought to supplement their insufficient stores.

Most of their produce is sold through a cooperative, which is based in town. The Aetas like everyone else in the cooperative have an agreement to supply a certain kind of food item that is usually either a harvested vegetable or a fruit. Deliveries are then made to a designated market which is at the Phase I of the PRPC. Thus, their choice of what to plant is predetermined by an agreement with the traders in the cooperative and the market. Most of the foods they consume are bought at the same market with the money they earned from selling their farm produce.

Unfortunately, the DENR recently imposed a ban on *gasak* farming in order to preserve the remaining trees in the already denuded forests of Morong. Subsequently, the Aetas were forced to develop their lands for farming and are now also considering soil management and preservation.

Gathering and Hunting

Although most Aetas engage in farming, they seldom hunt for wild deer, pigs, monkeys, and lizards any longer. Gathering is likewise rare and is usually limited to honey (see above). The Aetas regard gathering of honey as one way to generate income, especially when farming is difficult during the dry season.

Customs and Healthcare

Regarding their concept of health and illness, their beliefs in spirits still persist. They still practice a ritual called *kagon*, a form of faith healing performed with dance and guitar music, so that spirits will depart from individuals afflicted with an ailment. Also, it is customary to see Aetas wearing a necklace of stringed pieces of sticks so that bad spirits like *lamang-lupa* are prevented from causing illnesses.

When an illness persists though, the Aetas seek medical consult either at the local clinic (in Canawan proper) built by the World Relief Corporation (WRC, an evangelical organization based in the USA, prepares children for eventual transfer to their permanent homes in America; they also have a separate volunteer program to give aid to the Aetas by holding free clinics in their area). This is staffed by a nurse only on Monday mornings. Other health facilities include the PRPC hospital and the rural health unit (RHU) in town. Medicines with generic names are made available by the WRC at the local clinic. A weighing and feeding program for the underweight and the malnourished is also being undertaken by the WRC. However, because of the lack of resources and appropriate health education, the Aetas' state of healthcare remains much to be desired.

Availability of Water, Sanitation and Hygiene

With the help of the WRC, the recent installation of a water system composed of steel pipes, rubber hoses, and faucets has facilitated the delivery of water from a nearby spring to Canawan proper. Though the people now enjoy running water which they use for bathing and laundry, it has apparently helped the Aetas in their hygiene practices only in a limited way. One may think that the ready availability of water at present has changed the manner in which the Aetas have minimally regarded cleanliness in their daily routine. Actually, they change their clothes only after a few days of wear. Children of the tribe are usually seen playing half naked and clad only in dirty shirts caked with mud. Their parents are similarly unmindful of the way the children play in the soil and afterwards eat with their bare, dirty hands. Furthermore, a common sight is that of children suffering from colds with a long, yellowish discharge admixed with dirt continuously dripping from their noses.

Sanitation, however, is not much of a problem, as the Aetas have a minimal amount of things to dispose of. Their only material possessions are a few changes of clothing, cookware, utensils, plates, and homemade furniture, such as benches and tables.

Similarly, the Aetas have no toilet facilities in Canawan as the practice of defecating in nearby fields and burying stools in the soil is common. Remarkably, there have been no reported major outbreaks of diarrheal diseases among them, and as one Tagalog put it: "Sanay na ang mga iyan sa marumi!" (*They are used to being dirty!*), implying that personal hygiene is less significant for the Aetas, than it is for the Tagalogs.

Political and Administrative Structure

The *kapitan* previously known as the *kabesa* is regarded as the tribal chieftain. Usually, the tribesmen consider the oldest among them as their leader. The tribesman believed to be the oldest is Aquino Malunik, who was once the leader of the tribe. He was the former *kapitan* when the Aetas transferred from Limon to Canawan. After his term of office, succeeding leaders have consulted him for a number of reasons, political and otherwise. (His accounts of the Aetas' history and culture have been made one of the sources of this monograph).

The Health Status of the Aetas in Canawan

Food availability is of prime importance. The lack of livelihood alternatives and the reluctance to adopt new farming technology seem to be the general hindrances not only to their economic upliftment, but, more crucially, to their survival. The Aetas, particularly their children, face the perennial problem of malnutrition. The scarcity of readily and locally available sources of protein, as evidenced by the absence of livestock, may be due to their reliance on planting as the primary means of livelihood. Almost all of those interviewed say that the Aetas plant cash crops such as sweet potatoes, and a variety of vegetables. But among them none are known to have livestock, except for those who raise a few chickens. As previously mentioned, they seldom hunt for animals such as wild deer and pigs. They travel a distance of four to five kilometers to the PRPC market to sell their produce, and earn just enough money to buy the rice and other vegetables or fruits that they (ironically) were not able to plant—they have an agreement with the cooperative to plant only what the market wants to sell.

It is important to note that the problem of food availability may be linked to the lack of a health program that would address the health needs and the socioeconomic problems of the Aetas. Even though the WRC voluntarily sends a nurse weekly to look after the health of the Aetas, a viable program is necessary—one that invests in the participation of the community and captures their interest—primarily in order to determine which health problems need more attention.

The basic problems, as previously mentioned, have been malnutrition and the availability of food, however, some cases of diarrhea and measles have occasionally been reported. Though data regarding what cases of morbidity and mortality can be obtained from the WRC staff working in Canawan, there are no readily available records from the rural health unit

(RHU). Recently, a medical team from the RHU at the municipal office arrived in Canawan to administer vaccines during a day allotted for a nationwide mass immunization campaign. Healthcare workers present admitted that Canawan is seldom visited by the RHU staff. The important reasons cited were the great distance from Canawan to the RHU and the difficulty in travelling due to the hilly terrain.

Further interviews with the municipal health officer, nurses, midwives, and barangay health workers revealed that the usual causes of morbidity, not only of those living in Canawan but also of the whole of Morong, are respiratory infections, diarrhea, and malaria. They further related how different programs of the Department of Health and also of the municipal government are presently being implemented for disease control.

As for evidence of the prevalence of vitamin A deficiency (VAD), there have been no actual cases detected in recent years. Although there are records of patients consulting at the RHU for eye symptoms, there is no appropriate documentation of alleged eye signs indicative of deficiency of vitamin A.

Aside from a presumably adequate dietary intake due to readily available sources of vitamin A-rich foods, the RHU is also implementing a program of administering vitamin A capsules to children with severe cases of malnutrition. Vitamin A is also given to children who come for anti-measles vaccination at nine months of age, and pregnant women who come for their tetanus toxoid immunization. Advice is also regularly given to mothers concerning foods that are important sources of vitamins and minerals.

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Appendix 3

Some Reminders about Data-Gathering: *Do's and Don'ts*

Most people who develop projects using this manual will have previous experience in various kinds of research and intervention programs. Therefore, many of these elementary principles of community-based work will already be well-known. This list of *do's* and *don'ts* will be useful when you are training team members who are new to this kind of activity.

- i. *Do* remember to *clear* your data-gathering activity with local authorities, local governmental persons, and community leaders. Failure to follow and respect lines of local authority can lead to serious obstacles that compromise the data-gathering and subsequent intervention programs.
- ii. *Do* explain your general purpose to the people that you interview and explain where the information is likely to be used. This explanation is part of the information that people should have as a basis for agreeing to be interviewed. This is what we mean by *informed consent* as required by governmental and international standards of ethics.
- iii. *Do not* coerce individuals to respond to interviews or other data-gathering. Individuals should be assured that their participation is voluntary and that they have a right to refuse to answer questions.
- iv. *Do not*, as a researcher, promise the community leaders or any other individuals anything in the way of future benefits or services in relation to this study.
- v. *Do* promise to share the results of the study with the community and those contributing their time as interviewers.
- vi. *Do* be considerate of people's time schedules. If possible, data-gathering should be carried out during times of the year and days of the week, when people are not burdened with heavy work in harvesting or other activities.
- vii. *Do* try to set up appointments with people, so that interviews are scheduled at times of the day and week that are most convenient for them.
- viii. *Do* assure your informants and respondents that everything they say to you will be confidential and will not be told to other persons.
- ix. *Do not* criticize individuals concerning their food habits, hygiene practices, and other behaviors, no matter how much they differ from what you think they should be.
- x. *Do not* ridicule or correct persons if they tell you ideas and beliefs that you regard as superstitious or old-fashioned. Instead, you and your field team should treat all ideas, beliefs, and attitudes with respect and interest.
- xi. *Do not* assume that all the statements of your key-informants (and other sources) are correct and accurate. Always look for confirmations and ways to verify statements through checking with other persons and information sources. Also, it is a good idea to be cautious in accepting written reports concerning a locality or community. These, too, might be biased or out of date.
- xii. *Do* be aware of local, intracommunity differences in cultural beliefs, knowledge, and behaviors. In all communities, there are variations in food use, diet, and other behaviors, even though food use in general is highly patterned. The differences found in some families are often important clues to directions of change, as well as indications of patterns of behaviors that might become general, under favorable conditions.
- xiii. *Do not* wear out your respondents or informants with lengthy interview sessions. Try hard to discover an ideal duration (often about one hour), beyond which your informants' patience and attention begins to weaken.

- xiv. *Do* maintain an attitude of interest and sincere learning about local food and diet ideas and practices. The data in projects like this are much more believable and the relationships with local community people are much more pleasant if the data-gathering team shows sincere interest in the ideas and practices of the community people.
- xv. *Do* be aware of special cultural and social sensitivities of the local population, particularly special religious areas, religious beliefs, and ritual behaviors. For example, you should be aware of general religious food restrictions in the community. In households with religion-based vegetarian practices one must use extreme caution in introducing any questions about meat-eating.

Appendix 4

Notes on Working with Key-Informants

The key-informant methodology is the single most powerful ethnographic data-gathering tool. Although individuals vary considerably in their natural interviewing skills, the techniques of key-informant interviewing can be taught to persons ranging from the highly educated to near-illiterate community people. The most effective training methods are usually a combination of role-play, trial-and-error, and continued practice under supervision. The following summarizes the main elements of key-informant interviewing:

- i. The informants must be interviewed more than once, so that a social relationship develops between the interviewer and key-informant.
- ii. The key-informant is regarded as an *expert*, who imparts important information to the interviewer. The interviewer acts the part of someone interested in learning from the informant. (For this reason some anthropologists such as O. Werner and R. Schoepfle suggest the term *consultant* in place of key-informant.) The interviewer should not respond to information from the key-informant/consultant with value judgments or expressions of criticism.
- iii. The interviewer must record as much of the information presented by the informant as possible, usually by writing in a notebook, sometimes supplemented with tape-recording. The act of recording the information is part of the demonstration that the data from the expert are important.
- iv. The interviewer seeks to get key portions of the *testimony* in the informant's exact, or nearly exact words. Words, phrases, and (sometimes) whole sentences are written down exactly, when possible. Sometimes the tape-recorder is used as a backup device, to check on the interviewer's notetaking. In most cases the interview must take place in the informant's native language and the interviewer must also be fluent in the local dialect.
- v. The interviewer must avoid too much reliance on asking a series of focused questions. Instead, he or she tries to get the informant to narrate, list and enumerate, and expand his or her explanations of various topics.
- vi. The interviewer tries to get the informant to lead the discussion into elaborations, explanations, and sometimes into whole new topics.
- vii. If the interviewer has some prepared questions, or lists of topics, these are *never* used to structure the entire interview. The prepared questions are introduced occasionally, secondarily, for example, when the informant has finished explaining a topic. One exception to this rule occurs when the key-informant is asked to respond to a pretesting of a structured interview that is being developed for use with a wider range of respondents.
- viii. Second and subsequent encounters with the informant provide the opportunity to bring up materials from the previous interview—probing for more information. Often the interviewer repeats portions from a previous interview to verify his or her understanding and to prompt the informant for more detail.
- ix. Probing for more detail, information, examples, or cases, is a major element of successful interviewing technique. This probing, prompting, urging of the informant is a counterpoint to “listening to the narrative explanations.”
- x. Ideally, the relationships of researchers to their key-informants continue throughout the duration of the project. In later phases of information-gathering, it is very useful for the interviewer to try out hypotheses with his or her best key-informants. That is, the researcher has developed a model or general idea of the particular cultural/behavioral domain that is the focus of study. For example, perhaps the research team has a series of ideas

about the *personality* of leafy green vegetables and how they differ from other vegetables. This idea can be brought up with the key-informant, who is asked to comment, correct, and perhaps expand the idea into other food groups. In some cases researchers will ask their key-informants to comment on drafts of reports, or on descriptions written from past interview materials.

- xi. In an increasing number of cases, ethnographers seek to have true local participation in the data-collection and interpretation processes. In such cases the key-informants become participating information-gatherers, paid or unpaid.

Probing and Prompting

One of the central skills of interviewing (whether it is key-informants or just one-shot informal discussions with persons you meet in the community) is getting the informant to continue to elaborate, give examples, or suggest new areas of exploration with little interference and minimal structuring from the interviewer. The main technique involves unobtrusive *probing*. Here are some miscellaneous examples used in the midst of open-ended, conversational interviews:

“That’s interesting, please go on.”

“Why did people stop using _____ (e.g., a food or a method of food preparation)?”

“What did you do then?”

“Could you explain that a bit more, I didn’t get the part about the _____ (some element of action or content).”

“That’s fascinating...can you think of any other examples?”

“What do you call that method of food preparation?”

“Please tell me about what you ate when you were young and how food and diet have changed since then.”

“Can you think of any other dry season foods?”

In many instances you can simply repeat a part of the previous statements of the informant, such as:

“I see. So the people who live closer to the river are the ones who do most of the fishing....”

Simply restating the informant’s words often leads to further elaboration and explanation. It cannot be too strongly emphasized that your attitude of interest, expressed in body language and verbal reactions, is often the most effective *prompt* that leads to further explanation and detail from the informant. Sometimes the most effective prompt is in the form: “This is so interesting that, if its OK with you, I’d like to come back tomorrow. Then we can have more time to go into these details.”

Getting Lists of Things (Items) in a Domain

One of the more important techniques in open-ended interviewing is that of asking informants for *lists of things*. The most mundane, ordinary topics can suddenly come to life when an informant tries to list a series of elements, types, or other things. In addition to gathering lists of foods (as defined in the free list, section IV-B) it will be useful to get lists such as special holiday/celebration foods, types of snacks, foods that are good for you when sick, etc.

Of course we do not usually say, “Please give me a list of _____.” More likely, we say “You just mentioned that chicken soup is good to give children when they are sick. Can you tell me what other foods are good to give to sick people, for different sicknesses, or for different kinds of people...?”

Usually, you will have to do some prompting and encouraging: “OK, that’s three different types...any others? What about any special foods for the sickness that pregnant women get?”

It is worth repeating that the best, most detailed and systematic information comes from key-informants, after you have established a social relationship in which they come to understand and appreciate the kinds of information you are trying to gather. They become emotionally involved in the process themselves and will often make special efforts to think about the information, and will even seek out more examples and details from their friends.

So, the bottom line is, cultivate long-term communications with your best key-informants.

Appendix 5

Recording and Organizing Fieldnotes

Fieldnotes are your primary data records from informant interviews as well as from direct observations out in the research community. Here are the different kinds of items that should be written in fieldnotes:

- i. Observations of crops and other food sources that one sees while walking about the community.
- ii. Lists of the different types of food being sold on a market day, along with notations about prices, quantities, condition of the food, behaviors of people in the market and other details.
- iii. Detailed, play-by-play description of unstructured interviews with key-informants.
- iv. Observations of the cooking areas seen in peoples' homes and lists of cooking equipment, stored foods, and other details.
- v. Step-by-step descriptions of cooking processes as told to you by informants (e.g., preparation and cooking of unusual wild foods, sauces).
- vi. Notes on past history, geographical features, ecological data (climate, rainfall, etc.), ethnic and language features, and other background materials as gathered from written sources and from open-ended interviews.

This discussion will cover writing of notes from both informal observations and interviews. Formally structured interviews (survey interviews), on the other hand, are generally recorded directly on the prepared interview forms.

Field Notebook

- *Your field notebook should be small enough to keep in your pocket or purse. The notebook should not be overly conspicuous, but it is often a good idea to make it obvious to community people that you (and your team members) are taking notes. Writing things down from interviews demonstrates to the informants that you are serious about wanting the information and you regard them as experts.*
-

Whenever possible, your information gathering team members should write down notes directly into a notebook when doing open-ended interviewing. In addition, you should have your information gatherers write notes on descriptions of places (e.g., marketplaces, cooking and food-storage areas); sketches or diagrams of a complex food processing device; sketch plus written description of home gardening area with its crops; and other special information. It is also useful to include notes on such things as: "Graciela is a very good key-informant...but it's important to find her early in the morning, or else late at night, as she goes to sell in the marketplace every day...."

Many of the items you write in fieldnotes are the *same information* your research assistants already know because they are members of the local community. But writing these things down in fieldnotes makes the information *available* and *organized* for direct use in planning interventions.

From "Jottings" to Fully Written Notes

Obviously you can't write down everything the informant says. But you can jot down key words and phrases, to keep a running "log" of the ideas and answers as your informant responds to your questions, probes, and encouragements.

The jottings are intended to jog your memory when you expand them into fuller statements, as soon after an interview as possible. Here is an example of jottings from an interview and then the full notes, written up later:

[Interview with elderly woman (excerpt)]

Jotted notes:

Earlier... "all people collected them (calchan) [wild greens, stalk, leaves] had time. Children. Especially older women. Now. Too far. All summer. Cooked with meat. Poor people potatoes. Lazy. "Young women won't cook 'em..." Edge of fields...river...people. "Weaker now..." "Poor food..."

Expanded notes as written up afterwards:

The old grandmother in the _____ household told me that when she was a child and even as a young married woman, people gathered the wild greens called *calchan*, which were available throughout the summer. "All people collected them...." The main locations were at the edges of the cornfields and also along the riverbank. They gathered the stalks and leaves. Sometimes they sent the children to gather them, but mainly it was older women who did not have small children to care for. The wealthier families cooked the greens with meat, but most families were poor and cooked them with their potatoes.

When I asked why people do not gather these wild greens nowadays, she said that "people are lazy" and then she added that "...the younger women won't cook 'em," because they view the greens as being inferior food and "poor food" (that is, food for the poor people). She also said that she believes people today are weaker now and less healthy because they do not eat the healthy foods "from nature" like they did when she was young.

In this example we see that the expanded fieldnotes are approximately four times as many words as the originally jottings. Also, the jottings are almost undecipherable. Only a person who heard the original interview could make sense of these jottings.

Some Additional Guidelines

- i. Look for *key words* and *special vocabulary*. Be sure to write down those key words in the exact language of the speaker. Note especially any words that are special to this population and which identify special roles, (e.g., the name of the food) and special words for actions, behaviors, or ideas that might come up in structured interviews or behavioral messages during the actual intervention, especially words such as "poor food" that reflect strongly held attitudes.
- ii. Check with the informant to be sure that the special vocabulary is actually used by the target population, that it is an insider vocabulary. You may find that the older informant uses a word (e.g., *calchan*, that is not familiar to the younger generation, or, perhaps it is the word used by the people in one ethnic group only.
- iii. Particularly important ideas of the key-informants *should be written down in their exact words* (at least key phrases showing how they expressed the idea).

- iv. Expand and write out full fieldnotes from your jottings as soon as possible after an interview. If you do not have the opportunity to write out the full notes immediately, try very hard to get all the notes written out *the same day of the interview*. Otherwise you may lose much of the content.

Often it is useful to check some part of your jottings during the interview. Sometimes you can say to the informant. "Let me just check this thing I have here in my notes...let's see...you said that _____."

It is a good idea to go over your notes right after an interview, if you can find a private place. Just go through and add in a few details to the written notes. That will help to make sure that you will remember clearly when you sit down to write out the notes more fully.

As you write out your notes more fully, try to preserve as much as possible of the play-by-play flow of the interview. Do not try to write a polished essay, just go through the specific information—what the informant said—in the order that it occurred in the interview. Often during the interview you will need to change direction to get more data on a point made earlier. Also, your key-informants usually wander off the topic and return to earlier points, filling in earlier gaps. Usually it's best that those later additions be written in the order in which the interview actually happened.

The most preferred way to write out your notes fully is with a microcomputer. If possible, your team members should become familiar with using a word processor system in the microcomputer, so that all the interview notes and other fieldnote materials will be accumulated in computer files. That makes it much easier to go through the files of notes to find particular points of information.

A second alternative is to write the notes out on a typewriter. In any case the fieldnotes should be written out on paper so that they can be stored, sorted, and organized efficiently. If the notes are typed, be sure to make at least one extra copy, and it's better to have two extra copies of all of the materials. Those should be stored in different (secure) places.

If your team members cannot type, they must write out the notes fully by hand, and those handwritten notes should be checked by others to be sure that they can be read easily. In some cases, if you have typists available, it is possible that your

information gatherer can *dictate* out loud from the fieldnote jottings, while the typist writes out the full text.

- v. You can include in your notes some of your own *interpretation* of things that your key-informant said. You should also include comments such as, "At this point the informant seemed to be covering up something and quickly changed the subject. Next time, I should ask her some more about this. This time it seemed to be a touchy and emotional subject."

When you write such personal impressions, you will of course, make sure they are clearly *your* ideas and not the words or ideas of the informant.

- vi. Allow at least *two hours of writing time for each hour of interview*. That's right—two hours! It is slow work, because often you will be remembering many different things that your key-informant has said, at the same time trying to make sense of the very short and cryptic jottings in your field notebook.
- vii. In some cases you may be able to use *tape-recordings* of some key-informant interviews. Even if you are tape-recording the interviews, you should still take good notes and write out those notes fully, as described here. The tape-recording can serve as a backup source. Remember that it costs a great deal of money and time to transcribe from tapes to typewritten form. Most projects cannot afford to pay for the transcribing.
- viii. If you do use a tape-recorder, be sure to transcribe the interview(s) into the computer or write them out on paper as soon as possible. *Never* leave tape-recorded materials in unwritten form, as it is very difficult to go back to find information on tapes. Often you won't be able to hear everything clearly, especially after several weeks have passed after the interview.
- ix. *Keep all field notebooks and your written out fieldnotes in safe and secure places* where unauthorized persons cannot get them. Even seemingly noncontroversial, innocent-sounding information about foods and diet may be considered personal and private and you should always protect the confidentiality of informants' statements.

Keeping Fieldnotes Organized

Fieldnotes can quickly become an unwieldy mess unless you take pains to keep them organized. Even a few weeks of fieldwork will produce several hundred pages of notes that can be very difficult to manage unless some system of indexing is used.

- i. In most cases it is best that your fieldnotes are kept in chronological order. That is, at least one set of fieldnotes kept more or less in the calendar order that the materials were collected. The pages of fieldnotes can be numbered consecutively. It may add some additional structure if you start new page numbers each month. So, if you started in October you would have notes from zero to one up to perhaps zero to 500. Then comes N-1, N-2, and so on.
- ii. It can help you to find things if you put *key words* at the beginning of each interview, or at the beginning of each separate note. Some people put key words at the top of each page.
- iii. If you are entering all your interview notes and other fieldnotes in a computer, *you do not need to list key words when those words are in the text itself*. The normal search programs that you use with the computer can quickly find any words that are in the interviews. Only list key words that are important index words, or identification of topics, if they are abstractions that do not occur in the statements themselves.
For example, in the case of the bit of interview above, you would use key words such as *prestige foods, SES, traditional, or historical*.
- iv. During the first two weeks of information-gathering, as your interview notes begin to pile up, start listing the main topics in the notes—key words that you will use as an index.
- v. If you are *not* using a microcomputer for writing and storing your interview notes, then you will need to write more key words at the front of each interview—including important words that are found in the text itself.
- vi. Even if you are storing all notes in the computer, you will want to have hard copies (paper copies) in your files. As mentioned above, store your paper copies in two different, secure, locked places.

- vii. With two separate sets of (paper copies) of interviews and observations, you can keep one set in the chronological order in which the work was completed and notes written; the other copy can be sorted out into the *topical areas*, key words that you begin to organize into different file folders.
- viii. One way to keep good organization of your fieldnotes is to keep one set of files that are directly linked to the generic questions and other important questions.

Suppose you had a really good interview with an excellent key-informant and she told you information that applies to five or six different generic questions? Then, make extra copies of that interview, so you can put a copy into each of the five or six file folders that are answers to those generic questions.

The Field Work Log

In addition to the fieldnotes and diary, it is also recommended that the Project Manager maintain a field log. The log is a running account of your work schedule. The log should reflect your planned schedule for the next two weeks or more, as well as the record of actual times and places of interviews and other data-gathering. Keeping a tidy logbook can help fieldworkers stay on schedule and maintain a sense of progress in the face of the daily frustrations brought by bad weather, hard-to-trace informants, and other problems typical of field work.

Some people like to keep a wall chart that shows the current status of the research, plus the expected schedule to complete data collection.

Appendix 6

Notes on Translation from Local to National Languages

Here are some main points to follow in training your data-gathering team about translation from the local dialect or language to the national and international language.

- i. Preserve vocabulary of key words and phrases in the original form, as used by the local people. This applies to the names of crops, foods, meals, dishes (types of prepared foods), attributes of foods, and other key words that emerge in interviews, as well as terms related to vitamin A deficiency.

For example, if local people have special words, or nicknames, for food items, these can be presented as used, rather than substituting the national language equivalent.

- ii. Do not assume that words that *sound like* equivalents in the national language have the same range of meaning. For example, the word *sopa* in Mexican food culture sounds as if it refers to the same kind of food as soup in English. However, when we learn that a platter of noodles is also *sopa* we realize that the word cannot be freely translated, without further explanation.

The word *tomati* in Hausa almost always refers to tomato paste in arid regions of Niger, rather than a fresh tomato. In speaking of fresh tomatoes the adjective generally is added for clarification.

In many parts of the world foods are categorized in words that refer to *hot* or *heaty*. In some contexts the word may actually refer to the temperature of the food, while in other contexts the word *hot* (and the opposite, *cold*) refers to an abstract quality or attribute of food in relation to maintenance of a complex balance of hot and cold qualities in the body.

Thus the label *hot* or *heaty* concerning food may require considerable explanation, instead of simply literal translation into the equivalent word in the national language.

- iii. Complex local vocabulary items should be presented first in the indigenous language, followed by the *literal translation*, followed by further clarifying explanation.

Example: In Hausa some people say: “/Shina/ /mini/ /koshi/.” Literally: “/That food//makes me/ /full/.”

The statement can refer to filling one’s stomach, but in Niger where this manual was tested, the statement also referred to building up bodily reserves for a future time of food shortages. Thus statements in the field notes should always use the Hausa word, *cowshi*, rather than the French language equivalent, *plein*.

For important attributes or qualities such as *cowshi*, it is useful to ask informants to use the word in different contexts. Interviewers can also try using the word themselves, asking the informants if this example is a correct use of the word.

- iv. Investigators must watch for topics in which local assistants might not have full command of the national language, even though they have moderately fluent use of both languages in most areas of conversation.

Conversely, educated research supervisors and team leaders may believe themselves fluent in the local dialect, yet they may be lacking in local nuances. For example, in rural Haiti the term *opresion*, is considered by the local health professionals to be synonymous with asthma. There is, indeed, an overlap between the meanings of these two words, but in rural localities it turns out that *opresion* can refer to a wider range of sicknesses, including forms of bronchitis and pneumonia.

- v. When passages of fieldnotes are translated into the national language, the key terms in the local language should remain imbedded in the text. For example, in Andhra Pradesh, India the language spoken in rural communities is Telugu, in

which the abstract concept of hot/heaty is *vedi*. Since for research purposes the national language is often English, a sentence concerning this attribute should be written like this:

Fruits such as papaya and mango are rated high in *vedi* (hot/heaty).

- vi. Team leaders can review the fieldnotes and reporting forms of the research assistants to see that

local terminologies are carefully preserved and explained.

- vii. Important features of local vocabulary are not only to be found in food names and their attributes. In some cases the local dialect will have special expressions or special slang for behaviors dealing with foods and eating. Also, there may be slang expressions or special words for types of persons corresponding to ideas such as picky eater, omnivore, etc.

Appendix 7

An Example of Selecting Key Food Items from Peru

As was stated in the manual, the selection of the list of staple foods is crucial to the administration of the research procedures. The guidelines and criteria stated in section IV-C should be followed closely when determining the list. The following example illustrates the rationale behind the way in which a research team, led by Dr. Hilary Creed-Kanashiro, in Peru, established a final list of key foods.

The final list of foods included a group of local staple foods, cereals, and tubers selected on the basis of being most frequently mentioned in the free list, locally produced, and stored in the homes during most of the year. *Oca* is a local tuber which is more seasonal and less able to be stored, but has been included as an example of one of the locally-produced Andean tubers. Of the cereals selected, *cebada* (barley), *trigo* (wheat), and *maize* are most used. *Quinoa* has been included as it is regularly used during the whole year, is also readily stored, and has a high nutritive value. These also provide some income when sold, if they are produced in sufficient quantity. We did not include *pan* (bread), as it is infrequently used in comparison to the cereals or *oca*.

We included *camote*, although it is rarely consumed, as it is potentially an excellent source of carotene. It is the least expensive tuber, and children like it and eat it in large quantities on the few occasions that it is available. It is considered as a possible food that can contribute to vitamin A stores. It is also considered important during pregnancy and on giving birth.

Arvela seca (dried peas) has been selected as the most commonly used major vegetable protein source.

The animal products have been selected on the basis of frequency of mention, with the addition of breastmilk which was not mentioned in the free list exercise. *Huevo* (egg) is locally produced and most consumed. *Pescado salado* (dried fish, *caballa*), is considered cheap by the population and relatively easy to obtain from the Cajamarca market. It is able to be stored and is used fairly frequently. *Carne de gallina*

(hen) is eaten more frequently than mutton (although not very frequently—often for birthdays and fiestas) and so was included.

With respect to fat sources, *aceite* (usually a combination of marine and vegetable oils) is bought from the Cajamarca market. However, it is not considered cheap and *seb de carnero* (mutton fat) is cheaper and bought when money is not available for the *aceite*. It is felt that it is used as frequently as *aceite*. *Linasa* was regularly reported in the free list and we considered it an important source of fat, usually prepared toasted with cereals. It is grown locally.

Of the fruits, we selected *naranja* (oranges) because they are considered inexpensive and are bought regularly and consumed most of the year on a weekly or fortnightly basis. *Mangos* are consumed in larger quantities when in season, February to April. Both of these foods are bought from the market. We excluded banana, although a staple fruit during the year, as the type that is most used is not a source of vitamin A.

Chiclayo (like a squash) is widely grown locally, frequently mentioned, and is used for sweet preparations and in soups.

We included *aji seco* (like chili) as an example of a food that is used almost daily in the *aderezos* (sauce used as a basis for the soups and the stews) together with oil and onion. *Aji* is rich in vitamin A although consumed in small quantities.

Zanahoria (carrot) is an important vitamin A-rich food. It is grown in the gardens and also bought from the market. It is used in small quantities but fairly regularly. *Cochayuyo* (alga) is bought and is apparently consumed fairly regularly.

The remaining foods on the list are locally-grown green vegetables and herbs that are used in different food preparations. The first group are green leaves that are seasonal but could be important sources of vitamin A. They are mainly used in stews and soups, in quite significant quantities. Then there is a selection of smaller leaves used in a particular preparation

caldo verde, typical of the region. Some of these are also used in smaller quantities to flavor soups.

A yellow flower has been included as a seasonal, but possible source of carotene. Finally *manzanilla* (camomile) flowers have been included as representative of the many infusions that are frequently consumed and which are all grown in the family gardens.

In the process of selecting the foods, we also looked at those foods that were mentioned in the interviews,

to see whether there were important foods that had been underestimated in the free list. This influenced our decision when debating the inclusion of a few of the foods. We eliminated the *hoja de olluco* as there were many *hojas* and we found the reasons for using them were very similar to *hoja de quinoa* and replaced this with *camote* during the first interviews as we found that this was just a repetition of the *hoja de quinoa*.

Appendix 8

Vitamin A Content of Food

Analytical values for the vitamin A contents of food for a particular country or region can generally be found by contacting the national health authorities, or through the nutrition and/or agricultural offices in the Capital. Analytical techniques are updated from time to time and the most recent tables should be consulted.

Usually, in tables of food composition, vitamin A contents of food are expressed as IUs (International Units) or REs (Retinol Equivalents). The more recent tables use REs. In most tables, REs incorporate contents of retinol and carotene. In some food items, both of these forms are found, although animal food contains mostly retinol and plant food contains carotene.

Vitamin A contents are quite variable in different food items, and even within a particular food item grown in different parts of the world or exposed to different climatic handling/storage/preparation conditions. The highest levels of vitamin A are found in natural food items such as the livers of animals, carrots, red palm oil, and certain green vegetables and fruits. A recent publication entitled *Food Sources of Vitamin A and Provitamin A* was published in the UNU Food and Nutrition Bulletin 1992, 14(1):3–35. Another excellent source explaining the vitamin A levels of food is a publication from the International Vitamin A Consultative Group (IVACG) entitled *Guidelines for the Development of a Simplified Dietary Assessment to Identify Groups at Risk for Inadequate Intake of Vitamin A*. In 1993, C. West and E. Poortvliet released a publication for the Vitamin A Field Support Project called *The Carotenoid Content of Foods with Special Reference*

to Developing Countries, which is a compilation of data on the vitamin A content of foods consumed around the world.

A general rule for vitamin A contents of food is to look at the color or to consider the part of the animal. Dark green vegetables, yellow and red fruits (excluding citrus) and vegetables, and red palm oil are rich sources of carotenoids. Animal sources include liver and organ meat, red meat, whole fish and fish oils, egg yolk, dairy products, and breastmilk. A range of values for vitamin A contents in food, together with a rating value to use in Module 5 tabulations is shown in the table below. While it is best to get a specific vitamin A value from a food composition source of original data, using an equivalent to guess at a rating is sufficient for the exercise in Module 5.

Keep in mind that substantial vitamin A can be added to the diet by eating small amounts of food high in vitamin A or larger amounts of food with modest levels of vitamin A. The bioavailability of vitamin A in food is also worth considering, and foods high in vitamin A must contain several properties for the vitamin A to be used by the body. Food must be palatable to the individual so that it is swallowed, and it must be digested; the diet must also have sufficient fat, protein, energy, and other key nutrients for dietary vitamin A to be utilized in the body.

Recommended levels of dietary vitamin A have been published by the Food and Agricultural Organization (FAO) of the United Nations in 1988, and are presented on the next page.

Examples of Food with Approximate Levels of Vitamin A and Rating Value to Use in Module 5

| Food Example | Approximate Amt./Range RE/100g | Rating Value |
|-------------------------|--------------------------------|--------------|
| Green leafy vegetables | | 3-4 |
| spinach | 450 | 4 |
| amaranth | 1000 | 4 |
| chicory | 300 | 3 |
| dandelion | 1300 | 4 |
| kale | 1000 | 4 |
| coriander leaf | 900 | 4 |
| pumpkin leaf | 166 | 3 |
| drumstick tree leaf | 3300 | 4 |
| Pumpkin | 200 | 4 |
| Root vegetables | | 1-4 |
| cassava | 1-6 | 1 |
| white potato | 3 | 1 |
| sweet potato, yellow | 50-700 | 2-4 |
| carrots | 600-3500 | 4 |
| Grains | | 0-2 |
| white maize | 0 | 0 |
| yellow maize | 20-60 | 2 |
| rice | 0 | 0 |
| millet | 4 | 1 |
| Fruits | | 2-3 |
| papaya | 50-400 | 2-3 |
| mango | 100-400 | 2-3 |
| banana | 10-100 | 2 |
| apricot, fresh | 70-500 | 2-3 |
| Animal foods | | 2-4 |
| cow's milk | 30-40 | 2 |
| chicken's egg | 260 | 3 |
| beef | 25 | 2 |
| beef liver, kidney | 800 | 4 |
| chicken liver | 6-20 | 2 |
| Fish | | 1-4 |
| tuna | 80-830 | 2-4 |
| crevalle (Caranx sp.) | 60 | 2 |
| goby (Glossogobium sp.) | 95 | 2 |
| anchovy | 82 | 2 |
| mackerel | 100 | 2 |
| cod | 8-12 | 1-2 |
| Oils | | 0-4 |
| coconut oil | 0 | 0 |
| seed oils, various | 2-100 | 1-2 |
| red palm oil | 2,000-24,000 | 4 |
| narwhal blubber | 2,000 | 4 |
| fish oil, various | 40,000-300,000 | 4 |
| Breastmilk, human | 35-50 | 2 |

NOTE:

Values from Booth et al. (1992) and as reported in tables from regions where the manual was tested.

Rating Values to Calculate Vitamin A Contents of Diets

| Rating Value | Amount of Vitamin A | Approximate REs |
|--------------|---------------------|-----------------|
| 0 | none | none |
| 1 | trace | 1-10 |
| 2 | small | 11-100 |
| 3 | medium | 101-500 |
| 4 | large | >500 |

FAO Recommended Dietary Intakes of Vitamin A (RE)

| | Basal | Safe |
|-----------|---------|---------|
| Infants | 180 | 350 |
| Children | | |
| 1-6 yr | 200 | 400 |
| 6-15 yr | 250-350 | 400-600 |
| Males | 300-400 | 500-600 |
| Females | 270-330 | 500 |
| Pregnancy | +100 | +100 |
| Lactation | +180 | +350 |

Appendix 9

Notes on Selecting the Field Data-Gathering Team

As noted earlier in this manual, the field data-gathering team consists of at least three persons: the team leader and two research assistants. On the other hand, some groups who field tested these procedures found it advisable to have more research assistants, in order to avoid researcher fatigue and to expedite the completion of the data-gathering within the available time. With five, or even six, persons in the field work, the entire process outlined in the manual can be accomplished perhaps in four weeks instead of six. Decisions about the composition of the field team will of course depend on available funding, availability of suitable persons, and other factors.

Ideally, the team leader should be a person who has university training in some kind of community-oriented social science. One obvious type of person for this task would be someone with a background in community nutrition, but many other types of persons would also be suitable. Obviously, the team leader should have a knowledge of food and good organizational skills, including the ability to direct and supervise the work of the assistants.

In the five sites where this manual has been used thus far, there have been two main types of team leaders. In some cases, such as Niger, the team leader was the principal investigator, a complete outsider to the local area, but with good fluency in two of the local languages (Hausa and French). She had extensive experience in the area of vitamin A programs, as well as other research in Niger. On the other hand, in the field study in Peru, the research supervisor was from Lima, but the team leader was from the local area, with a background in nursing. The assistants also had nursing training.

Criteria for selection of the assistants should put special emphasis on their familiarity with the local region, and its food culture, and socioeconomic system as well as their ability to establish good working relationships with people in the community to be studied.

The following selection criteria are to be considered when you put together the field data-gathering team:

- i. All the team members should be persons who have good ability to develop friendly social relationships with the community people. Be especially wary of selecting persons who maintain social distance from villagers by use of more educated speaking style, manner of dress, and other symbols. In the same vein, team members should be persons who are non-judgmental concerning current cultural practices in the area. Thus, persons with healthcare and/or nutritional training and other service backgrounds, are usually willing and able to suspend judgment about food habits, hygienic practices, and other local behaviors during the course of this research.
- ii. Of course all team members need to be available for the duration of the project. (Either persons who can take a leave of absence from their current duties or are currently unemployed.) If persons are selected who have other work and obligations, get a clear commitment concerning the numbers of hours and days per week the individual is available for data-gathering activities.
- iii. All members of the team need sufficient literacy levels so they can use the manual effectively and can write clear fieldnotes (see Appendix 5).
- iv. Familiarity with the local language and culture is an especially important criterion, particularly in the case of the field assistants.
- v. Persons with previous experience in community-based projects in the region would be likely to have better understanding at the outset, concerning the basics of data-gathering.
- vi. Care should be taken that local persons are not seen as associated with a particular faction, especially political faction, within the community.

vii. The team members must be willing and able to visit all the different households in the study community. In some areas this can require walking in difficult, hilly terrain. In other communities there may be social difficulties for some people in going to households on the other side of the village.

In some areas you may find it very difficult to recruit educated persons for your data-gathering team. Here is an example from a rural area in Niger:

No college-educated persons were available, but the researcher, Lauren Blum, was able to hire one local

woman with a high school education, and another who had not finished high school, but had a good level of literacy. The more educated woman was in her early thirties, an experienced mother, and fluent in French, Hausa, and Djerma, the three local languages. Her knowledge of the community and ability to develop good social relationships with all the people, more than offset her lack of special training in social sciences. The younger assistant, who was unmarried and childless, was somewhat less able to develop social relationships with the women in the household sample.

Appendix 10

Selecting Representative Samples

The information that you gather using this manual is intended to provide a balanced and fair representation of the target community and population. But your time and resources are short; usually you do not have the luxury of spending a lot of time enumerating every household and then generating a careful random sample. On the other hand, you will want to be sure that your observations, informal interviews, and your sample of household respondents are as representative as possible of the geographic and cultural subgroups and subdivisions of the community.

Representativeness: Age, Gender, Ethnic Groups, Geography

In any population there are different types of people, with different attitudes and information, and some of the differences are quite predictable. That is, you know from experience that information presented to you by males is likely to be different from that of females, and young people see the world differently from the senior generation.

You should try to have key-informants from different age groups and different neighborhoods or localities in your target area. Information about typical food use patterns should be gathered from persons who are current family food providers, but older persons who may be retired from cooking and food preparation, may be important sources of information concerning earlier food patterns, including former use of vitamin A-rich foods such as wild greens, leaves, etc.

Young persons, including small children, may be important informants concerning children's snacking and related food patterns, as well as their attitudes and taste preferences.

Ethnic groups and caste groups are usually different in their perspectives, behaviors, and knowledge, so try to include that dimension as well. In India, for example, villages very often have different subdivisions representing different caste groups. Thus, the data-gathering team should seek out key-informants in each of the different subdivisions or neighborhoods of the target village.

During the assessment you may not have time to be sure of representativeness of your key-informants, focus groups and all your miscellaneous sources of information. However, you should be constantly aware of the gaps in your information sources. Typically, you will be aware that you still have not talked with people from the other side of the tracks or, frequently enough, you will be aware that you have a serious imbalance of one gender or the other among your key-informants.

Use Maps and Diagrams to Chart Your Representativeness

As soon as you have a good working map of your target area, you can begin to use pins or other markers to identify the areas for which you have information. For example, you can use a pin for each key-informant, then inspect your map to see how you can increase the geographic representativeness of your information. Perhaps you will need to find some new key-informants in those areas that are still blank on your map.

Simple tables and charts can keep you reminded of the representativeness or balance of gender, relevant age groups, ethnic groups, and other differences in your client population. In some cases, you will be able to see from your charts and maps that you have information piling up in one area because all of your team members tend to go to the same area. Perhaps, after the first week or two, your team should disperse into different areas, or specialize in talking with different kinds of key-informants.

If your data-gathering team is all female and you find that you are not getting any interviews with males, then you will need to assign someone to get some interviews with males, to get a male-oriented view of food acquisition, crops, and food preferences.

Representative Sampling of Times and Places

We often think about representative sampling in terms of *people*. In fact, many books about sampling focus all their discussion on sampling from people, households, and other sampling units. On the other hand, it is im-

portant that you consider other types of representativeness. Observations of actual meals, including collection of 24-hour recalls, should be distributed as representative of the weekly cycle, for example. If there is more than one weekly market in the area, observations should be carried out in each of those sites, especially to note differences in the foods available, price differentials, and perhaps differences in the kinds of people who shop in the different locations. Similarly, if your project is in an urban location, different neighborhoods are likely to have different relationships to stores and other facilities.

Representative (Random) Sample of Respondent Households

In rare situations, you may find that there is a recent census of the target community, listing all the households with details of household composition. In such a case the drawing of a random sample can be quite straightforward. You would follow these steps:

- i. Identify the list of all households with children between the ages of six months and six years.
- ii. Assign a number to each household, starting with one.
- iii. Select numbers from a table of random numbers. Each time one of those random numbers corresponds to a numbered household, that unit is added to the sample.
- iv. For a proposed sample of thirty respondents, select fifty households, so you have a reserve to substitute for persons who are unavailable or unwilling to participate, as well as those who drop out due to illness or absence.

Drawing Household Numbers from a Hat (Instead of Random Numbers Table)

In most cases the total number of eligible households is not so large as to preclude your writing all the numbers on slips of paper and then drawing your sample in that time-honored folk method. The table of random numbers is then unnecessary.

Stratified Random Sample

In the majority of communities, there is some major division of the village or area—upper/lower caste, landowners/landless, uphill/lowlands, or central village/peripheries. In such cases it is wise to *sample separately* from the two sectors. That is, you would first prepare the two separate census lists (perhaps in consultation

with key-informants) and then proceed to use the random numbers table.

Example of Random Sampling in Urban Location (Peru)

This example of sampling from a periurban neighborhood in Cajamarca, Peru, was done by Dr. Hilary Creed and her associates. The researchers had hoped to choose a sample of persons who had migrated to the urban area from the rural community they were also studying. However, they were unable to find families who were from that particular locality. Here is the procedure they adopted in order to get a representative sample in the community named San Vicente.

The researchers developed their random sample in the following manner:

- i. First, they divided the community into three sectors (because they had three field researchers assigned to this project).
- ii. Within each sector the researcher selected an arbitrary starting point.
- iii. The researcher then selected every fourth household from that starting point.
- iv. If there was no one home, or the household did not meet the selection criteria (see below), the researcher then approached the next household and continued until a suitable and willing respondent was found.
- v. After finding a suitable respondent, the researcher then moved on to the fourth household from that point and repeated the process.
- vi. This same procedure, approaching the fourth house from the previous successful interview, was followed until the quota of respondents was complete.

Criteria for selection of respondents were as follows:

- a. Must have a child between six months and six years of age.
- b. Family is living in this community, not just visiting.
- c. Origin of the family in rural area was from a locality ecologically similar to the comparison community that was being studied at the same time.
- d. Mother/caretaker willing to participate in the interview and to cooperate again when the interviewer returns for other parts of the structured interviews (Modules).

➤ *NOTE: In this form of selection (of every ___ th household) the sample will be unrepresentative if there are considerable numbers of mothers regularly absent and those absences are due to the economic activities of the women. Key-informant interviewing will reveal the extent of this problem and can help in devising a supplemental sampling strategy to correct the bias.*

For example, key-informants (and the respondents who are found at home) might report that the absentee women are engaged in wage work and/or market selling. In that case, an effort should be made to find enough of these women on weekends so that the sample will include adequate representation of women who work outside the household.

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Appendix 11

Notes on the Credibility of These Data

This manual is designed for collecting sufficient data on diet and food use patterns to enable the design of an intervention program to improve vitamin A in the area to which the data apply. Policymakers and planners at various levels—in the health ministry, other interested ministries, and NGOs—will want to be assured that these data are *credible and useful* for planning a vitamin A intervention. Your research report should describe the ways in which these data meet standards of reliability and validity at a level sufficient for developing an intervention.

The following are some typical questions that administrators and other policy makers may raise concerning the type of data produced by using this manual.

- i. How do you know that these data are valid and reliable?

The major strength of this type of ethnographic research is in the idea of *triangulation*. The concept of triangulation refers to the fact that the important data are obtained from multiple sources. That is, specific points about food use behaviors, attitudes, and beliefs are obtained from in-depth interviews with key-informants and also from the structured interviews with samples of respondents. For some items, the researchers' direct observations further strengthen the level of evidence.

When there are discrepancies or conflicts between the different sources of information, the researcher explores those points in more depth with key-informants. For example, if a key-informant says that "people don't eat _____ (vitamin A-rich food), even though it is available....," the food frequency data from the sample of families provides a check on the accuracy of that statement.

- ii. Isn't the sample of twenty-five or thirty respondents too small to permit any generalization about a community or population?

The suitability of sample size depends very much on the degree of homogeneity or consistency in the

phenomena studied. Generally speaking, people's food behaviors and diets in most areas are *strongly patterned*. Meal patterns and diets in developing countries, especially in rural areas, are very consistent, or even monotonous as compared with food patterns in industrialized regions. Knowledge about food, as well as attitudes about it, are also quite consistent, though we find differences between the wealthier and poorer families and also between different ethnic groups. The manual is designed to be used primarily in communities that are ethnically (culturally) homogeneous. In areas with multiple ethnic groups, the sample size will have to be increased.

People in given communities, particularly in rural areas, not only share cultural values and behavior patterns to some extent, but they are also under the same ecological constraints. They buy food from the same markets and stores. They have generally similar crop-growing conditions. All those environmental factors contribute to the tendencies toward food-use similarities, even among ethnically distinct groups. However, the researchers using this manual should be alert to main sources of *intra-community variations* in dietary practices and other features. All communities have some systematic variations in cultural beliefs and behaviors. Key-informants often mention such local variations (e.g., caste differences in Indian villages) and researchers should probe for those local differences. Even with small sample sizes we can get a sufficiently accurate assessment for intervention planning purposes.

- iii. How strong in reliability and validity do our data have to be for planning effective intervention programs concerning food use and dietary practices?

Of course, program planners and policymakers should insist on having really solid data for developing intervention programs concerning vitamin A, as in all other program planning. On the other hand, many intervention programs are launched with very

little advance data-gathering. It is important to establish a realistic middle ground by insisting that any intervention planning should be preceded by a reasonable, economically feasible data-gathering stage.

On the other hand, the background data for planning intervention programs do not need to be statistically and epidemiologically justified. Dietary intervention programs are continually in contact with the people from whom the original background data were collected. Continued data monitoring during the program provides an opportunity for upgrading the background data and correcting misinterpretations. Therefore, all intervention programs should have built-in data-gathering, along with other programmatic activities.

iv. What about the generalizability of these kinds of data to other regions?

Any data, whether from ethnographic studies or carefully quantified surveys, are, strictly speaking, generalizable only to the populations within which the studies were made. On the other hand, we expect main features of the research results to

be applicable to communities and regions *that are basically similar to the original research site*, in terms of the cultural backgrounds of the people and the ecological/economic setting in which they live. For that reason, the communities selected for studies using this manual should be broadly representative of the region or province in which vitamin A interventions are planned.

Program planners are generally aware of the main ethnic (cultural) variations in their regions. They also need to pay attention to the main ecological zones, with different crops, different food resources, different relationships to markets, and commercial food distribution systems.

Because of the high degree of cultural patterning of food practices (mentioned above), program planners can expect to apply the data from this research to other communities in the same ecological region, provided the people are of the same general cultural background. Where minor dialectical and subcultural differences are found, it is often possible to make some adjustments to the data, based on small numbers of key-informant interviews.

Appendix 12

Comments on Using Microcomputers

Not all groups planning intervention programs will be able to afford microcomputer equipment. Also, many organizations do not at this time have persons with good skills in the use and maintenance of microcomputers. Therefore, the guidelines in this manual are written so that you can carry out all the information gathering operations completely without use of microcomputers.

The use of microcomputers has spread rapidly in many parts of the developing world and even midsized organizations have found it advantageous to adopt the use of computers for their report-writing and information management. This section outlines some of the ways you can use microcomputers in connection with the data-gathering if your organization has the equipment, or plans to obtain microcomputers soon.

This section is not a full tutorial concerning the use of microcomputers. If you are using the computer in the assessment, your main sources of basic information on computer use are the operating manual, the manual of instructions for your word processing program (and any other programs), plus your local computer specialist.

Writing and Storing Fieldnotes

The biggest advantage in the use of microcomputers is in writing and storing the notes from your interviews and other observations. As described in Appendix 5 concerning fieldnotes, by far the easiest way to write out all the basic information in your situation assessment is to write directly into the computer. The standard word processing program in most parts of the world at this time is the widely known WordPerfect, although other programs are equally acceptable, particularly if they are readily convertible into WordPerfect.

Using a word processing program in the computer is just like using a typewriter, but easier, because when you have learned the basic operations of the computer, you can quickly erase your mistakes. Also, word processing programs include all kinds of special addi-

tions, including underlining, boldfaced type, changing the margins (like on a typewriter) and inserting words and phrases into the middle of what you have already written (something you cannot do with a typewriter).

Each interview that you and your team complete should be written as a separate file. Also, each separate block of observations should be a separate file. These files are given names that help you to locate or identify them later, when you are looking for certain kinds of information.

➤ Naming of Files in Your Computerized Fieldnotes:

In the usual microcomputer system, you name the individual files (separate documents) with a front name that can have up to eight characters, plus an extension of no more than three characters.

The extension is usually used to indicate the type of document in the file. For example, .LET can be the extension of the letters; .RPT indicates reports; and .PRO means proposals.

If your assessment team consists of three persons and each of you writes up three or four files per day, you will soon have dozens, and then hundreds of files. That sounds very confusing and you might feel that it would be impossible to find specific files when you need them later. However, it is quite easy to *search* through masses of files to find specific information using the computer. We will further discuss that feature below.

Here are some general points concerning use of the microcomputer for writing and storing all those fieldnotes and interviews:

- i. In writing fieldnotes, be sure that the date, time, place, and researcher's identity are recorded at the beginning of each file.
- ii. Make a hard copy (printed copy) of each file. You should keep a file of fieldnotes that can be scanned

and read without the computer. Your fieldnote file should be kept in a locked drawer where unauthorized persons cannot access the notes.

- iii. Keep a backup copy of all fieldnotes and other computer files, on *diskettes*. Diskettes are the 3.5 inch or 5.25 inch plastic inserts onto which the microcomputer records information. Most microcomputers have *hard-disks* inside the machine, into which your files are stored, but the diskettes permit you to store extra copies of files.

These backup copies, like your paper copies of fieldnotes, should be stored in a locked and secure place. In fact, it is recommended that your backup copies be stored at your home. If your office building were to be damaged by fire or other catastrophe, the backup files would still be safe.

- iv. Keep an up-to-date hard copy (printed copy) of the List of Files, annotated with a bit of information about your file-naming system.

Searching for Materials Using *Gofer*

One major advantage of storing all your interviews and other materials in computer files is that you can find very specific things easily, using a general *search program*. Your word processor, (WordPerfect, WordStar, Word, or whatever you are using) has a search program, but it only searches in the file that is currently active in the computer.

Gofer is a quite useful program that permits you to search through masses of files rapidly, to find particular words that can guide you to any particular material you are looking for. There are other programs with similar capabilities, but *Gofer* is quite easy to learn and its current price is less than U.S. \$100.

Suppose you wish to find all the information you have thus far about traditional foods. You can put *Gofer* into operation and indicate that you wish to find all the places where *traditional* is mentioned. *Gofer* asks you to name all the files or *directories* that should be searched, so you indicate the directory that has all the past fieldnotes of interviews, observations, etc.

Gofer searches through the files, one at a time and each time it finds the word *traditional*, that file is on your screen, so you can see the information in context. Then you can select that paragraph or any size chunk you wish. The chunk can be copied into a separate file, or can be printed out as a paper copy. The program then proceeds to the next place where *traditional* appears and you repeat the process.

At the end of the search and retrieval, *Gofer* presents you with a list of all the files in which the word *traditional* was found and how many times.

You now have a file, either a computer file or a paper file, of all your materials concerning *traditional*.

This example serves to remind you that, if you want to be able to find the materials later, your notes have to be specific. You have to write the word *traditional* in the notes (anywhere in the notes). *Gofer* will not find the information if your notes only had the comment that "these are foods that we used to gather in earlier days." You need to put in the key words that you wish to locate later.

Gofer is one of those programs that *stays resident* when you first start it up. That is, you can start up *Gofer* and then go on writing in your word processor. Perhaps you were writing a report of some kind and needed to find some specific information that involved the traditional foods. You would simply start up *Gofer* without shutting down your word processing program. When you found the specific piece of notes about traditional foods that you were looking for, you could *import* that block of text directly from the other file into the report or document you are currently in the middle of.

This feature will be extremely valuable when you are in the process of writing your answers to the research questions, for example. Many times, while you are writing your answer to a question, you will remember another piece of important information in another file. Instead of "letting your fingers do the walking" through piles of paper; let *Gofer* search through all those computer files.

Using *Anthropac* for the Pile Sorts, Ratings of Foods, and Other Structured Data

Module 1 directs you to gather information about how people sort the basic food list into groups. From this sorting, you get interesting new information about the *criteria* (the attributes or qualities) people use to place foods into different groups or categories. Using those data does not require that you use a computer program. On the other hand, you can do some very interesting additional analysis using the microcomputer program, *Anthropac*. Also, the data that you gather in Module 3, concerning peoples' ratings of the various foods (using different qualities or attributes), can be put into the computer so you can look at which foods are rated as similar by your respondents. You can also use *Anthropac* to look at the similarities and differences

among your twenty-five to thirty respondents. Anthropac has a wide range of different routines and you will use only a few of them. Here is a brief description of the routines in this program that are most likely to be useful for you:

- i. Enter your matrix of data on food ratings by each respondent. You can put in a data set with each line (row) representing a person and each column representing a rating on a particular food.

Anthropac has an editor (like a word processor's, only simpler) that can be used for constructing small-scale data files. When you have only twenty-five to thirty interviews, you can easily enter the data directly into the Anthropac editor and then do some simple descriptive statistics, using the *Univariate* subroutine.

(On the other hand, if your organization already uses some other statistical program, it is best that you use whatever has become standard practice in the organization.)

- ii. You can also enter the pile sort data into Anthropac and look at the way the food types are clustered, based on the ways in which people put the items into groups. This gives a statistically powerful view of the patterning of foods in the community. (Di-

rections for carrying out the Pile Sort analysis and related analyses are provided with Anthropac.) These are easy-to-learn computer routines, if you have an adviser in your program who knows how to use computer programs.

Summary Comments

This section has very brief comments on a few of the many things that you can do with microcomputers. The most likely primary use, as we noted above, is that you use the computer as a writing machine. For that all you need is the computer, the word processing program, and a printer.

Gofer is very useful and you should strongly consider getting it if you are using the computer for all your fieldnotes.

There are a great many other computer programs that you might use and perhaps your organization already has some other activities with the special programs that go with them.

If you have not yet used microcomputers in your organization, then it would be important to consult funding sources and other advisers, about the feasibility of adopting the use of microcomputers for the research and intervention programs.

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Appendix 13

Glossary

The following definitions are presented as relatively theory-free vocabulary for talking and writing about information-gathering and other operations in intervention projects. The definitions refer to the language used in this manual. Other academic disciplines and international programs, have somewhat different styles of vocabulary and terminology. In some cases, medical people and social scientists use similar words, but with somewhat different meanings. The definitions in this manual are, in most cases, those in common use in applied health programs.

Attribute (synonymous with characteristic). Any observable or imagined quality of a person or thing that is referred to for evaluating or categorizing that person or thing. For example, color, taste, physical shape or size, costliness, goodness, healthiness, sacredness, etc. In all cultures people categorize foods by referring to attributes such as tastiness, best way to prepare, filling, costliness, nutritiousness, strengthening, and many other qualities.

Basic (Generic) questions. A set of questions about main features or qualities that are important starting points for almost any intervention project. Such questions are fundamental to operational planning and are much the same regardless of the type of population or type of intended intervention. For example, "What is the size and location of the intended target population?" Answers to this question are essential to any project, regardless of the specific nature of the expected intervention.

Bitot's spots. These white, foamy or cheesy patches form on the conjunctiva, the white area surrounding the cornea. Bitot's spots are often accompanied by nightblindness.

Carotene. A category of yellow-red pigments (lipochromes) found in many animals and plants (notably carrots), that are important because they are precursors (building materials) for vitamin A.

Community. Any more-or-less distinct geographic locality, such as a rural town or village; in urban areas it may be a ward or neighborhood, usually with a name. In a more abstract sense, people may speak of an entire city, or the nation, as a community.

The concept of community is primarily useful for designating a population to be studied, or population to be served in a particular program or project. The term *community* does not imply anything about solidarity, cohesion, or degree of structuredness. Some communities are ridden with factionalism and strife; some suburban communities have almost no organization or social cohesion.

In some cases, the word *community* is used to refer to the catchment area of a particular health or service facility. In such cases the geographically designated community may have practically no other claim to "communityness" other than the designation as a service area.

Community-based. Activities and organizational features (e.g., offices, outreach work) located in the midst of the target or client population, in contrast to being based in some central governmental location, in a hospital, or other facility that is geographically and socially distant from the people who are being served.

Community health workers; community-based workers. Any members of a health program or intervention program whose work is primarily carried out in the geographical location of the client population. This contrasts with hospital-based or office-based personnel.

Community-level. see *Community-based*, above.

Community participation. In an intervention program, this includes persons from the client or target population in at least some of the stages of situation assessment, planning, and selecting interventions, and carrying out of the actual intervention activi-

ties. Such involvement from the client population may be compensated (salaries, honoraria) or it can be based on volunteered services. The participation may involve local advisory committees, volunteer or paid peer counselors, volunteer or paid information collectors, including survey interviewers, as well as a variety of informal forms of involvement in program activities.

Concept (or construct). Any entity (usually a word or phrase), that is a key element in statements about information-gathering and that serves as an orientation point or an element of explanation in data-gathering or analysis. (Community, culture, outreach, addiction, decision-making, and sharing are all concepts.)

Conjunctivitis. Inflammation of the mucous membrane that lines the inner surface of the eyelids. Due to infection.

Corneal ulceration. Ulcers appear on the cornea. Treatment should be sought immediately because the child is in danger of losing complete vision in the eye where the ulceration is manifested.

Corneal xerosis. This refers to the drying of the cornea, the transparent part of the eye in front of the pupil. Corneal xerosis is a sign of severe xerophthalmia indicating that the vision is severely threatened. With proper treatment in the form of mega-dose vitamin A capsules, a child can recover completely from nightblindness or Bitot's spots, while a child with corneal xerosis may or may not regain complete vision.

Culture (see also Food culture). The systematic patterns of explicit and implicit concepts (ideas) about behavior and behavior settings (environments), learned and used by individuals and groups in understanding and adapting to their life situations.

We have gradually realized that it is useful to define culture as that which is in the heads of individuals—ideas, concepts, recipes for behavior, values, attitudes, and expectations. Culture is most *visible* in the language—the words and expressions—that people use in talking and thinking about various domains of information.

Culture pattern. Any system of ideas concerning usual expectations for behavior, actions, types of persons, definitions of situations, ways to do things, and the equipment (technology) used in a particular topic

or focus. Examples are the culture patterns of daily meals, categorizing of foods into food groups, and the various ideas of appropriate and inappropriate foods for pregnant and lactating women.

Data (singular: datum). A plural word referring to any information from empirical observation, whether qualitative or quantitative in form. In quantified studies such as surveys, the raw data are in the form of answers to specific questions, that are then aggregated or grouped to present frequency distributions and other forms of summary data.

In qualitative research based on open-ended interviews and general observations, the field notes and interview notes are the raw data. Sometimes groups of open-ended interviews are subjected to content analysis, from which one can obtain frequencies of repeated themes, and other quantified data.

Domain. Any topical area of information or phenomenon, whether broad or narrow, that contains a systematic array of units or elements. For example, the domains of plants, animals, crops, healthy foods, and treatments of illness.

Emic. Referring to information and observations constructed to reflect as far as possible the client (target) population's own vocabulary, conceptual categories, language of expression, and cultural belief system. The word contrasts with *etic*, that refers to information collected in terms of the conceptual system and categories, of the health professionals or other outsiders. To collect *emic* data, it is usually necessary to use the local language or dialect and gather information in a very open-ended, nondirective way.

Example: When you use the pile sort technique and ask informants to "group the food items in any groups you wish to...any way that you happen to think of," the resulting groups are *emic* categories.

Empirical. Referring to, or based on, observations (data-gathering) of real world phenomena (as contrasted with abstract modelling or armchair speculation).

Etic. Research observations and data constructed in the researcher's system of categories and definitions. For example, if we collect data using a scientific definition of xerophthalmia, these data would be considered *etic*.

Focused ethnographic study (FES). The use of a clearly specified set of structured ethnographic information-gathering techniques in a relatively short-term

study of a health issue or topic, usually for a specific applied purpose.

Food culture. The entire system of beliefs and practices concerning food production, acquisition, distribution, and consumption, characteristic of a particular group or community.

Household. Any co-residential, domestic group that shares common cooking and eating facilities and other social and economic arrangements. Households are often useful units in terms of which samples are selected for study by both qualitative and quantitative methods. In most cases a household is made up of all the residents of a house, apartment, or other such residence. In some cases it is useful to consider brothels as households, if the women live in the same building, share the same food, and cooperate in the maintenance of the living area.

Hypothesis. A hunch or idea, especially concerning relationships between concepts or variables. That is, any hunch about the types of people, relationships among the different actors and actresses, or the way things are done in the target community. Such hypotheses then serve as guidelines for the design of information-gathering. Hypotheses may be deduced from theoretical systems, or they may arise inductively from specific empirical observations. They may also arise, seemingly spontaneously, from your thought processes.

Illness. The physical and psychological discomforts and ailments as seen from the perspective of the person suffering these conditions. Thus, illness is used as an *emic* term, to contrast with the *etic* term, disease.

Inductive research. A data-gathering approach in which the researchers gradually discover categories, variables, and generalizations as they emerge from the data. This methodological approach contrasts with deductive research in which the categories and variables are structured in advance from a theoretical system. In general, qualitative research such as the data-gathering presented in this manual, tends to be more *inductive* than is common in quantitative research.

Informant. A person who gives information about any topic we are interested in learning about. The informant may give us the information in response to a structured or unstructured interview, or simply

in informal conversation. If we have several contacts with the informant and develop a social relationship of information exchange, we refer to that person as a key-informant.

Iteration, iterative (action or tactic in getting information). The process of circling back, to repeat some research operations, such as going back to a key-informant to ask more questions on a particular subject; going back to your set of key questions to revise them based on new information; or returning to revise your map of the community, after you learn more information. This is a basic principle in qualitative research.

Keratomalacia. At this stage of xerophthalmia the cornea appears to actually melt away. Even if the child's sight cannot be saved, remember that corneal ulceration and keratomalacia are signs of severe vitamin A deficiency which is life-threatening. Therapy to save the child's life should be sought immediately.

Key-informant. An informant with whom you have repeated conversations and interviews and with whom you develop a more or less cordial relationship of information exchange. Some fieldworkers call these persons key actors/actresses, or community consultants, because they are persons who have a lot of information and are able to tell the information to you fairly systematically. In situation assessment, key-informants are essential for providing in-depth details about the target community and people.

Macrolevel (in an intervention). Pertaining to activities and influences coming from the level of the city, region, or nation. (Contrast with *mesolevel* or *microlevel*.)

Example: An intervention to change the municipal law enforcement (e.g., to permit unrestricted distribution of condoms in the city) is a macrolevel intervention.

Measurement. Any act of empirical observation, with or without physical instruments, that makes publicly clear (and potentially replicable) through some set of rules or definitions, the mapping or translation of the observed things, events, persons, and the relationships among them, into data units (symbols), either textual or numerical. Such mapping or translation results in patterns of correspondence between the things, events, relationships observed, and the symbols that represent them as data.

Example 1: (using instrument) We use a sphygmomanometer placed on a person's arm to measure blood pressure. The instrument is defined in such a way that the height of the column of mercury is read as a unit of pressure.

Example 2: (contents of interview question) We might define, in a given survey in a population, that the religion of the respondent will be the answer that she or he gives to the question, "What is your religion?"

Median (median value). The midpoint in a distribution of numbers, at which there are an equal number of cases above (more than) and below (less than) the median value. In the following list of children by age, the age of the *median child* is sixteen years:

Ages of the children:

4 6 8 9 10 11 16 17 17 18 18 19 19

Mesolevel (in an intervention). Pertaining to activities and influences at the level of the community or subcommunity that is the specific target population.

Microlevel (in an intervention). Pertaining to the individuals in the target or client population—their behaviors, knowledge, attitudes, skills, and other qualities. For example, knowledge-attitude-behavior surveys aim to find out information about the microlevel of intervention. Interventions that try to persuade persons to change their behaviors are microlevel tactics.

Model. Any physical forms, whether in writing (e.g., tables, charts, flow diagrams), mathematical symbols, diagrams, or three-dimensional structures, that are used as a simplified analogy for some aspect of phenomena about which we are gathering information.

Examples of models include diagrams, maps, model cars, airplanes, houses, or other structures. Some nutrition researchers use plastic models of foods as examples or memory aids when interviewing people about their food intakes.

Nightblindness. A physical condition in which a person cannot adapt to dim light or to a darkened room or setting. If a child can crawl or walk, the mother may notice that the child suffering from nightblindness becomes inactive at dusk or night time.

Participant observation. Direct participation by a data-gatherer in the daily living and day-to-day activities of a community or intervention location, so as

to make possible the systematic description of activities through notes from direct observation, plus additional data from verbal statements of people involved in those same events and activities.

Probe; probing. Follow-up questions or comments used by an interviewer to go deeper or to get more detail about something an informant says. Here are some examples of effective probes:

"That's very interesting; can you tell me more about it?"

"Could you give me a case of a family who regularly uses those plants in their diet?"

"Any other examples?"

"Could you tell me exactly what happened when Ilira had nightblindness and what she did?"

"Could you go over that again, maybe using her exact words as you remember them?"

Qualitative data. Information based on empirical observations that is collected and presented in non-numerical form. This includes text materials as well as pictures, maps, diagrams, and other patterned information.

Quantitative data. Information based on empirical observations presented in the form of numbers, regardless of the level or precision of measurement.

Respondent. A person who answers a set of questions in an interview or questionnaire. The responses given by the individual are considered to pertain to that person alone and not to a wider population whom the individual purports to represent. One who answers an interview in this assessment procedure, for example.

Retinol. The physiologically active, principal component of vitamin A. Animal foods (meats, eggs, milk) contain retinol. Plants do not contain retinol, but they have carotene, which is transformed into retinol in our bodies.

Staple food. Food that is consumed on a regular, often daily, basis by most of the population and which usually provides a major portion of their calorie intake. For example, millet is the staple food of numerous countries in Sahelian West Africa, maize is the staple in many South American communities, and rice constitutes the staple in many Asian countries. For purposes of this manual, some items of lesser caloric value may also be considered staples

if consumed on a near-daily basis. Such items include oils, chilis, and onions.

Subculture (pertaining to any identifiable group). Same definition as *culture*, but applied to a particular category or subgroup of people who are part of a larger culture or society.

Example: The differences in cultural patterns between high caste families and low caste families in an Indian village can be usefully considered as subcultures (subcultural differences).

Subgroup. A smaller segment of the main group.

Symptom (of an illness). Same as sign with the additional implication that this sign is a causally related member of a cluster or pattern of signs that characterizes a particular illness.

Target population (same as client population). The population or group that is expected to be the recipients of an intervention program. In a program aimed at changing injection drug use behaviors, the injection drug users (and probably their sex partners) are the target population.

Note: In many intervention programs there will be multiple client, or target, populations. Usually different client populations will require different strategies of intervention.

Theory. Any system of concepts and propositions about concepts, intended to generalize about, or explain observable actions, behaviors, and other phenomena in some real-world domain. For example, we have long spoken of the germ theory of disease. When (later) viruses were discovered, we could speak of the germ and virus theory of disease.

It is a widely held common sense notion that all people have their theories of human behavior to account for particular forms of behaviors. Also, all people have theories of the causes of disease. Practically all such theories are composed of statements (generalizations) in the form of "If _____, then _____." "If my child is exposed to chilling wind or water, she or he is likely to get a respiratory illness."

Triangulation. The process of using data from two or more different sources to verify or estimate a particular datum (piece of information). The term is from surveying and ocean navigation, in which the observer sights on two different points at some distance and then uses the triangle (observer-point 1-point 2) to calculate location or distance.

In qualitative research and situation assessment, triangulation takes the form of verifying points of information by comparing the statements of independent key-informants, comparing statements of informants with one's own direct observations, or other combinations of independent data sources.

Validity. The extent to which a particular method of measurement (observation) actually represents that which it claims to measure. For example, peoples' reported income on their tax forms may not be a valid measure of their economic status (because they do not give the true amounts). The issue of validity is especially complex in most variables that deal with human behavior.

Variable. Any concept about which we gather information, that is thought to be composed of measurable phenomena that can assume more than one value, state, or degree in empirical observations. Income level, socioeconomic status, level of education, etc. are all variables. Concepts or phenomena that only have one single form or value in a population or site (e.g., everyone in the community speaks Spanish) are said to be constants.

Vitamin A-rich. Animal food sources or food sources of plant origin containing a high content of vitamin A. Animal sources contain active preformed vitamin A called retinol. Some animal sources that are rich in vitamin A are liver, fish liver or fish liver oil, egg yolk, butter, and cheese. Food sources of plant origin contain provitamin A or carotene. Foods rich in carotene are: dark green leafy vegetables (DGLVs), such as cassava leaves, spinach, amaranth, red sorrel and baobab leaves; yellow and orange fruits and vegetables, such as mangos, papayas, red sweet potato, pumpkin, carrots; and red palm oil which is widely consumed in parts of Africa.

Xerophthalmia. This term, which in Greek means *dry eyes*, is used to describe all ocular signs of vitamin A deficiency. Xerophthalmia, or nutritional blindness, is an eye disease that is most prevalent among preschool children ages six months to six years, but can also be found among pregnant women and adolescents. Xerophthalmia, caused by insufficient intake of vitamin A-rich food, can be compounded by various childhood diseases including measles, diarrhea, and respiratory infections. Xerophthalmia occurs at a late stage of the deficiency and indicates that the child is at-risk for blindness or death.