

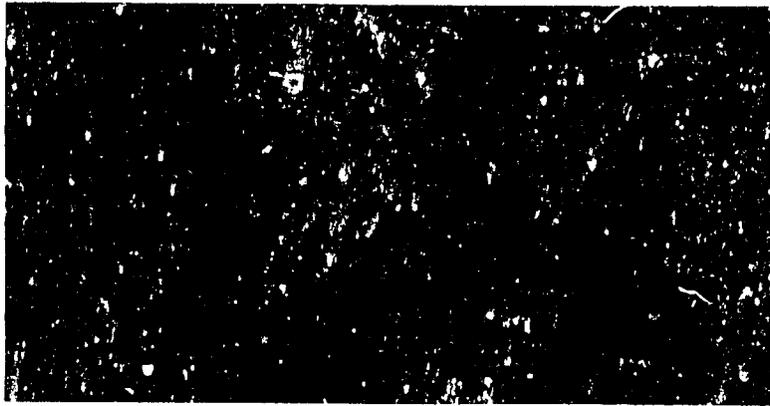
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Guidelines for Incorporating Nutrition
Into the Design of Primary Health
Care and Related Development Projects

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Preface and Acknowledgements

These guidelines have been developed in response to a request made a year ago by the Health and Nutrition Division of the AID Africa Bureau. The International Nutrition Unit (INU) of the Office of International Health (OIH/DHHS) was asked to assist in improving the nutrition components of their health projects. Initially, the INU reviewed available documents for the sixteen service-delivery PHC projects the Africa Bureau currently supports. Three documents resulted:

Nutritional Problems in AID-Assisted Sub-Saharan African Countries: A Socio-Ecological Classification of Target Groups (INU Paper #3)

Nutrition Components of AID-Supported Primary Health Care Projects in Sub-Saharan Africa: A Review (INU Paper #4)

AFR/TR/HN - Nutrition Position Paper (Baumslag, with INU assistance)

In a following phase, in-depth field reviews were undertaken for three important Africa Bureau PHC projects, those in Senegal, Tanzania and Sudan.

The guidelines presented here are a direct result of these reviews. Recommendations of nutrition elements to be incorporated into the Africa Bureau Health Strategy will also be a result of the findings of these reviews. The preparation of the guidelines has benefitted from recent INU participation in the design of the nutrition components of two Africa Bureau projects: the Sine Saloum Rural Primary Health Project and the Casamance Regional Development Project, both in Senegal.

We wish to acknowledge the contributions of Claudio Schuftan in the development of these guidelines, of AFR/TR/HN Nutrition Advisor Mellen Duffy and her colleagues in the Health Division in modifying initial drafts, and of ST/N colleagues in the technical review of the document. We have appreciated the comments we have received thus far from mission health officers and advisors, and await further feedback on the usefulness of these guidelines.

Charles H. Teller
Director
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Executive Summary

These guidelines have been developed to provide direction for the integration of relevant, feasible nutrition interventions into the design of PHC and related development projects. They follow directly from a recent INU/OIH review of AID-assisted PHC projects in Sub-Saharan Africa. One of the main findings of the review is that, despite the availability of untapped data, nutrition problems and target groups are in general inadequately defined in project design documents. In the absence of a clear statement of the nature of the problem, and the establishment of nutrition priorities and specific objectives, project nutrition approaches have had little demonstrable relevance to local needs and conditions.

The guidelines take the approach that the development of effective programmatic responses depend on adequate initial assessment: of the extent and severity of nutrition problems, of their possible causes, and of the capacity of the health system to sustain different kinds of nutrition efforts. Broader project and CDSS health sector assessments provide the context in which the guidelines might best be applied; they contribute to essential elements of the needed assessment, particularly in relation to the capacity of the health system, which could not be addressed in detail here.

The guidelines are meant to augment the technical capability of those involved in the design or re-design of PHC projects, including health and development generalists in AID missions, project design team members and host government counterparts. It is hoped that, if used early enough in the project design process, the guidelines will facilitate the identification of nutrition components which are relevant and feasible, and which are an integral element of the overall project approach.

Figure 1.1 (p. 8) illustrates the main elements of the sequential process for planning PHC nutrition components offered in these guidelines. The first step, discussed in detail in Chapter 2, is to conduct simple, adequate assessments using existing data in order to establish priority problems and target groups. Even where national nutrition surveys are not available, a variety of sources can provide adequate data for initial assessment.

Direction is provided for locating and analyzing nutrition-related data from local nutrition surveys, socio-economic and demographic surveys, censuses, and health service statistics. Data frequently available from these sources can be used to identify the important characteristics of groups at risk of the most serious nutrition problems. Priorities for action can further be defined by the use of "threshold levels", i.e. the proportion of the population which falls below established cut-off points considered unacceptable for key indicators. Public health problems frequently associated with sub-threshold nutrition indicators, and which may be life threatening for those who are malnourished, should be considered for special project attention.

In Chapter 3, attention is called to the importance of determining the level of institutional capability of the PHC system which will support nutrition efforts. This is essential in weighing the advantages and disadvantages of nutrition interventions which tax the underlying system in varying ways and to varying degrees. Minimum, medium, and advanced levels of PHC institutional capability, based on models developed from field observations in the recent INU/OIH Africa PHC project review, are briefly described.

Five major PHC nutrition interventions - nutrition status monitoring, infant and young child feeding promotion, food/nutrient supplementation, nutrition rehabilitation, and community nutrition actions - are defined in terms of the specific activities in each that could be sustained at the three levels of health system development. Greater intervention complexity corresponds with higher institutional capability. Actions in support of maternal nutrition and nutrition education activities are essential elements of each of the five interventions, even at minimum levels of system development.

Chapter 4 provides guidance for selecting and integrating appropriate nutrition approaches into the design of PHC projects. Matrices are presented to assist in weighing the relative merits of the range of interventions relevant to a given nutrition problem. Comparison is based on criteria related to feasibility, cost, effectiveness and degree of community involvement. These concerns can only be adequately weighed with project-specific information in hand regarding the particular capabilities and constraints of the system. An intervention whose high training and supervision requirements might preclude its consideration in one project, could be acceptable in another context where its ability to stimulate community self-reliance would be adequate justification for the substantial input required. The purpose here is not to necessarily select a single approach but rather to ensure that those planning nutrition components are aware of the varying implementation requirements of different interventions.

Finally, emphasis is placed on the importance of developing integrated nutrition approaches, ie. components containing activities which complement one another as well as serve the objectives of other PHC programs. Potential integrated "packages" of activities complementary to maternal and child health (MCH), expanded programs of immunization (EPI), and diarrheal disease control (DDC) programs are illustrated. These also are described in terms of phases which correspond to different levels of PHC system development. Even where health system capability is limited, the most appropriate approach might not be full implementation of a single nutrition intervention but rather the use of less complex activities from several interventions which complement one another and can also serve overall project objectives.

Annex 1 outlines resources available to AID missions in support of the use of the guidelines. Annex 2 provides references for some of the most useful documents available to assist in the actual design of PHC nutrition interventions.

Chapter 1

Introduction

The urgency of the nutrition situation in Africa - the alarming deterioration in per capita food production, exceptionally high rates of infant and young child mortality and malnutrition - calls for redoubled efforts in all sectors which affect food production, distribution, consumption and its biological utilization. Designing nutrition interventions which are both appropriate and feasible in the face of the severe infrastructure and resource constraints found in Africa, however, represents an unprecedented challenge.

Recognizing the underlying socio-political and economic causes of this situation, primary health care strategies of promotion and prevention, community participation, and inter-sectoral coordination can provide a direct means of reaching and assisting populations most vulnerable to malnutrition.

The Focus of the Guidelines

The guidelines presented here will hopefully facilitate the incorporation of relevant, potentially effective nutrition approaches into the design of Africa Bureau PHC projects, or health components of related development projects. Efforts to improve AID's PHC nutrition approaches fall clearly within the framework of the Agency's Nutrition Policy Paper (May 1982) and the AID Nutrition Strategy (Sector Council for Nutrition, November 1982). These documents call for the improvement of food utilization and reduction of nutrient losses through nutrition and health education, as well as disease prevention and control

activities in PHC. This direction is reinforced by the Africa Bureau Health Strategy (draft, January 1983), the first element of which calls for "developing primary health care systems which improve and expand cost-effective interventions for the control of common diseases, the improvement of nutritional status and the effective practice of child spacing" (emphasis ours).

The AID Policy Paper on Health Assistance (December 1982) targets improved project design and management in its Health Program Assistance Activities. As a part of improved health project design the paper indicates that basic health delivery efforts should include some combination of essential services, including the nutrition activities of growth monitoring and prenatal screening for high risk mothers, both to be complemented by nutrition education and supplemental foods where feasible.

A recent INU/OIH review^{*} of the sixteen service-delivery PHC projects AID supports in Sub-Saharan Africa revealed, however, the need for improved methods of designing nutrition components of PHC projects. The review found a general paucity of discussion in project documents of nutrition problems, their interrelationships with priority health problems, or how they might best be addressed through the project. Substantial confusion about the nature, purposes, and means of implementing PHC nutrition interventions was also found.

* J. Wilcox; C. Corso and C. Teller Nutrition Components of AID-supported Primary Health Care Projects in sub-Saharan Africa: A Review, INU Technical Report No. 4, INU/OIH, (Sept. 1982).

Perhaps the most important design deficiency noted was that project documents rarely established the link between the nutrition approaches selected and priority nutrition problems. Assessments of nutrition problems were generally superficial, and didn't include a variety of data commonly available. In the absence of adequate analyses of nutrition problems and their causes, the relevance of the nutrition approaches selected was often unclear. In addition, the degree to which they were consistent with available resources and capabilities was largely unsubstantiated.

These problems are rarely due to a lack of interest in nutrition issues on the part of those designing PHC projects. More often they are due to insufficient technical expertise in nutrition among design team members as well as time and resource constraints in the project design process.

The guidelines are meant to augment the technical expertise of design team members by providing concrete directions for PHC nutrition assessment and intervention selection. Specific guidance is presented on how to do adequate assessments of nutrition problems using available data. Such assessments then provide the foundation for a systematic method, also presented here, for selecting nutrition interventions which are relevant and feasible.

The guidelines are meant to be applied at an early stage in project design. Ideally, the sources of extant data required in Chapter 2 would be identified and the data pulled together in time for the arrival of the PID (Project Identification Document) design team. This would ensure that the exercises presented here for

simple problem assessment as the basis for selecting appropriate project responses could be completed while the PID is still taking form.

By attempting to improve PHC nutrition project design, the guidelines are a tool missions can use to integrate Agency health and nutrition policies and strategies into their programs.

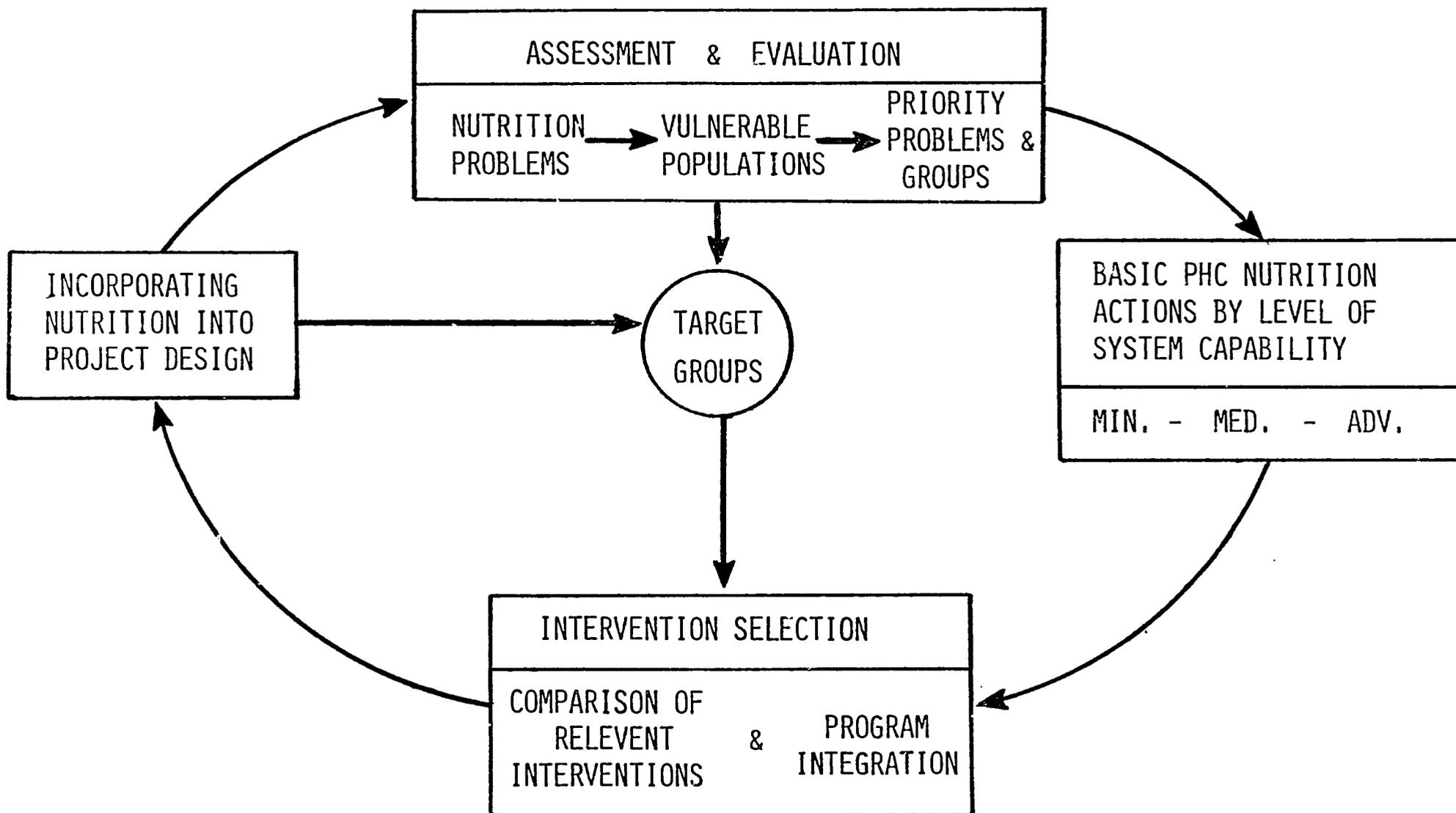
The Form of the Guidelines

Figure 1.1 illustrates how individual chapters of the guidelines contribute to the overall approach. Chapter 2, Nutrition Problem Assessment for PHC Project Design, gives direction for assessing the extent and severity of nutrition problems in the project area, identifying the most vulnerable target groups, and determining priorities among problem-groups. The method relies on data generally available in African countries and provides guidance for locating and analyzing data for the purposes of assessment. In addition, the data can in some cases be suggestive of the causes of malnutrition in specific regions. This information can serve to fine-tune the subsequent design of nutrition activities to reflect local needs and constraints.

Chapter 3, Nutrition Interventions Appropriate in Primary Health Care, briefly addresses the importance of assessing the capacity of the health system which will support PHC nutrition action. Detailed guidance on conducting such assessments is not possible within the scope of these guidelines. CDSS sector assessments as well as overall PHC project design assessments provide the context in which the guidelines can best be applied. Attention is drawn, however, to the necessity of understanding

FIGURE 1.1

INCORPORATING NUTRITION INTO PHC PROJECT DESIGN



the current capacity of the system to ensure that PHC nutrition interventions can be adequately supported.

In addition, Chapter 3 describes potential PHC nutrition interventions, including nutrition status monitoring, infant and young child feeding promotion, nutrition rehabilitation, food/nutrient supplementation, and community nutrition actions. Specific activities which represent minimum, medium, and advanced levels of intervention complexity are illustrated. These levels correspond broadly to increasing levels of system capability; as the capacity of the support system improves, more complex interventions can be gradually phased in.

Chapter 4, Selection of Project-Specific Nutrition Approaches, presents a method for selecting appropriate, feasible nutrition interventions drawing on information generated in the two previous chapters. First, matrices are used to compare interventions in terms of a range of criteria. The purpose is to illustrate the advantages and disadvantages of different interventions which need to be weighed in the context of a specific project. This is to facilitate the selection of interventions which are feasible within local project conditions and to facilitate adequate planning for their implementation.

Next, the chapter addresses how integrated "packages" of nutrition interventions can be incorporated into the design of new or existing PHC programs. These packages illustrate constellations of interventions which complement one another as well as other PHC programs and activities. These, too, are presented in phases to provide examples of integrated nutrition approaches

which may work in a range of PHC systems, from those of minimal to more advanced capabilities.

It is hoped that these steps will assist in the definition of nutrition approaches which are relevant to priority problems and feasible within local project conditions. The next step is the actual design of the chosen activities. A selected bibliography of helpful works for design purposes is presented in Annex 2. In addition, Annex 1 serves as a directory of resources available to missions in support of the use of the guidelines.

Chapter 2

Nutrition Problem Assessment for PHC Project Design

This chapter presents a method for nutrition problem assessment which relies on existing data generally available in sub-Saharan African countries. This method is a simplified version of an approach tested and found useful both for determining priorities among numerous identified needs and defining the target groups toward whom PHC nutrition efforts should be directed.* This provides the foundation for the selection of project responses which are truly relevant to local needs.

This method can also be used by AID project designers as a tool in constructing realistic and verifiable nutrition objectives, and indicators of their achievement for the project's "logical framework", or logframe. The recent INU Africa PHC project review found an almost total absence of measurable nutrition indicators in logframes.** The guidelines are meant to help determine the priority nutrition problems that might be included as elements of project "purpose" or "goals", and the selection of appropriate interventions to be included among the project's "outputs". By guiding the definition of nutrition objectives and indicators, and possible sources of data to permit measurement of project progress, it is expected

*This follows a conceptual approach ("functional classification") developed by Joy and Payne in 1975 and employed by WHO and INCAP in the late 1970's. Countries where variations of this approach have been used include El Salvador, Kenya, Costa Rica, India, Panama, Sri Lanka, Guatemala and Honduras. The method presented here has been adapted to the greater data limitations frequently found in African countries.

** J. Wilcox; C. Corso; and C. Teller, Nutrition Components of AID-Supported PHC projects in sub-Saharan Africa: A Review. INU Working Paper No. 4, INU/OIH, (Sept., 1982).

that future project logframes will explicitly incorporate nutrition elements, and be used to evaluate the results.

There are three main assumptions in this approach:

1. Frequently, existing data will be adequate for initial assessment purposes. Effort should be made to investigate the potential sources of data before new data collection is considered.*
2. Protein energy malnutrition is more usefully measured as prevalence in vulnerable socioeconomic groups (landless farmers, seasonal migrants, etc.) rather than prevalence in broad bio-demographic populations (all pregnant women, all infant, etc.).**
3. Assessment, as the basis for determining nutrition priorities and objectives, is essential to the selection of locally-appropriate nutrition interventions, and their subsequent evaluation.***

In sum, nutrition data will in many cases be available to identify what nutrition problems are most important, who the most vulnerable groups are, where the highest proportion of these malnourished groups live, and when during the year they are most vulnerable. Moreover, existing information on the socioeconomic and ecological characteristics of the most vulnerable groups and regions can suggest why they might be malnourished and help identify remedial, multisectoral actions.

Figure 2.1 presents a conceptual framework that places problem assessment and determination of priority problem groups into the broader context of selection of appropriate PHC nutrition approaches.

* See forthcoming Cornell/CDC paper which discusses when it is appropriate to undertake new nutrition surveys.

** C. Teller. Nutrition Problems in AID-Assisted Sub-Saharan African Countries, INU Technical Paper No. 3. INU/OIH (Sept. 1982).

*** Design and Evaluation of AID-Assisted Projects USAID, (Nov. 1980).

A. The "What"

The three major public health nutrition problems identified in most national surveys in Africa are protein-energy malnutrition, iron-deficiency anemia and Vitamin A deficiency. See Table 2.1 for descriptive indicators of each problem. Very often specific sub-problems, such as maternal anemia or acute young child malnutrition during the weaning period, will have the greatest public health significance. Indicators of nutritional status most commonly used in the field are anthropometric measures compared to a standard (eg., weight for age). In order for an indicator to be useful for the targeting of project services, "cut-off" points, such as 80% expected weight/age, and "thresholds" (the proportion of the population with indicators below the cut-off point considered unacceptable) are defined.* Public health problems frequently associated with sub-threshold nutrition indicators, and which can be life threatening for those who are malnourished, should be considered for special project attention. Threshold levels are shown in column four of Table 2.1.

Table 2.1 is presented as a worksheet to assist in problem definition by asking five sets of questions (one for each column):

1. What bio-demographic groups (i.e., maternal, infant, young child, adult male, etc.) are most affected by the specific nutrition problem?
2. What measurements are most commonly available to quantify the problem?

* WHO, Methodology of Nutritional Surveillance, WHO Technical Report Series 595, Geneva, 1976. Field research has served to establish the boundary between acceptability and unacceptability for some indicators of young child growth, for example. Below these cut-offs significantly greater negative functional consequences, such as increased measles fatality, can be expected.

3. What are the most valid indicators that are commonly based on these measurements, and are also amenable to generally acceptable cut-off points?
4. What are the recommended developing country standards for determining cut-off points and threshold levels for each indicator (these may be modified to reflect local growth or disease patterns, cultural factors, and health resources)?
5. What are the existing sources of data on which these indicators can be based?*

In Table 2.2, a variety of likely sources of existing in-country data for use in constructing nutrition assessment indicators are listed. A distinction is made between already published indicators, as are found in country profiles of certain international publications, and sources of raw data located in ministry annual reports, in health information systems, or in university-based surveys. In addition to these kinds of data, information of a more qualitative nature can be useful at the beginning. Requesting informed opinions on priority nutrition problems from national nutrition experts and other knowledgeable individuals can assist both in developing hypotheses and in locating the available quantitative data against which hypotheses can be tested.

B. The "Who" and "Where"

In the previous section, direction is provided for obtaining prevalence indicators of the most important nutrition problems,

* During this initial assessment, gaps in the available information may be identified. Decisions regarding their seriousness, and the need for additional data through the existing health information system or by special surveys, will need to be made on a project-specific basis.

and their quantification by demographic group. Next it is important to be able to define the population groups with the highest proportion of these problems. These would be the most likely targets of PHC nutrition interventions.

The first step is to find data on the number and distribution of the most vulnerable groups. Where a national nutrition survey has been carried out, cross-tabulations are usually available for this purpose. See examples in Tables 2.3 and 2.4. Where no such recent surveys exist, the next best approach is to find data on the distribution of families that live below a nationally-established poverty level. This is useful data because of the very close link between poverty and malnutrition. Censuses will often provide tables on the characteristics of these families and the geographic regions with the highest poverty levels. Look for the social, economic, ecological, agricultural, housing and demographic characteristics that are most associated with these poverty groups and areas. A worksheet for this purpose is found in Table 2.5.

The next step is to find health/nutrition surveys or studies in which the socioeconomic and demographic characteristics most highly associated with malnutrition have been determined.* Some of the characteristics commonly associated with malnutrition in rural areas are, for example, small land-holding, migratory status, illiteracy, closely spaced children, lack of access to piped water

* See M. Latham, Human Nutrition in Tropical Africa, FAO, 1979; N. Baumslaug, Nutrition Position Paper, Devres, Oct. 1982; C. Teller, Nutrition Problems in AID-Assisted Sub-Saharan African Countries, INU Working Paper No. 3, INU/OIH, Sept. 1982; and Maternal and Infant Nutrition Reviews Series, INCS, 1982.

and excreta disposal, etc. The key is to identify the population groups with the highest percentage of the factors directly associated with one or all of the three most common types of malnutrition. In this way, the potentially high-risk social and geographic target groups and areas can indirectly be identified.

The procedure in using Table 2.5 to identify the areas with the highest concentration of vulnerable families is as follows:

1. Identify the most recent reliable and representative nutrition study done in the country, and locate the data presented in tabular form.
2. Find tables that cross-tabulate one, or all three, of the major nutrition problems by the socioeconomic and demographic characteristics commonly associated with malnutrition and generally found in censuses. These include occupational categories, housing and education characteristics, water and environmental sanitation conditions, land size and tenure categories, and possibly family composition characteristics. These are the risk characteristics to help identify vulnerable groups.
3. Determine the characteristics most highly associated with nutrition problems. For example, a finding might be that of families with malnourished children, 70% live in households without piped water, 65% own no land, and so on.
4. Using Table 2.5, locate the administrative regions and/or ecological zones with the highest percentage of families with these characteristics. These regions can be identified as the project target areas, for they are

where the highest concentration of households with characteristics found to be closely associated with vulnerability to malnutrition are found.

If it is impossible to fill out Table 2.5 based on existing nutrition data, indirect indicators of protein-energy malnutrition can be used. Infant and young child mortality rates are among the best indirect indicators for which data are generally available by administrative area or development region. Sources of mortality data include vital events or health statistics, demographic surveys and census data. See Table 2.6. If these mortality data have been judged to be too inaccurate, then a simple indicator can be used which shows the proportion of all deaths that occur in children under 5, or between ages 1 year to 4 years. This indicator has been used successfully in a number of countries where neither reliable and current national nutrition prevalence nor infant and child mortality rate data existed.

Once the socio-economic characteristics of malnourished families and their demographic and ecological distribution have been determined, the data can begin to suggest some of the proximate causes of their vulnerable condition. Those related to food supply, availability and consumption, as well as broader resource distribution, can often be best addressed through integrated rural development programs in which community action is promoted by community-based health or rural development workers. Some specific PHC nutrition-related interventions, such as prevention of diarrhea and oral rehydration therapy, can improve the biological utilization of food.

It is beyond the scope of the guidelines to discuss methods of obtaining direct information on the causes of malnutrition.* For initial assessment purposes it is sufficient to use threshold levels to identify those communities in greatest need of integrated PHC nutrition and development interventions.

The ability to respond to problems identified will depend on project resources, the level of development of the health delivery system, and, in part, on the existing programs and policies that affect nutrition problems among the target population. It may not at first be possible within the constraints of project resources and capabilities to intensively address all of the nutrition problems identified. Targeting one problem over another for project action is not necessarily the best approach, however. It may be more effective to identify the simplest elements of nutrition interventions which can work together to address the major problems identified and upon which more intensive actions can be built once the capacity to support them has been established. Chapter 3 briefly addresses assessment of the health system to support nutrition components, and describes the range of PHC nutrition interventions, and elements of each, which may be sustained at different levels of health system development.

* In-depth prospective studies on the process of becoming malnourished seem to offer the most useful results. Important factors that involve values, attitudes and practices cannot usually be assessed easily with available data. These factors include intra-household allocation of food, weaning and other food practices, perceptions of nutrition problems, gender preferences, etc.

FIGURE 2.1

NUTRITION PROBLEM ASSESSMENT AND COMPONENT SELECTION PROCESS

<u>MOST COMMON PROBLEMS</u>	<u>TARGETING</u>	<u>CAPACITY OF PHC SYSTEM</u>	<u>PHC NUTRITION INTERVENTIONS</u>
Protein-energy Malnutrition	Demographic	Complementary Programs: Maternal & Child Health Diarrheal Disease Control Water and Sanitation	Nutrition Assessment/Monitoring
Anemias	Socio-economic	Logistics and Supply	Infant Feeding Promotion
Vitamin Deficiencies	Ecological	Training, Supervision, Support	Community Nutrition Actions
	Geographic/Administrative	Community Involvement	Food/Nutrient Supplementation
			Nutrition Rehabilitation

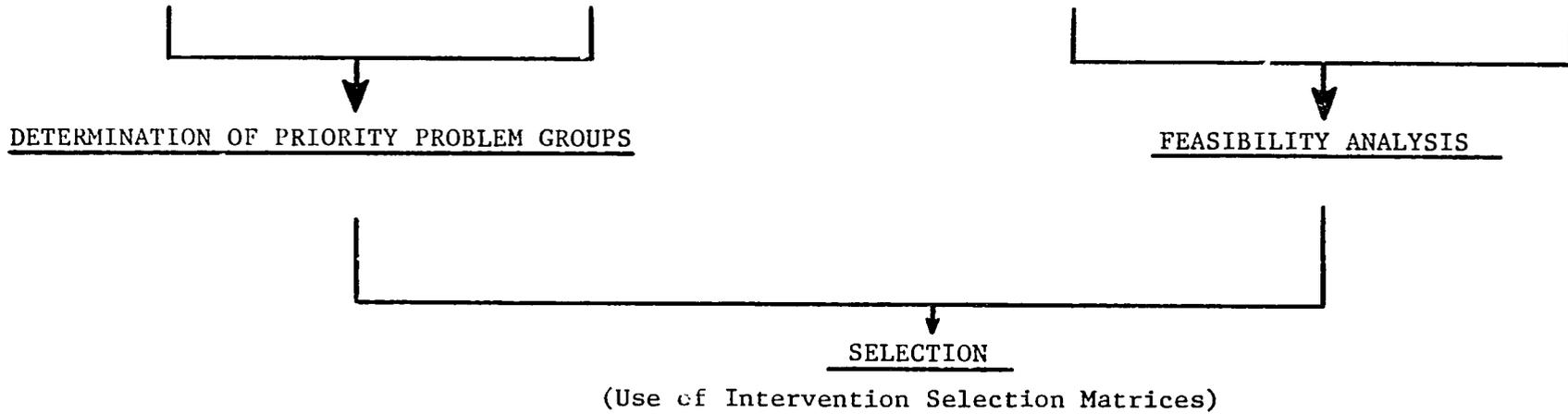


Table 2.1

SIMPLE INDICATORS OF MOST PREVALENT NUTRITION PROBLEMS

<u>Problem/Demographic Group</u>	<u>Measurement</u>	<u>Indicator</u>	<u>Thresholds*</u>	<u>Usual Sources of Data</u>
1. Protein-energy Malnutrition	<u>Direct</u>			
a. Undernutrition in children 6-36 months (or 0-59 months)	1) Weight Age	- Weight-for-Age	20% under 80% of reference	- MCH Clinics, Food Supplementation Programs, Surveys, etc.
	2) Arm Circumference	- Arm Circum.	20% under 13.5 cm. (+ 80% of ref.)	- Quick Surveys - Vital Statistics or retrospective census
	<u>Indirect</u>			
	3) Deaths Age Population	- Infant mortality - Child mortality (12-48 mo.) - Proportion of total deaths from children under 5	- over 15% - over 2% - over 50%	- Vital Statistics or Retrospective census Questions
b. Maternal Malnutrition	<u>Direct</u>			
	1) Arm Circumference	Arm Circum.	20% under 22.7 cm.	- Quick Surveys
	<u>Indirect</u>			
	2) Birth Weight	Low Birth Weight	15% under 2.5 kg.	- MCH clinics, maternity centers, hospitals
c. Kwashiorkor in under 5's	<u>Direct</u>			
	Bipedal Edema	Edema	- 10% of pediatric hospital admissions - 2% of clinic visits	- Hospitals - Health centers
2. Iron-deficiency Anemia:	<u>Direct</u>			
a. Pregnant women	Hemoglobin	Hemoglobin Level	25% under 10 (g/dl ml)	- MCH clinics, surveys, out-patient clinics
b. Adult males & children	"	"	30% under 11 (g/dl ml)	
3. Vitamin A Deficiency in under 5's	<u>Direct</u>			
	Night Blindness		1.0%	- Surveys
	Bitot's Spots		0.5%	
	Serum Retinol		5% under 10 (μ /dl)	
4. Other (Goiter, ** other vitamin, etc.)		(Include depending on other national or sub-national nutrition problems suspected to be of importance to the health and productivity of the population residing in project area)		

* Proposed examples, based on available experience; will vary region by region.

** Goiter: not included among top three or four problems because it is highly region specific and its prevalence is usually far below that of the top three nutritional problems mentioned above.

Table 2.2

Sources of Available Data In-Country for Nutrition Problem Assessment Indicators

<u>NUTRITION INDICATORS</u>	<u>SOURCES OF DATA</u>	
	<u>PUBLISHED TABULATIONS</u>	<u>RAW DATA</u>
Weight-for-Age	AID Economic and Social Data Bank Sheets World Bank Country Studies WHO World Health Statistics Annual UNICEF Data Sheets UNU Publications FAO Survey Reports National Nutrition Surveys (Nutrition Institute, CDC, etc.) University Publications F.V.O. Publications (eg., CRS, CWS, etc.) MOH Yearbook Planning Ministry (Health/Nutrition Sector)	- MCH Clinics - Food Supplement Programs - Local Surveys
Infant/Child Mortality	World Health Statistics Quarterly WHO World Health Statistics Annual MOH Yearbook UN Demographic Yearbook Population Reference Bureau AID Health Sector Assessment World Bank Social Indicators AID Social and Economic Data Bank	- Vital Statistics - Retrospective Census Question Tabulations - Health Information Systems - Enumeration censuses
Birth Weight	World Health Statistics Quarterly WHO Technical Reports UNICEF Data Sheets MOH Yearbook University Publications	- MCH Clinics - Local Surveys - Birth Records - Maternity Ward Records
Edema	MOH Yearbook	Pediatric Ward Records MOH Outpatient Records
Nutrient Deficiencies	World Health Statistics Quarterly MOH Yearbook Nutrition Institute Studies International Vitamin A Consultative Group Reports International Nutritional Anemia Consultative Group Report WHO Technical Reports	Special Surveys MOH
Poverty Population	Regional Planning Ministry Census Bureau University Publications UNICEF Publications UN Regional Economic Commission Publications AID Economic and Social Data Bank Sheets	Census Tabulation Planning Statistics

Table 2.3

Percentage Within Ecological Areas According to Age Group
Less Than 80% of Reference Median

AREA	Age in Months						N
	0-5	6-11	12-23	24-35	36-47	48-59	
Agric.	20.9	36.3	30.9	20.8	17.1	19.2	2002
Semi-remote	18.7	41.1	41.4	26.1	20.2	22.9	500
Total Agric.	20.4	37.2	33.0	21.8	17.8	20.0	2502
Total Non-Agric.	17.7	26.6	22.3	18.0	16.1	17.6	977
Total Liberia	19.6	34.8	31.1	20.8	17.4	19.3	3479
Monrovia	15.1	20.3	21.2	NC	NC	NC	223
Special Grp.	12.3	20.4	18.7	12.8	5.3	0	285

Source: AID, Liberia National Nutrition Survey, 1976, p. 45.

Table 2.4

Identification of Socio-Ecological Populations With Highest
Prevalence of Young Child Malnutrition, Costa Rica and Guatemala

Country and Population Group	Prevalence PEM (% Under 25% Weight/Age)	No. of Children in Sampled Population Group
<u>COSTA RICA (1978)^a</u>		
Small farmers in basic grains	30.6	62
Farm laborers in basic grains	27.9	385
Very small farmers in basic grains	17.2	345
Banana workers	15.6	467
Coffee workers	15.5	389
National Average	8.6	3336
<u>(GUATEMALA 1979-80)^b</u>		
Dry Central Region: Farm laborers in basic grains	43.7	71
South Coast: Non-remunerated occupations, unemployed	43.4	53
Western Highlands: Very small farmers	43.0	200
North: Small farmers	42.3	26
South Coast: Coffee, Sugar and Cotton workers	39.2	429
National Average	28.6	4115

Sources: ^aVinocur, P. "Clasificación Funcional de Poblaciones Desnutridas en Costa Rica," Boletín Informativo del S.I.N. 2(1), February, 1980.

^bPlanning Ministry and INCAP. "Regionalización de Problemas Nutricionales en Guatemala," Guatemala, June, 1980 (unpublished mimeo).

Table 2.5

Common Census Classifications Useful for
Identifying Groups Vulnerable to Malnutrition

Administrative Regions and Ecological Zones	Per Cent of Labor Force as:						Per Cent of Households Without Access to:			
	Agricultural			Non-Agricultural			Piped Water	Excreta Disposal	Non-Dirt Floor	Other
	Land-less	Small Farmers	Seasonal Migrants	Laborers	Petty Traders	Unskilled Service Workers				
I. (NAME) Urban Rural										
II. Etc. VI.										
Urban Rural										
Total Urban Rural										

Table 2.6

Indirect Indicators of Protein-Energy Malnutrition
By Regions and Zones

Administrative Regions and Ecological Zones	Mortality Rates		Mortality Ratios	
	<u>INFANT</u> (Per 1000 live births)	<u>CHILD</u> (Per 1000 Pop. 1-4 yr.)	<u>Under 5's</u> (Proportion of all deaths in age group)	<u>1-4's</u>
I. (NAME) Urban Rural				
II. Etc. VI.				
Urban Rural				
Total Urban Rural				

Chapter 3

PHC Nutrition Interventions

The purpose of this chapter is to review the range of potential PHC nutrition interventions which can address the problems identified in the previous section. Recognizing that the effectiveness of a project nutrition approach will depend not only on its relevance to well-defined problems but also on its feasibility within local conditions, brief mention is first made of the importance of assessing the capacity of the PHC system to support nutrition efforts.

Assessment of the level of health system development - in terms of management, logistics and supply; the training, supervision and support of mid- and local-level personnel; the maintenance of adequate referral and counter-referral systems, etc., - is essential in establishing the feasibility of potential nutrition interventions in a specific project setting. Because different interventions vary in the degree and ways in which they require institutional support, a clear understanding of the overall capabilities as well as the specific strengths and weaknesses of the system is needed if feasible approaches are to be selected. Institutional capability in various areas will dictate not only which interventions are possible but also the level of intervention complexity which can be adequately supported.

Detailed guidance for conducting such assessments is beyond the scope of these guidelines. It is anticipated that the guidelines will be used in combination with broader project

and CDSS sector assessments; these will often provide the needed information.

In some projects, the deficiencies in the system may be so great that only minimal nutrition activities are at first possible. Or, gaps in the system might be identified but are not so serious as to delay initial steps to implement significant PHC nutrition action. Having information on the capacity of the system is essential to making rational choices between interventions with greater or less infrastructure requirements, and in assessing the degree to which their implementation depends on overall improvements to the system.

In Chapter 4 potential interventions for addressing specific nutrition problems are compared on a range of criteria related to their costs, feasibility and effectiveness. It is important for readers to define for themselves, on the basis of their knowledge of project capacity, resources and objectives, which criteria are of greatest importance in selecting the most appropriate nutrition approach. In weighing the advantages and disadvantages of different interventions, these kinds of project-specific considerations must be taken into account.

In assessing the institutional capabilities of the PHC system to support nutrition efforts, it may be useful to briefly refer to specific project examples. The recent INU Africa PHC project review focused on projects in three countries - Senegal, Tanzania and Sudan. The level of advancement of the PHC support systems varied significantly among the three projects visited. While these examples do not necessarily represent models of African

PHC system capability, they can illustrate systems at different points on the continuum of health system development.

The least advanced of the three systems examined was in Southern Sudan where even the vertical EPI and MCH programs are in an early stage of implementation. They are characterized by limited population coverage utilizing multisectoral community workers who could be trained to detect and refer malnourished children to urban MCH clinics or hospital pediatric wards. At a level intermediate to the other two is the Sinè Saloum region of Senegal where a cadre of trained midwives and community health workers could be mobilized to perform more preventive and promotive activities. Here the capability exists to support nutrition monitoring and counseling at the health post level, and eventually at the village level.

The Hanang District, in Arusha Region, Tanzania, represents a more advanced level of health system development. Nutrition screening, food demonstrations and oral rehydration therapy activities were continuing to be carried out in Hanang villages by community health workers in the fall of 1982, months after the conclusion of AID support. The real involvement of villages through community nutrition assessments at the outset of the Hanang project appears to have laid the foundation for effective nutrition action.* The health system was able to contribute through the appropriate and ongoing training of community health workers, substantial supervisory support, and the provision of minimally

* Both project and MOH MCH data revealed significant improvements in nutritional status of young children in a two-year period as compared to similar non-project areas (See C. Teller and J. Wilcox; Nutrition Components of AID-Supported Primary Health Care Projects in Sub-Saharan Africa: Phase II, Trip Report of Mission to Senegal, Tanzania and Sudan; INU, December, 1982).

necessary supplies. Neighborhood organizations were, in addition, supported by community development networks in using local resources to combat malnutrition and its causes. Supplementary feeding programs for young school children and improvements in water supply and sanitation facilities are typical of intersectoral activities supported by both the PHC and rural development systems.

Figure 3.1 presents a model of the Hanang District health system developed by the INU for the regional Ministry of Health. The Hanang model (shown at the "intermediate" level in Figure 3.1) suggests what is possible in Arusha and the specific capabilities that need to be developed in other districts of the region which are, in general, at the "minimum" level depicted. The most "advanced" system suggests long-range goals for Hanang District, and eventually the region as a whole.

The following section describes in tabular form the major PHC nutrition interventions. For the purposes of these guidelines, the interventions are classified as follows:*

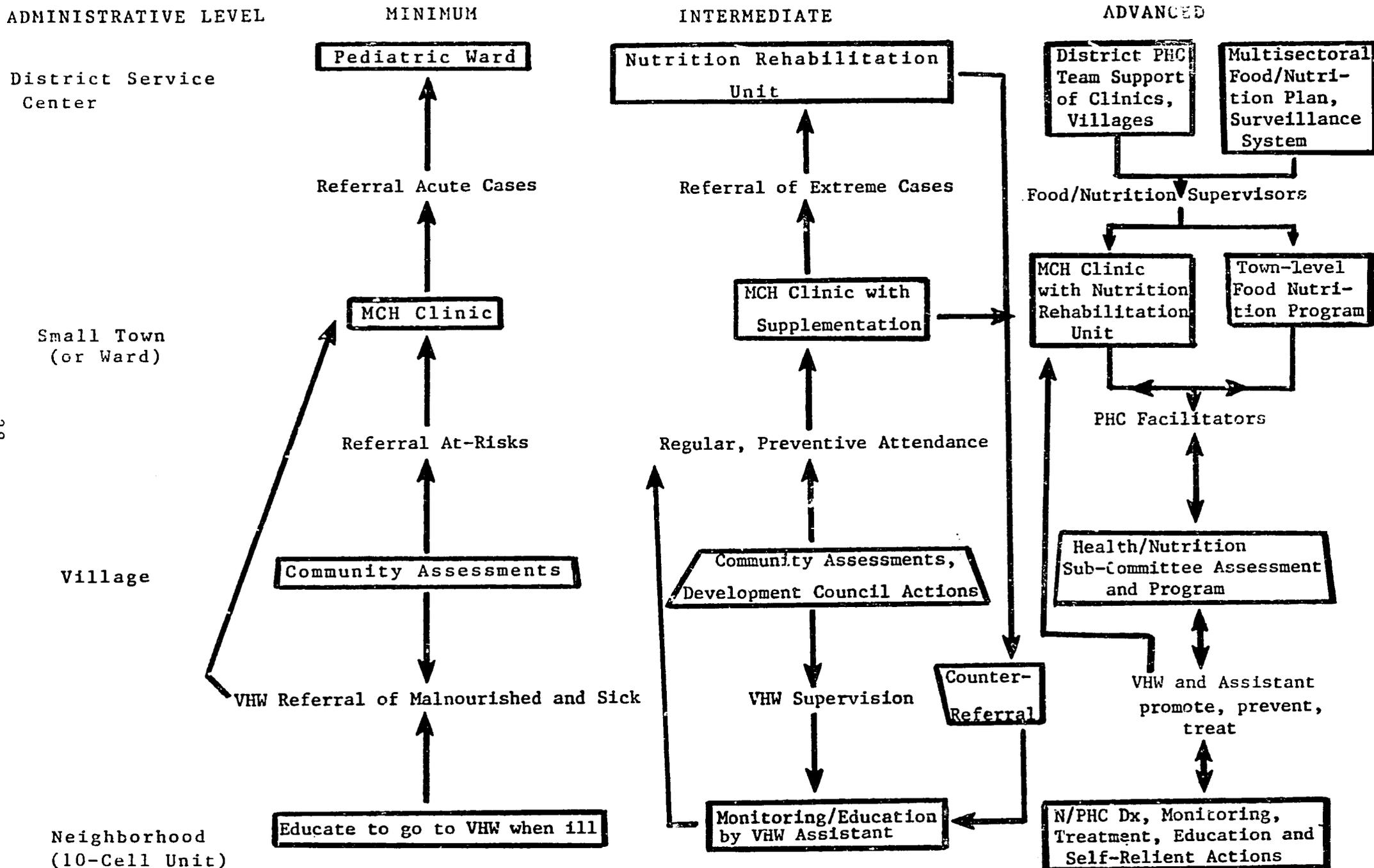
- Nutrition status monitoring.
- Promotion of appropriate infant and young child feeding practices.
- Treatment and rehabilitation of the severely malnourished.
- Food and micronutrient supplementation.
- Community nutrition actions.

This classification takes a problem-oriented approach - focusing on the major nutrition problems, and in Tables 3.1 - 3.5 on the

* Not included in the tables are those support activities related to training, supervision, logistics and evaluation which are mandatory for program success. Interventions directed at other non-dietary factors contributing to malnutrition, such as diarrhea and other infectious diseases are not specifically addressed here. They represent important complementary components of PHC and should, if relevant, be carried out simultaneously.

FIGURE 3.1

Three Alternative Systems for Integrating Nutrition into PHC in Arusha Region's Districts



Source: C. Teller and J. Wilcox, Nutrition Components of AID-Supported Primary Health Care Projects in Sub-Saharan Africa: A Review. INU Working Paper No. 5, INU/OIH, December 1982.

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specific activities appropriate for each. Nutrition education is not singled out as a specific intervention because it is an integral element of all PHC nutrition interventions. Without appropriate educational and counseling activities, none of the interventions listed above can be fully effective.

Maternal nutrition, at the hub of the poverty/malnutrition syndrome, defies ready classification. Given its extremely complex etiology, no single PHC nutrition intervention can serve to treat and prevent maternal malnutrition. For the purpose of the guidelines, maternal nutrition needs are highlighted in relation to the range of relevant interventions, such as nutrition status monitoring, and food and micronutrient supplementation.

The descriptions of PHC nutrition interventions in Tables 3.1 through 3.5 are presented in terms of level of health system development. The specific activities listed under the "minimum", "intermediate" and "advanced" level headings are those which we estimate could be meaningful and adequately supported in these contexts. The examples provided are not definitive. They are intended to illustrate the levels of intervention complexity which may be supported by systems of differing capabilities. It is hoped that the field testing of the guidelines will serve to define more clearly the system requirements for meaningful PHC nutrition efforts.

Table 3.1

PHC Nutrition Interventions

Examples of Community Level Activities Which Can be Supported at Different Stages of PHC System Development

1. Nutrition status monitoring.

Minimum	Intermediate	Advanced
<ul style="list-style-type: none"> • Clinical signs or mid-arm circumference screening to identify the severely malnourished, including undernourished pregnant women. • Referral of severely malnourished and complicated cases to nearest health facility. 	<ul style="list-style-type: none"> • Community self-diagnosis to identify vulnerable families. Registration of all families; creation of roster of children in target group to track need for, and receipt of PHC services. • Periodic growth monitoring. Use of growth charts to target services (eg. supplementary feeding) and as an educational tool. • Counseling mothers whose child's record shows faltering growth, with emphasis on breastfeeding, weaning, and child spacing. • Periodic weight monitoring of pregnant women; identification of high-risk pregnancies and referral for treatment or to related services. Counseling on importance of adequate weight gain during pregnancy for both maternal and infant health. 	<p>In addition to the intermediate level activities:</p> <ul style="list-style-type: none"> • Design and use of simple tally sheet to record growth monitoring and related data to serve as the basis for the health component of a nutrition surveillance system. • Periodic community nutrition assessment to investigate causes of malnutrition identified through monitoring and related PHC activities. Identify appropriate intersectoral actions to address causes at community level. • Eventual establishment of nutrition surveillance (early warning) system based on growth monitoring and data from other sectors (eg. food production figures). Interpretation of data and identification of communities with special nutrition needs done at departmental or regional level; regular feedback of findings to community.

Table 3.2

2. Promotion of appropriate infant and young child feeding practices.

Minimum	Intermediate	Advanced
<ul style="list-style-type: none"> ● Promotion of extended breastfeeding; discouragement of bottle feeding of infants. ● Counseling on weaning: introduction of food supplements, appropriate preparation of weaning foods, frequency and quantity of feeding. ● Counseling on maternal diet during pregnancy and lactation 	<p>In addition to minimum level activities:</p> <ul style="list-style-type: none"> ● Counseling on feeding of infants and young children during illness and convalescence. ● Identification of locally-available foods with adequate nutrient composition for weaning food preparations; food demonstration on their preparation for weaning food mixtures. 	<p>In addition to minimum and intermediate level activities:</p> <ul style="list-style-type: none"> ● Promotion of local production of weaning food mixtures (double or multimix weaning foods) by organized groups of village women. ● Modifications in maternity ward routines to promote breastfeeding (e.g. no prelacteal foods, rooming-in, first lactation as soon as possible). ● Discourage the inappropriate promotion of breast-milk substitutes.

Table 3.3a

3a. Supplementary feeding.

Minimum	Intermediate	Advanced
<ul style="list-style-type: none"> ● Screening and identification of malnourished children and at-risk families; referral to existing supplementary feeding programs. ● Emergency food distribution during "hungry season" or when facing impending food shortages. 	<ul style="list-style-type: none"> ● Organization of supplementary feeding targeted to "vulnerable" groups, especially preschool children 6-36 months of age; and caloric supplemental maternal diets during pregnancy and lactation. Establish norms for entering program and terms of benefits. ● Integrate growth monitoring activities for selection and follow-up of beneficiaries. Periodic weighing and recording of results in growth charts and tally sheets. ● Integration of nutrition education and food demonstrations with supplementation and growth monitoring activities. Provide simple messages which support breastfeeding, the appropriate introduction of supplementary foods into infant and young child diets, and proper maternal diet during pregnancy and lactation. 	<p>In addition to intermediate level activities:</p> <ul style="list-style-type: none"> ● Promotion of community participation in transportation, re-packing, distribution of foods and improvisation of necessary facilities for supplementary feeding programs. ● Coordination with other community-based supplementary feeding programs, e.g. school feeding, food for work, etc. ● Phase in use of locally-produced foods in favor of imported commodities as the basis for supplementary feeding activities. Support intersectoral activities to promote local food production for this purpose. ● Promotion of proper utilization of centrally (or village level) processed vegetable mixtures, through MCH, or supplementary feeding activities. ● Phase out supplementary feeding activities based on imported commodities by increasing local food production.

Table 3.3.b

3b. Micronutrient Supplementation: Vitamin A

Minimum	Intermediate	Advanced
<ul style="list-style-type: none"> ● Identification of "at-risk" <5 year olds; ie. those with acute PEM, and/or repeated episodes of diarrhea or infectious diseases, particularly measles. Administration of vitamin A capsule (200,000 I.U.) or referral to the nearest health facility if vitamin A is not available. ● Counseling on use of locally-available foods rich in carotene and vitamin A. 	<p>In addition to minimum:</p> <ul style="list-style-type: none"> ● Identification of cases of nightblindness/xerophthalmia. Administration of vitamin A capsule if vitamin A deficiency is suspected. Referral for treatment of complications (antibiotherapy as necessary). ● Periodic (every six months) administration of one capsule of vitamin A to all children <5 years old. ● Record receipt of vitamin A capsules in growth charts. ● Food demonstrations and education on the use of local carotene- and vitamin A rich-foods. ● Promotion of actions to increase home food production of these foods: kitchen gardens, etc. 	<p>In addition to intermediate level activities:</p> <ul style="list-style-type: none"> ● Administration of preventive vitamin A dose to <u>all</u> <5 year olds hospitalized with PEM and/or infectious diseases. ● Administration of vitamin A capsule to women after delivery or during first 4 weeks post-partum. ● Periodic community screening for nightblindness and xerophthalmia. ● Recording and reporting of nightblindness/xerophthalmia cases thru sentinel clinics or nutrition surveillance system. ● Promotion of increased vegetable and fruit production and consumption thru school, village and community orchards and gardens.

Table 3.3.c

3c. Micronutrient Supplementation: Iron

Minimum	Intermediate	Advanced
<ul style="list-style-type: none"> ● Efforts to identify pregnancies early; periodic administration of iron/folate supplements to <u>all</u> pregnant and lactating women. ● Counseling on consumption of foods, and use of traditional recipes, rich in iron and vitamin C. ● Complicated and unresponsive cases (based on clinical signs) referred to health facility. 	<p>In addition to minimum level activities:</p> <ul style="list-style-type: none"> ● Identification of "at-risk" 5 year olds (premature babies; acute or chronic PEM, malaria, or hookworm infections). Administration of supplemental iron. ● Treatment of anemia in severe cases. ● Culinary demonstrations and education on use of locally-available rich sources of iron and vitamin C. 	<p>In addition to intermediate level activities:</p> <ul style="list-style-type: none"> ● Periodic hemoglobin screening for women, children and male workers. Supplemental iron/folate, or anemia treatment as necessary. ● Stool, urine and blood slide (malaria) examination to identify parasite infections; treatment of non-nutritional causes of anemia. ● Iron supplementation to school age children in high anemia prevalence areas. ● Iron supplementation to organized male/female rural workers (in plantations, cooperatives, road construction, etc.).

Table 3.4

4. Treatment and rehabilitation of the severely malnourished.

Minimum	Intermediate	Advanced
<ul style="list-style-type: none"> ● Clinical or anthropometric identification of severely and/or moderately malnourished <5 years olds. Referral of severely malnourished children for medical attention. ● Counseling of parents in home management of malnutrition, particularly improvement of feeding practices with locally-available foods. ● Promotion of use of health facilities and services (immunizations, ORT, supplementary feeding) when available. 	<p>In addition to minimum level activities:</p> <ul style="list-style-type: none"> ● Establishment of simple ambulatory treatment of the malnourished, including: supplementary feeding; counseling on weaning and other food practices; promotion of community or home food production (gardening, poultry raising, etc.). ● Treatment of complications of PEM, including dehydration, infections, and vitamin A deficiency. Referral to rehabilitation units when possible. ● Integration of treatment and rehabilitation activities with periodic growth monitoring, EPI and diarrheal disease control DDC efforts. 	<p>In addition to intermediate level activities:</p> <ul style="list-style-type: none"> ● Promote community organization and maintenance of a rehabilitation unit or similar nutrition education and feeding center (garderie, crèche, or mothercraft or day care center). ● Develop counter-referral systems to ensure adequate follow-up of rehabilitated children upon return to village. Promotion of home improvement and food production.

Table 3.5

5. Community nutrition actions.

Minimum	Intermediate	Advanced
<ul style="list-style-type: none"> ● Raise awareness on health and nutritional problems contributing to infant and early childhood deaths. Support health service utilization (e.g. immunizations, DDC, supplementary feeding). ● Use existing local organizations such as mother's clubs, farmers cooperatives, or schools, to generate community participation in the development of PHC and intersectoral actions to improve food supply and consumption. ● Community participation in establishing criteria for, and selecting community health workers. 	<ul style="list-style-type: none"> ● Identification of both formal and non-formal community leaders and groups who can stimulate the organization and function of community health committees. ● Community participation in problem identification regarding water and sanitation, health conditions, food production and dietary practices. ● Community participation in planning, executing and evaluating projects to improve water supply and sanitation, housing conditions, and collective production of food for local consumption. 	<p>In addition to intermediate level activities:</p> <ul style="list-style-type: none"> ● Assist community health committees in identifying external resources, such as agricultural extension credits, technical organizations, etc. in support of community nutrition actions. ● To support local activities to improve food production, storage and marketing; irrigation; the establishment of cooperatives and communal facilities for food storage and distribution. Particular emphasis on having food available for times of intensive agriculture activity and during annual "hungry periods". ● Promotion of small-scale commercial ventures for: fish drying, or canning of local food products, production and processing of vegetable mixtures (weaning foods), etc. ● Participation in establishing early warning/surveillance system by providing requested information and supporting work of those collecting data.

Chapter 4

Selecting Relevant, Feasible PHC Nutrition Approaches

Having defined the major nutrition problems and the potential PHC interventions to address them, this chapter presents an approach for developing nutrition interventions which are relevant and feasible within local conditions, and which complement related PHC programs. The purpose is to assist the design of locally-appropriate PHC nutrition components or activities which can be readily integrated into the PHC programs they complement. The challenge is to include the mix of interventions which work well in combination with one another, and with related PHC activities to best address local nutrition problems.

As was discussed in the previous chapter, the number and level of complexity of nutrition interventions which can be implemented will depend in part on the capacity of the PHC support system. Such assessments, particularly with regard to the system's specific strengths and weaknesses, are essential in designing feasible nutrition components. In the following section the interventions appropriate to a given problem are compared to one another on a number of criteria related to their costs, feasibility and effectiveness. The criteria that are most important in weighing the advantages and disadvantages of interventions will vary from project to project. Judgements regarding the capacity of the health support system, as well as the overall resources and objectives of the project, will determine which criteria are most important in the design of a specific project.

In a later section, a phased approach to incorporating integrated packages of nutrition interventions is presented. This approach recognizes that the level of institutional capability must be taken into account in determining what can be implemented, and when. It draws together the minimum, intermediate, and advanced levels of intervention complexity described in the previous section to develop integrated packages of interventions. The packages include activities which are directly relevant to, and can be readily integrated into existing PHC programs such as MCH, EPI and diarrheal disease control programs. These packages can be phased into the appropriate program as the institutional capacity to adequately support them is developed.

Selecting Relevant, Feasible Interventions

The first step is to put the potential nutrition interventions in the context of the nutrition problems they address. After completing the problem definition exercises presented in Chapter 2, it should be possible to define which of the main nutrition problems are significant in a project region. The following tables compare the nutrition interventions relevant to each of these main problems on a range of selection criteria. (See tables 4.1 - 4.3). Their purpose is to assist in weighing the advantages and disadvantages of the interventions relevant to a given problem. The values shown in Tables 4.1 - 4.3 are comparative rather than absolute judgements about interventions and are presented here to illustrate some of the issues to consider in weighing the relative merits of different interventions for a particular project.

The criteria used here to compare interventions fall into four broad categories of concerns which must be addressed in selecting project approaches: feasibility, effectiveness, costs and community involvement:

- Feasibility criteria deal with the personnel (training and supervision) and supply requirements of the interventions. Where the needed infrastructure or institutional capability has been found to be weak, these criteria should be looked at carefully in comparing interventions. The capacity to adequately train, supervise, and support personnel at the level required by different interventions needs to be established if they are to be effectively implemented.
- Effectiveness criteria are limited to the two perhaps most critical in decision-making: potential for impact and permanence of effects. Some of the more complex interventions which take longer to implement may have more lasting effects than simpler ones. The advantages of permanence versus simplicity and speed of implementation need to be weighed for each project.
- Cost concerns have been divided into three criteria: cost per beneficiary, initial capital requirements, and recurrent material costs. In many cases recurrent costs, and the ability of host governments to assume these costs at project's end, may outweigh other cost issues.
- Beneficiary issues are related to the acceptability of the intervention, and the degree to which it generates meaningful involvement and stimulates self-reliance in the community.

The criteria included here are not a comprehensive list of the concerns that may be essential to decisions for individual projects. It is important to decide at the outset which of these criteria, as well as others not listed here, are most critical in selecting interventions for a particular project. In addition, the weight of individual criteria relative to one another must be determined on a project-specific basis. This is necessary to make the information in Tables 4.1 - 4.3 relevant to the particular circumstances of a specific project, its resources and objectives, and the institutional framework within which it will operate.

The importance of project-specific considerations of Tables 4.1 through 4.3 can be illustrated by comparing the differing implications for projects operating in very different contexts. PHC efforts in Hanang District, Arusha Region, Tanzania and in Sine Saloum, Senegal provide a good basis for this comparison. In Hanang District, where transportation and supply networks are weak and even deteriorating, the interventions with the greatest outside supply requirements, such as supplementary feeding programs, would likely be the least attractive options. And while food supplements are generally welcomed by beneficiaries, unless supplementation programs rely on locally-produced foods they may create more dependence among communities rather than less. For Tanzania, where universal community and neighborhood development commitments illustrate the national commitment to local reliance and participation, the interventions that stimulate self-sufficiency are more appropriate.

The situation in Sine Saloum, Senegal is somewhat different. Physical infrastructure and transportation network are considerably stronger than in Hanang. The deployment and adequate support of local-level personnel is more problematic however. Community nutrition actions which require substantial training and local-level follow-up are probably not the most feasible options in the early stages of nutrition component implementation. Growth monitoring and counseling, infant feeding promotion and targeted referral to existing food supplementation efforts, are probably together the more appropriate approach at first. As the capacity to adequately train and supervise, and to support local-level assessment and action was strengthened, nutrition monitoring and surveillance, and community nutrition actions could gradually be phased-in.

Developing an Integrated Approach

The multisectoral nature of nutrition problems and the synergistic effects possible when nutrition and other PHC issues (maternal and child health and diarrheal disease control, for example) are addressed simultaneously, dictate integrated approaches to nutrition.* This is equally important whether developing a whole project nutrition component or identifying a few key nutrition activities which can be integrated into existing programs. The basic nutrition activities of identification, treatment or referral, and counseling of the at-risk, can be most effective when carried out in support of one another and integrated with the other PHC actions they complement.

There are also very practical reasons for integrated approaches. Rarely are resources available to support a separate cadre of personnel with responsibilities in one particular technical area. Usually the challenge is to identify a limited set of tasks multi-purpose community health workers can reasonably be expected to undertake, including which will meaningfully address local nutrition problems. The benefit of this pragmatic approach

* National Academy of Sciences. Nutritional Components of a Primary Health Care Delivery System. Committee on International Nutrition Programs, National Academy Press, Washington, D. C. 1982.

WHO. The Role of the Health Sector in Food and Nutrition. Report of WHO Expert Committee. Technical Report Series 667, Geneva, 1981.

Gwatkin, D. R., J. R. Wilcox, and J. D. Wray. Can Health and Nutrition Intervention Make a Difference? Overseas Development Council Monograph No. 13, Washington, D.C., 1980.

is that it can ensure that integration of services will actually be effected at the community level. The level of complexity at which elements of an integrated nutrition approach can be implemented will, of course, depend on the available resources and existing capabilities as well as the overall objectives of the effort.

An example of this pragmatic approach is presented in Southern Sudan where the government has been considering various alternatives to improve the effectiveness and coverage of its PHC-related activities. A relatively ambitious plan^{*} for the EPI program was proposed, in part, because immunizations would be a tangible service related to strongly-felt needs among the population and because of the availability of considerable external resources. The plan focuses on strengthening an existing cadre of multisectoral assistants by providing re-training or the recruitment and training of new assistants. Because of the higher operational priority given to EPI relative to MCH, and the probable expansion of population coverage that would result from the implementation of the proposed plan, the EPI program became the most likely vehicle for the integration of nutrition activities. Nutrition screening and referral activities were being considered as a feasible and cost-effective addition to the tasks of these assistants. This approach was proposed in the recognition that only by piggy-backing nutrition-related activities onto this expanding program could improvements to the way in which nutrition is addressed be meaningfully made.**

* While the EPI proposal was modest by most standards, it was ambitious under the severe resource and institutional constraints in Southern Sudan.

** See C. Teller and J. Wilcox, "Nutrition Components of AID-Supported Primary Health Care Projects in Sub-Saharan Africa: Phase II, Trip Report of Mission to Senegal, Tanzania and Sudan; INU, Dec. 1982.

Table 4.4 illustrates a phased approach to integrating nutrition interventions into existing PHC programs or activities, including maternal and child health, diarrheal disease control and immunization programs.* By drawing together elements of the minimum, intermediate, and advanced levels of complexity for each of the interventions described in the previous chapter, the table provides examples of "integrated packages" which complement these PHC programs. By presenting these packages in terms of phases, the table illustrates the range of integrated packages, from the most simple to the very complex, which are possible at different levels of institutional capacity. This recognizes that the capacity of both the PHC system and of peripheral personnel will vary between projects and between the stages of implementation of a project.

The first phase nutrition intervention packages include examples of minimum-level activities for each of the nutrition interventions relevant to a given PHC program. They complement other PHC efforts but require a minimum of institutional support and additional resources. Later phase packages with more complex interventions offer greater potential for impact or more permanent effects, but also have higher implementation requirements. Ensuring that these higher requirements can be met is an important part of planning for later phase interventions.

* In practice, there is considerable overlap in the definition and implementation of these programs. For the illustrative purposes of this table, these programs are defined as follows: Maternal and child health (MCH) programs promote the health of the young child and the woman of child-bearing age through prenatal and delivery care, child care and family planning. Expanded programs of immunization (EPI) programs attempt to reduce morbidity and mortality by providing immunization against the major killers, with priority generally given to diphtheria, whooping cough, tetanus, measles, poliomyelitis and tuberculosis immunizations. Diarrheal disease control (DDC) programs offer, at a minimum, diagnosis of diarrheal diseases and appropriate treatment, usually oral rehydration therapy. They often also include efforts to improve the quantity and quality of water supplies, development of suitable sanitation facilities, and hygiene counseling.

Many PHC efforts will include more than one of the programs used for illustration in Table 4.4. In this case, it is important to go beyond determining the nutrition activities which can be integrated into individual programs. The challenge is to develop an integrated approach to nutrition which will tie these programs together. Nutrition screening activities, for example, can be designed even at the simplest levels to meet objectives in MCH, DDC, and EPI programs. Even where the capability to record and interpret growth charts has not yet been established, young children can be screened at regular intervals, using simple anthropometric measures. This can serve to identify children in need of immediate medical attention and target existing food supplementation efforts in MCH programs. Screening can also be used as a tool for discussion with parents regarding the child's recent history of diarrheal episodes when a seriously malnourished child is identified. This can serve to target oral rehydration therapy and other DDC efforts. In addition, immunization can be provided at the same time screening is being done, thus potentially improving the coverage of EPI efforts.

Table 4.1

Comparison of Nutrition PHC Intervention Which
Address PEM Among Young Children and Child-bearing Age Women¹

Potential Interventions

Comparison Criteria	Nutrition Assessment		Infant Feeding Practices		Targeted Food Supplementation	Nutrition rehabilitation	Community Actions	
	Growth Monitoring	Nutrition Surveillance	Breast Feeding	Weaning Foods			Storage & Preservation	Increase Food Production & Consumption
<u>Feasibility</u>								
Training	-	-	++	+	+	-	-	-
Supervision	-	--	++	+	-	--	-	-
Logistics and supplies	+	-	++	+	--	--	+	-
<u>Effectiveness</u>								
Potential for impact	++	+	+	++	+	+	++	++
Permanence of effects	+	++	++	++	-	-	+	++
<u>Beneficiaries</u>								
Acceptability	++	+	+	-	++	+	++	+
Stimulation of self-reliance	+	++	++	+	--	-	++	++
<u>Costs²</u>								
Per beneficiary	++	+	+	++	-	--	+	+
Initial capital req.	-	-	++	+	--	--	+	-
Recurrent expenditures	-	-	++	++	-	--	+	-

¹The grading system of pluses and minuses denote relative advantage or disadvantage among interventions in relation to a given criterion. For example an intervention with high potential for impact would receive a double plus grade but if it was also of high cost it would also receive a double minus grade. The grades presented here do not represent definitive judgements; rather they are illustrative and comparative, and should be viewed in relation to the grades of other interventions in the line of a specific criterion. It is hoped that the field testing of the guidelines will allow more precise definition of these values. Attempting to score the interventions (adding up to the pluses and minuses column by column) is not suggested because the criteria are probably not of equal importance and their weights will differ from project to project. It is better to use the tables as a tool to think through some of the issues important to selecting relevant, feasible interventions and to planning for their implementation.

²The criteria used here do not represent a comprehensive list of concerns related to cost in comparing interventions. These criteria are among the most important as well as those commonly used in similar efforts. (See for example Beghin, I. "Selection of Specific Nutritional Components for Agricultural and Rural Development Projects." A Report to FAO; Institute of Medicine, Antwerp; September, 1980; and World Bank, "Guidelines for Nutrition Sector Work", IBRD, Washington, DC; December, 1982 (mimeograph). Note that the criterion "cost per beneficiary" refers to those experiencing improvement as distinct from those merely receiving services.

Table 4.2

Comparison of Nutrition PHC Interventions Which Address Vitamin A Deficiency¹

Potential Interventions

Comparison Criteria	Counseling, culinary demonstration/ education	Massive dose capsule supplementation	Community actions to increase vegetable and fruit production and consumption
<u>Feasibility</u>			
Training	+	++	-
Supervision	+	+	+
Logistics and supplies	+	--	-
<u>Effectiveness</u>			
Potential for impact	+	++	+
Permanence of effects	+	--	++
<u>Beneficiaries</u>			
Acceptability	+	++	+
Stimulation of self-reliance	+	--	++
<u>Costs²</u>			
Per beneficiary	+	++	+
Initial capital req.	+	-	-
Recurrent expenditures	+	-	-

¹The grading system of pluses and minuses denote relative advantage or disadvantage among interventions in relation to a given criterion. For example an intervention with high potential for impact would receive a double plus grade but if it was also of high cost it would also receive a double minus grade. The grades presented here do not represent definitive judgements; rather they are illustrative and comparative, and should be viewed in relation to the grades of other interventions in the line of a specific criterion. It is hoped that the field testing of the guidelines will allow more precise definition of these values. Attempting to score the interventions (adding up to the pluses and minuses column by column is not suggested because the criteria are probably not of equal importance and their weights will differ from project to project. It is better to use the tables as a tool to think through some of the issues important to selecting relevant, feasible interventions and to planning for their implementation.

²The criteria used here do not represent a comprehensive list of concerns related to cost in comparing interventions. These criteria are among the most important as well as those commonly used in similar efforts. (See for example Beghin, I. "Selection of Specific Nutritional Components for Agricultural and Rural Development Projects." A Report to FAO; Institute of Medicine, Antwerp; September, 1980; and World Bank, "Guidelines for Nutrition Sector Work", IBRD, Washington, DC; December, 1982 (mimeograph). Note that the criterion "cost per beneficiary" refers to those experiencing improvement as distinct from those merely receiving services.

Table 4.3

Comparison of Nutrition PHC Interventions Which Address Nutritional Anemias¹

Potential Interventions

Comparison Criteria	Counseling, culinary demonstration/ education	Iron/folate supplementation	Community actions to increase food production and consumption
<u>Feasibility</u>			
Training	+	++	-
Supervision	+	+	+
Logistics and supplies	+	--	-
<u>Effectiveness</u>			
Potential for impact	+	++	+
Permanence of effects	+	-	++
<u>Beneficiaries</u>			
Acceptability	+	++	+
Stimulation of self-reliance	+	--	++
<u>Costs²</u>			
Per beneficiary	+	++	+
Initial capital req.	+	-	-
Recurrent expenditures	+	-	-

¹The grading system of pluses and minuses denote relative advantage or disadvantage among interventions in relation to a given criterion. For example an intervention with high potential for impact would receive a double plus grade but if it was also of high cost it would also receive a double minus grade. The grades presented here do not represent definitive judgements; rather they are illustrative and comparative, and should be viewed in relation to the grades of other interventions in the line of a specific criterion. It is hoped that the field testing of the guidelines will allow more precise definition of these values. Attempting to score the interventions (adding up to the pluses and minuses column by column is not suggested because the criteria are probably not of equal importance and their weights will differ from project to project. It is better to use the tables as a tool to think through some of the issues important to selecting relevant, feasible interventions and to planning for their implementation.

²The criteria used here do not represent a comprehensive list of concerns related to cost in comparing interventions. These criteria are among the most important as well as those commonly used in similar efforts. (See for example Beghin, I. "Selection of Specific Nutritional Components for Agricultural and Rural Development Projects." A Report to FAO; Institute of Medicine, Antwerp; September, 1980; and World Bank, "Guidelines for Nutrition Sector Work", IBRD, Washington, DC; December, 1982 (mimeograph). Note that the criterion "cost per beneficiary" refers to those experiencing improvement as distinct from those merely receiving services.

Table 4.4

Phased Integration of Complementary Nutrition Intervention
"Packages" Into Existing PHC Programs or Activities

Diarrheal Disease Control Programs (DDC)

- Phase 1
- Nutrition assessment: clinical or anthropometric screening of young children; identification of malnourished and "at risk" children.
 - Referral for treatment of complicated cases severe dehydration, etc. and to related services (immunizations, supplementary feeding).
 - Administration of chloroquine and Vitamin A capsules, as appropriate.
 - Infant and child feeding promotion: continuation of breastfeeding and appropriate feeding during diarrheal episodes; proper weaning and sanitary food preparation.
- Phase 2
- Nutrition assessment: use of growth charts to assess nutritional status and as an educational tool.
 - Targeting of existing food supplementation to malnourished children with history of repeated diarrhea episodes.
 - Promotion of community participation in implementation of actions to improve water supply and sanitation.
- Phase 3
- Nutrition education and rehabilitation services for families with children seriously debilitated by diarrheal disease and malnutrition.
 - Community actions directed at broader causes of diarrhea and malnutrition.

Maternal and Child Health Programs (MCH)

- Phase 1
- Nutrition assessment: clinical or anthropometric screening of young children, identification of malnourished.
 - Referral for treatment and to related services as needed (immunizations, ORT, supplementary feeding).
 - Infant and child feeding promotion: breastfeeding and appropriate weaning practices.
- Phase 2
- Nutrition assessment: periodic growth monitoring of young children; use of growth charts as counseling tool and to target existing food supplementation activities. Monitoring maternal anthropometric status (weight gain during pregnancy); identification of malnourished and "at-risk" women.
 - Referral for treatment and to related services as appropriate (immunizations, DDC, nutrition education and rehabilitation, food and micro-nutrient supplementation - iron/folate, Vitamin A).
 - Promotional and educational activities in support of improvement of home food production, preservation and storage; sanitary preparation practices.
- Phase 3
- Nutrition assessment at community level using growth monitoring data, vital events registration and other related data in support of intersectoral community actions.
 - Community participation in planning, implementation and evaluation of actions to promote food supply and self-reliance, including improvement of water supply and sanitation, improvement of housing conditions and collective production of food; development and processing of weaning foods, etc.

Expanded Programs of Immunization (EPI)

- Phase 1
- Nutrition assessment: clinical or anthropometric screening of young children; identification of malnourished.
 - Referral for treatment and to related services as needed (oral rehydration therapy (ORT)).
 - Tetanus toxoid immunization for women when pregnancy is identified.
- Phase 2
- Nutrition assessment: weighing of young children along with scheduled immunizations; growth charts used as monitoring and educational tool, to track receipt of immunizations, and to re-schedule missed immunizations; identification of malnourished and "at-risk" children.
 - Referral for treatment and to related services as appropriate (diarrheal diseases control (DDC), and food and micro-nutrient supplementation - iron, Vitamin A).
 - Infant and child feeding promotion; appropriate feeding practices during sickness.
- Phase 3
- Nutrition assessment at community level: coverage of EPI and nutrition assessment activities.
 - Promotion of community participation to improve EPI coverage and maintenance of cold chain.

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Annex 1

Resources in Support of the Use of the Guidelines:
Office of Nutrition PHC-related Projects

The Office of Nutrition of the Science and Technology Bureau of AID Washington has a number of projects which can offer resources to country missions in support of the use of the guidelines. These projects fall into essentially two categories. The first are those that can provide assistance in carrying out the exercises presented in the guidelines, in gathering and assessing the relevant information as the basis for the inclusion of appropriate nutrition components into the design of PHC projects. The other projects offer support to the next step: the actual design of nutrition interventions. Essentially, the former corresponds to assistance available during the early stages of project design, the pre-PID and PID development stages; the latter corresponds to the later stage of PP (Project Paper) development and follow-up.

Support is available in the areas of technical assistance, information, and program monies. The following is a brief outline of current Office of Nutrition projects which provide support resources for nutrition in PHC.

<u>Project Title</u>	<u>Project Purpose</u>
1. Health Systems RSSA	To assist developing countries to integrate nutrition components into primary health care delivery programs.
2. Vitamin A Program Support	To assist developing countries quantify the problem and implement programs for the prevention of nutritional blindness in children.

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|---|---|
| 3. Iron Deficiency Program Support | To assist developing countries in designing and implementing programs for alleviating iron deficiency anemia. |
| 4. Planning and Analysis | To strengthen host government capability to plan, design, implement and evaluate nutrition activities. |
| 5. Improvement of Maternal and Infant Diet | To help developing countries design, test and implement programs to promote breast-feeding, improve weaning practices, and promote proper diet among pregnant and nursing women. |
| 6. Nutrition and Food Technical Services (especially weaning foods) | To utilize food technology and related disciplines to help improve the nutritional status of low-income people. The focus is on the development and introduction of low-cost, nutritious foods, particularly weaning foods, as well as improving dietary and feeding practices. |
| 7. Surveys and Surveillance | To develop appropriate methodologies and assist developing countries in the design and implementation of nutrition surveys and nutritional surveillance systems. |
| 8. Education Field Support | To improve the nutritional status of malnourished people in developing countries through more effective nutrition education. |

In addition, assistance is available through the Food for Peace Office to improve the planning, targetting, and educational components of PL 480 Title II MCH programs.

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Selected References for the Design of PHC Nutrition Interventions

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