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REPUBLIC OF MALI

TRIP REPORT

ASSESSMENT & PROJECT PLANNING VISIT
NUTRITION COMMUNICATION PROJECT

OCTOBER 24-NOVEMBER 4, 1988

AED

Academy for Educational Development, Inc.
1255 Twenty-Third St., N.W., Washington, DC 20037

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Margaret Burns Parlato, A.E.D.
Claudia Fishman, P/N

ACADEMY FOR EDUCATIONAL DEVELOPMENT
1255 23rd Street, N.W.
Washington, D.C. 20037

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Abbreviations

AED	Academy for Educational Development
AID	Agency for International Development
CERAV	Centre d'enseignement et de recherche audio-visuels, University of Abidjan.
DEPS	Division Education Pour la Sante.
DSF	Division Sante Familiale (Division of Family Health)
EPI	Expanded Program for Immunization
GM/P	Growth Monitoring and Promotion
GRM	Government of the Republic of Mali
HDO	Health Development Officer
IEC	Information, Education and Communication
IFAHS	Integrated Family Health Services Project
JNSP	Joint Nutrition Support Project (UNICEF & WHO - In French abbreviated as PCAN)
MSP	Ministere de Sante Publique (Ministry of Public Health)
NCP	Nutrition Communication Project
ND	Nutrition Division (of MSP)
NGO	Non-governmental Organization
ORT	Oral Rehydration Therapy
PCS	Population Communication Services (Johns Hopkins)
P/N	Porter/Novelli
PRITECH	Primary Technologies for Health- AID Program managed by Management Sciences for Health
PVO	Private Voluntary Organization
REDSO/WCA	Regional Economic Development Support Office/West Central Africa
RENA	Reseau pour l'Education Nutritionnelle en Afrique (African Nutrition Network)

SMI	Sante Maternale Infantile (Maternal Child Health - MCH Centers)
SOMARC	Social Marketing for Change (Futures)
ST/N	A.I.D. Bureau for Science and Technology, Office of Nutrition
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development (Mission)
WHO	World Health Organization

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I. EXECUTIVE SUMMARY

A. Objectives

At the request of the United States Agency for International Development (U.S.A.I.D.)/Bamako, Margaret Parlato, Project Director and Claudia Fishman, Senior Technical Advisor for the Nutrition Communication Project (NCP) at the Academy for Educational Development, visited Mali October 24-November 4, 1988.

The objectives of the visit were to:

1. examine the feasibility of a nutrition communication program; and

2. solidify plans made during the NCP Reconnaissance visit (May 1988) to provide technical assistance to the Ministry of Health, Division of Family Health (MS/DSF) in the social marketing approach to information, education and communication (IEC) program design and implementation.

B. Outcome of Trip

Parlato and Fishman spent most of their time working with the DSF to develop a nutrition IEC strategy and action plan to be carried out through the USAID-funded Integrated Family Health Services (IFAHS) Project. Joined by DSF/Nutrition Division Director, D. Semega, the team drafted a **"Pre-project Document."** The document lays out the objectives, strategy, action and management plans, as well as a detailed calendar and draft budget for a two year operations research, IEC and training project to improve infant feeding and growth monitoring (GM/P) activities in the IFAHS target regions.

The document was presented to Dr. Bocoum, Director of the DSF, for discussion on October 29th, revised and presented for approval on November 4th (SEE APPENDIX A FOR ENGLISH TRANSLATION OF DOCUMENT). The DSF will incorporate estimates of baseline child survival measures (such as prevalence and duration of breastfeeding, prevalence of vitamin A deficiency, etc.), and targets for improvement into the plan based on a review of existing data. In such a short-term project, health impact would not be measurable. Rather, project impact will be measured in terms of behavior change. The DSF is prepared to initiate the first steps of the plan, calling for exploration of the selected nutrition problems to be addressed. NCP participation has been tentatively scheduled for mid-February, early March, pending a buy-in to the project.

The issues left largely unresolved concern the need and costs of formative research, strongly recommended by NCP, but currently questioned by Dr. Bocoum, who is anxious to see IEC activities begin as soon as possible. In addition, the integration of

nutrition into the training plans and professional schedules of the DSF need to be taken into consideration in preparing the final project document.

A series of options [RESIDENT, REGIONAL, INTERMITTENT ADVISORS/ADDRESSING NUTRITION ONLY OR A RANGE OF IFAHS ACTIVITIES] were proposed for fielding NCP technical assistance, all relying primarily on the funds of the IFAHS Project. In addition, some technical points on GM/P were also discussed. NCP prepared a French language summary of the "1 - 10 Grade System" and its critique for the MSP/AS, and recommend it being considered as an alternative to a "Road to Health" type growth chart (SEE APPENDIX B, MATERIALS ON THE GRADE SYSTEM PREPARED FOR ASSESSMENT VISIT).

C. Collaboration with Other Donors

Parlato and Fishman met with local and regional representatives of UNICEF, the World Health Organization and CARE to discuss potential areas for collaboration. Through the Joint Nutrition Support Project (JNSP), UNICEF and WHO will provide funding to the DSF for Vitamin A activities in Segou and Mopti (1989-90) and the outer regions of Koulikoro (1991-92). Whether NCP can assist in this effort is unclear, as the management lines among the organizations will require time to work out.

NCP recommends using central (ST/N) funding for formative research activities related to Vitamin A consumption. This would contribute to the national program and help launch the effort, while the donors work out a management plan. This request is under consideration by ST/N.

CARE remains interested in collaborating with the project, and is particularly interested in field testing materials for GM/P, and in using radio to target men to emphasize their role in child nutrition, family planning and other child survival interventions. **World Vision, Save the Children** and **Peace Corps/Mali** were not contacted again. These organizations expressed interest in the project during the reconnaissance visit and follow-up discussions in Washington.

D. Assessment

The assessment of needs and institutional capabilities initiated by Fishman during her May 1988 reconnaissance visit was finalized during this visit. Information of special relevance to the development of a nutrition communication intervention is summarized here. This report is organized to respond to the request of Neil Woodruff, HDO, USAID/Mali to provide background sections for the "Pre-Project Document" describing [1] the current country nutrition situation and problems we have chosen to address; [2] current nutrition efforts by the GRM and other donors; [3] how the NCP

project complements these efforts; [4] a discussion of how our strategy was selected; and [5] a prioritization of proposed activities and expected impact.

Key findings of relevance for future nutrition communication activities are highlighted below.

1. Health and Nutrition Situation

Child Feeding Practices

Malian women breastfeed their infants for an average of 18 to 25 months. Colostrum use varies, although it is reported that more women discard it, believing it harmful to the newborn. Complementary feeding does not begin until 8 to 12 months, and may be delayed until 24 months in some regions. The first food given besides breastmilk is a millet porridge of low caloric density. As a result of these practices, the diets of children become deficient in all nutrients beginning at 6 months of age.

Protein Energy Malnutrition

Between 7 to 20 % of Malian children under six years old suffer from moderate to severe malnutrition, using weight for height as the criterion. A larger proportion of children (and adults) suffer periodic wasting during the pre-harvest period of June-September.

Acute malnutrition rates are highest for children between 6 and 24 months of age.

Chronic malnutrition rates vary between 13 and 36 %, and are highest for children between 24 to 48 months of age, with continuing high rates among children 6-14 years old.

Vitamin and Mineral Deficiencies

Vitamin A: Children 6-10 years old are more likely to suffer from blinding eye disease caused by Vitamin A deficiency (10-15% from recent surveys) than children under six years of age (approximately 5-11%). In addition to child survival mandates to target under fives for Vitamin A interventions, children 6-10 should not be excluded from programs providing short term treatment, and should be a target of education and communication programs promoting increased consumption.

Iron Deficiency Anemia: With 40 % of children and 47 % of pregnant women affected by iron deficiency, anemia is the second most widespread nutrition problem in the country. Programs to eliminate malaria and parasitic

diseases will contribute to lowering the prevalence of anemia. Iron supplementation for pregnant women should be considered. Campaigns to increase intake of dietary iron, by promoting combinations of foods that enhance absorption of non-heme iron, (when animal sources are in short supply) and cooking practices (such as use of iron implements) should be targeted to pregnant women and children under five. As anemic children are often listless and lack energy, mothers must be informed of symptoms so that the behavior is not misconstrued for "lack of appetite."

Vitamin C: Deficiencies are most pronounced in northern Mali due to regular shortage of fruits and vegetables. Availability of Vitamin C sources is considered adequate in Bamako and other regions, however cooking practices often destroy vitamin content. Practices and food combinations to enhance vitamin C quality of available foods should be considered for promotion.

Iodine: Goiter is a prevalent, but highly localized problem (72% in some villages). Iodization programs are currently planned, but communication campaigns might also be considered.

2. Current Nutrition Programming

The drought of 1984 and its dramatic impact on the nutritional status of the population led the government and donors to emphasize identification and rehabilitation of malnourished children during the past four years. Key activities include:

Establishment of over 500 Nutrition Rehabilitation and Education Centers (CREN) or Community Nutrition Centers (CNC) which rehabilitated more than 40,000 malnourished children during the 1985 crisis. Emergency food relief was distributed through these centers, schools, and food-for-work programs. Many of these centers have closed.

With support from USAID and other donors, a Famine Early Warning System was established, and all regions of Mali were surveyed between 1984-1987 (54 surveys) for prevalence of protein-energy malnutrition. Rapid assessments of specific nutrient deficiencies were also conducted in collaboration with PVOs.

> Most of the rural areas of Mali are supported by NGO projects in agriculture, water, sanitation and health development. Principal among these is the UNICEF/WHO Joint Nutrition Support Project (JNSP) active in Segou, the World Bank Project, MSF in Tomboctou and Gao, and Peace Corps African Food Systems Initiative.

The GRM is currently interested in reorienting towards prevention of malnutrition. Through the IFAHS project, the GRM will strengthen child survival interventions including immunization, ORT, growth monitoring and promotion (GM/P) and family planning in 15 health centers in Bamako district and the region of Koulikoro. In theory, the GM/P facet will target all children under six, preventing malnutrition from developing.

3. How NCP will Complement These Efforts:

Based on USAID funding considerations, the NCP assessment team focused development of nutrition IEC activities within the context of the DSF and the USAID supported IFAHS project. USAID's Child Survival Strategy and the IFAHS Project provide a two-fold context for technical assistance from the Nutrition Communication Project and AED. Most globally,

> "Health information, education and communication (IEC) activities are virtually non-existent. The Health Education Section of the MSP/AS reportedly suffers from a lack of sufficiently trained staff, as well as poor funding, new supplies and little support" [SEE KEY DOCUMENTS:1]

Thus technical assistance in public health communication, both as a primary preventive measure and in support of other child survival interventions, must be provided in a coordinated fashion (i.e. with other donors and other A.I.D.-funded programs) across all divisions of the DSF attempting to mount IEC programs. In particular, it is critical that the NCP is consistent in philosophy and synchronizes its technical assistance calendar with PRITECH (and to a lesser extent, PCS, SOMARC and AIDSCOM). This is important as PRITECH is presently the primary source of technical assistance in IEC to the Health Education Division. PRITECH has provided training in social marketing for the DSF/EPS, and is actively supporting the national diarrheal disease program, which will focus this year on feeding during diarrhea. No other agency is providing technical assistance and training to the DSF in the social marketing approach for health education.

Technical Assistance Needs

In carving out a specific niche for NCP, the Child Survival Strategy and IFAHS Project make reduction of under-five mortality related to malnutrition a top priority. The GRM has identified poor attendance at SMI centers as a key problem to be addressed. They attribute this partially to the poor condition of the facility, "mechanical weighing" and perfunctory performance of health workers who are not motivated to advise the mother or express a real interest. The GRM Five Year Plan seeks to improve training of health workers in GM/P, and upgrade nutrition education. According to the USAID/Bamako Action Memorandum, 15 MCH centers will be renovated and equipped with scales for weighing both infants and adults (suitable for older children). Staff will be trained, according to responsibility, in management, technical and health education areas--focussing on improving the dietary intake of infants and children under age five.

Thus while the Nutrition Communication Project offers a wide range of technical assistance, only those facets that build upon the infrastructural inputs of current GRM and USAID projects will be selected for implementation. These will be determined, in part, by an Institutional Needs Assessment to be conducted during the project finalization visit.

4. Strategy and Implementation Plan

From the reconnaissance and project planning visits, it is clear that NCP will need to demonstrate to the DSF the value of investing in formative research and broader community/mass media support for child survival interventions. Despite working with the PCS and PRITECH projects, the DSF is still gaining familiarity with some basic principles of social marketing, and needs to experience first hand the benefits of investing time and money in research and development. There are at least three important differences between classic health education and the social marketing approach that need to be stressed in the proposed DSF/AED nutrition communication activities. These are:

- Social marketing concentrates on creation of demand. The DSF tends to think of supply: building and equipping SMI centers, training health workers, providing education materials. But often the clinics remain empty, and both the health workers and their materials are ignored. We can not assume that everyone will use the SMI center or seek the advice of the healthworkers just because this is the "reasonable" thing to do. We need to find out what the consumers want from these services and adapt them in line with their needs and desires. This requires research.

- The primary objective of social marketing is behavior change, not just imparting information. We must always think about what it will take to get people to try something new, whether it is going to the SMI center or preparing a new recipe for weaning food. If we feel that information is not relevant to changing behavior, we do not include it in our messages.

- Social marketing is a creative approach, in which no medium or message is assumed to be the best until it has been tried out with the intended audience. It does not rely on mass media exclusively, but assigns a role to a particular medium if it proves to be the most effective way of reaching and influencing a specific segment of the target audience. The DSF currently perceives that we are recommending a choice between health workers or mass media, rather than a creative mix of both, each carrying a different piece of the behavior change message.

Project Management

The Nutrition Service of the DSF will be directly responsible for the oversight of the proposed nutrition communication activities. This DSF unit will work closely with the Health Education Unit (DEPS) to conduct formative research, develop print and broadcast materials and train field staff in counseling techniques. The DEPS is accustomed to working closely with the technical services in the DSF and the MSP/AS and functions much like a "production house" for those programs with funding for educational activities. At present ORT and AIDS are the major areas. As the IFAHS project develops other priority areas including family planning and immunizations, these will require substantial DEPS services.

The EPS unit, however, is small and special care will be needed to ensure that nutrition can be fit into its workplan. The NCP team has recommended to USAID and the DSF that a long-term technical advisor be funded to help build up the unit and work out strategies for providing needed public education on the full range of topics the DSF will address over the coming years. Because of the small staffs in both the Nutrition Service and Health Education unit, the NCP team believes that outside assistance will be needed in the initial period to work out these important issues and look at ways to more effectively use public and private IEC resources to carry out some of the needed tasks. Other institutions identified for potential collaboration include the INRSP, DANFLA, RTM and URTNA. The role these institutions might play is described in the pre-project document (Appendix A).

5. Special Issues of Concern to the NCP Project

a. Integration of Nutrition into other IEC activities as the Division of Health Education is responsible for all outreach activities and consequently plays a strategic role.

b. Integration of GM/P training into the existing training plan.

c. Technical assistance in understanding social marketing as a strategic approach to nutrition IEC.

d. Technical assistance in the use of mass media and other outreach (non SMI center-based) activities combined with health worker approaches.

6. Prioritization of Proposed Activities and Expected Impact

The primary objectives of the technical assistance are to research, develop and implement, in this order:

a. A communication/education strategy, supporting media and training materials to promote introduction of appropriate solids;

b. Simple procedures for growth monitoring and counseling;

c. A communication/education strategy to increase consumption of foods rich in Vitamin A.

The NCP is primarily **process oriented**, as our mandate is to transfer the technology of public health communications and social marketing to collaborating host country institutions concerned with maternal child nutrition.

Our expected long term impact will be that management level personnel who participate in the program will--by the end of the project--be able to design, research, produce, manage and evaluate effective nutrition education and communication programs without the need for additional extensive technical assistance.

Within the scope of the IFAHS project, we expect to improve infant feeding behavior in the target zone by:

- Protecting current breastfeeding prevalence and duration levels (which tend to decrease in urban zones, and may be affected during campaigns to promote ORT or solids);
- Promoting the safe introduction of one appropriate complementary food or food mix for infants between four to six months of age;
- Promoting the safe introduction of a full complement of foods for infants 10-18 months of age;
- Promoting the acquisition and feeding of foods rich in vitamin A to all children as well as women who are pregnant and breastfeeding.

Baseline measures of current practices and targets for improvement will be determined by a Knowledge, Attitude and Practice survey and observational research conducted as a first step of the project. Behavior change impact will be determined by the same assessments conducted at suitable intervals following program launch.

Impact on Child Survival

It is our goal to assist the MSP and USAID achieve the child survival targets stipulated in the IFAHS project. We do not believe these goals are attainable without educational and communication inputs, but the exact contribution played by IEC is impossible to determine, very expensive to model statistically, and probably not worth determining as it is unlikely that IEC alone will be the only input in the foreseeable future. For these reasons, we do not have "health impact objectives" distinct from those of the institutions we support.

E. Next Steps

The DSF and NCP laid out a plan for the first two years of technical assistance to the DSF beginning after January 1, 1989.

NCP has proposed a number of options for technical assistance including a resident or regional advisor in Integrated Health IEC; six months of technical assistance focussed on the GM/P component; a series of short-term consultancies on social marketing, communications research and development; and professional training in communications management for DSF staff responsible for nutrition IEC.

A final planning trip must occur to finalize the terms of reference for a nutrition communication project. This will be combined with a focused assessment of communication, training and material needs at the level of the SMI center in Bamako and Koulikoro. A mid-February date has been proposed.

II. ASSESSMENT OF HEALTH AND NUTRITION SITUATION

A. Child Survival

The infant mortality rate in Mali of 173-250/1000 is among the highest in the world[1]. In some parts of the country, approximately one third of the children under age five died during periods of severe drought (such as those experienced in 1972-74, 84-85), though the average under-five mortality rate is 44/1000 (US rate <1/1000). About 60% of these child deaths are attributable to four causes: measles, diarrheal disease, respiratory infections and malaria--all are preventible, and all are predicated or exacerbated by chronic undernutrition which affects virtually every region of Mali.

According to the 1987 preliminary review of the Health Sector in Mali,

> The Ministry of Health has had policies and programs to promote health services specifically directed toward reducing infant mortality rates [...since at least 1964, when the GRM adopted a policy of "primary health care"]... for many years. A lag of five or more years from proclamation of the policy to implementation is normal. For example, the Ministry announced an expanded program for immunization in 1982, but the first immunization campaign was launched in December 1986, and a complete national cold chain does not yet exist [Ref 2].

USAID/Mali's Child Survival Strategy grapples with the fact that,

> ...official policy and stated priorities to the contrary, hospital-based and curative care continue to consume the

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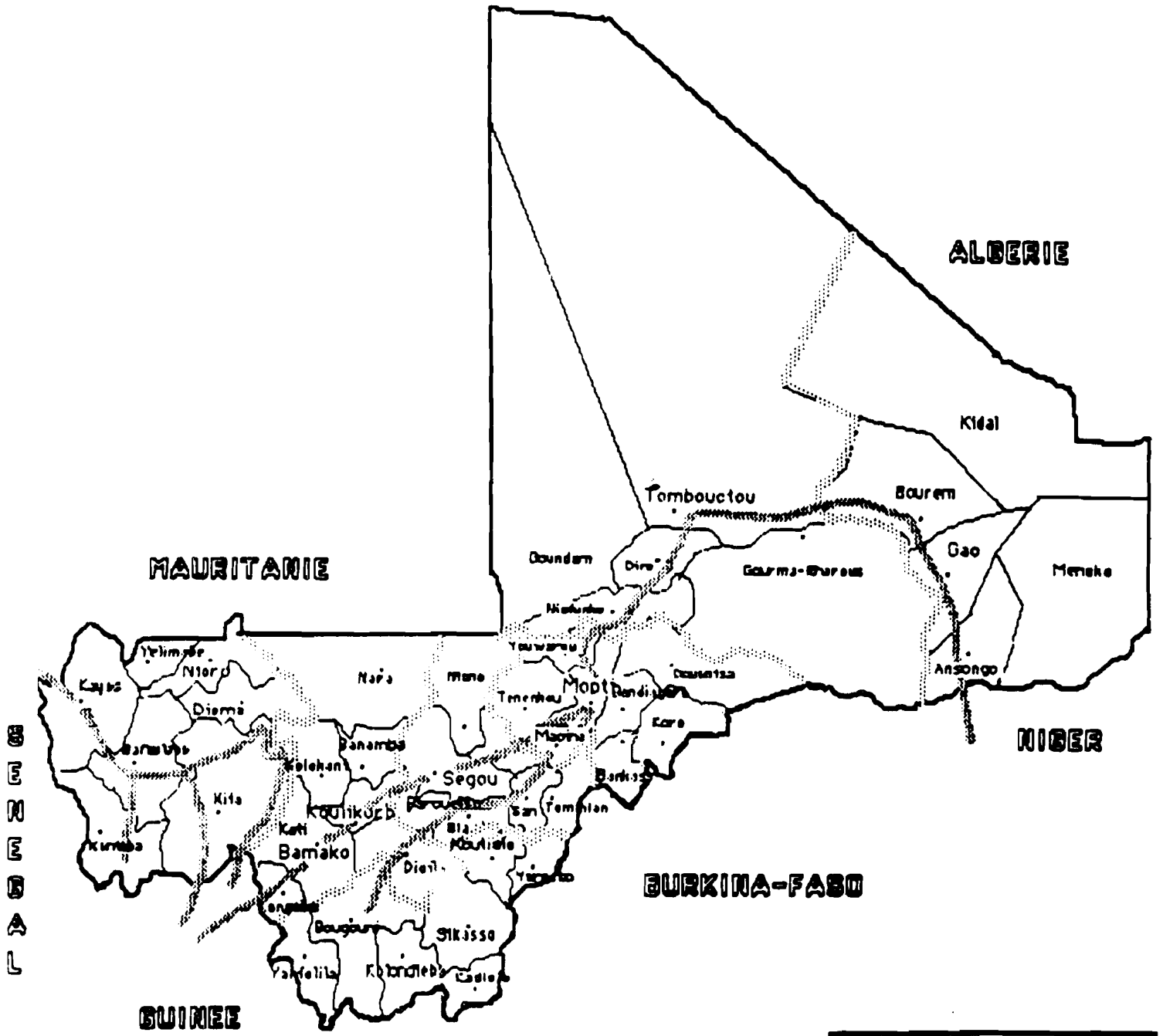
[1] In comparing health status indicators in Mali with surrounding West African countries, The World Bank, World Development Report 1986 positions Mali in last place for infant mortality with Guinea, both with 176/1000 in 1984. Burkina Faso is next with 146, Niger with 142, Senegal at 138, and Ivory Coast at 106. The average for other low income Sub-Saharan African countries is 129, for other low income countries is 72, and for the highest income countries, approximately 9 children out of 1000 born die in their first year of life.

> vast majority of government health resources. Child survival activities appear to have been...ad hoc, localized, poorly integrated into government health services and poorly coordinated....[T]he vast majority of dispensaries and health centers reportedly do not incorporate vaccinations, ORT, growth monitoring, health education or family planning into their regular routines. Community outreach activities by health personnel appear to be virtually non-existent. Thus even the limited percentage of the population with access to the government health system...[15-30%, though actual usage is lower, with many rural dispensaries servicing populations of 10-20,000 who record a maximum of 10 consultancies/day]...does not generally benefit from primary health care [REF 1:3-4].

Hence, USAID's child survival activities are aimed at "strengthening the capacity of the Ministry of Public Health and Social Affairs to plan, coordinate and manage national and regional programs so as to achieve maximum impact from limited existing resources." The approach is one of "health care development rather than punctual activities designed to achieve widespread, but ...temporary improvements in specific child survival-related indicators."

USAID/Mali has appropriated eight million dollars to the GRM for an Integrated Family Health Services Project (IFAHS). The six year project (1986-92) calls for strengthening child survival interventions [including immunization, ORT, GM/P and FP] in 10 health centers in the Bamako district and five health centers in the neighboring Koulikoro (Haute Vallee) Region (SEE MAP 1).

MAP 1



Division de l' Epidémiologie
et de la Prévention.
Unité Statistiques & Informatique

B. Nutritional Status Indicators

1. Protein Energy Malnutrition (PEM) [Reference 3 is quoted extensively in this section]

Table 1 below lists the results of 54 anthropometric surveys, all but one carried out between 1984-1987, in all regions of Mali. Following the protocols established by the Famine Early Warning System (Systeme d'Alert Precoce= SAP), these studies used a standardized random sampling plan and weight/height as the nutritional risk indicator. All studies use the NCHS/WHO/CDC reference data to determine nutritional status. [Studies carried out in Mali in the past two decades that used different reference standards were excluded from this table due to incomparability of findings.] Children falling between 70 and 80% of the mean are considered to be moderately malnourished and those below 70%, severely malnourished.

Overall, **between 7 to 20% of Malian children under six years old suffer from moderate to severe malnutrition**, using weight for height as the criterion. A larger proportion of children (and adults) suffer periodic wasting during the pre-harvest period of June-September.

TABLE 1

Weight for Age Data, 1978-1987, Mali

PREVALENCE OF ACUTE PROTEIN - ENERGY MALNUTRITION AMONG CHILDREN IN MALI: A SUMMARY OF EXISTING STUDIES

ARRONDISSEMENT[1]	STUDY DATE	SAMPLE SIZE	AGE IN MONTHS[2]	PERCENTAGE LESS THAN 80% STANDARD WEIGHT FOR HEIGHT[3]		SURVEYOR
REGION I						
1 Nioro (city)	August ? 1984	1939	0 - 60	5.5	--	SSP
2 Diema (city)	August ? 1984	273	0 - 60	6.6	--	SSP
REGION II						
3 Dilly	April 1984	445	0 - 72	23.6	--	MSF
4 Falou	April 1984	287	0 - 72	16.0	--	MSF
5 Guire	April 1984	295	0 - 72	14.9	--	MSF
6 Mourdiah	April 1984	726	0 - 72	14.4	--	MSF
7 Balle	April 1984	471	0 - 72	16.0	--	MSF
8 Balle	December 1986	324	6 - 60	4.9	(0.0)	SAP
9 Balle	June 1987	450	6 - 60	14.2	--	SAP
10 Balle	August 1987	450	6 - 60	10.7	(1.8)	SAP
REGIONS II & III						
11 Random villages	Jul - Aug 1978 & Mar - Apr 1979	339	0 - 60	7.0	--	ORANA
REGIONS II, III, & IV						
12 CMDT Nord \	Nov 1984 - Feb 1985	3660	0 - 60	26.0	--	ENMPH
13 CMDT Sud /				20.0	--	
REGION V						
14 Douentza (cercle)	Mar - May 1984	1282	6 - 60	7.4	(0.9)	MSF
15 Douentza (city)	Mar - May 1984	338	6 - 60	6.6	(0.6)	MSF
16 Douentza Central	September 1986	200	6 - 60	8.0	(0.0)	SAP

1 Arrondissement given unless "cercle" or another designation is specified.

2 If the age of the child is unknown, surveyors generally measure children between approximately 65 and 115 cm tall.

3 Weight for height figures below 80% and above 70% of NCHS/WHO/CDC standards are considered to be an indicator of moderate acute malnutrition. Ratios below 70% of the standard indicate severe acute malnutrition. The first figure in the column give the percentage of malnourished children, including those considered to be both moderately and severely malnourished. The second figure in the column gives the percentage of children below 70 percent of the standard, those considered to be severely malnourished. A dash indicates that the latter figure was not available.

SOURCE: SUNDBERG 1988:TABLE 4

TABLE 1 (continued)

ARRONDISSEMENT	STUDY DATE	SAMPLE SIZE	AGE IN MONTHS	PERCENTAGE LESS THAN 80% STANDARD WEIGHT FOR HEIGHT		SURVEYOR
REGION V (continued)						
17 Kendie	September 1986	200	6 - 60	7.5	(0.0)	SAP
18 N'Gouma	September 1986	200	6 - 60	14.5	(0.0)	SAP
19 N'Gouma	March 1987	450	6 - 60	7.3	(1.1)	SAP
20 Sah	March 1987	450	6 - 60	11.4	(2.7)	SAP
21 Niono Central	April 1987	305	6 - 60	11.1	(2.6)	SAP
REGION VI						
22 Rharous (cercle)	June 1984	1368	0 - 60	19.5	(3.8)	MSF
23 Niafunke (cercle)	June 1984	1115	0 - 60	10.3	(1.2)	MSF
24 Dire (cercle)	June 1984	1163	0 - 60	25.7	(3.5)	MSF
25 Goundam (cercle)	June 1984	387	0 - 60	22.7	(2.0)	MSF
26 Timbuktu (cercle)	June 1984	718	0 - 60	15.9	(1.7)	MSF
27 Entire Region	May 1985	1800?	0 - 60	18.5	--	MSF
28 Entire Region	July 1986	1836	6 - 72	6.1	(0.7)	MSF
29 Rharous (cercle)	Jul - Aug 1986	600	6 - 60	10.2	(0.8)	SAP
30 Rharous (cercle)	February 1987	450	6 - 60	7.1	(0.4)	SAP
31 Dire (cercle)	February 1987	1000	6 - 60 ?	8.6	(0.6)	UNICEF
32 N'Gorkou	July 1987	440	6 - 60	10.2	(3.2)	SAP
33 Timbuktu-Commune	September 1987	858	6 - 72	8.9	(1.4)	MSF
REGION VII						
34 Menaka (cercle)	April 1985	923	0 - 72	41.7	(9.7)	Red Cross
35 Entire Region (sedentary)	October 1985	920	0 - 72	23.0	(4.9)	Red Cross
36 Kidal (cercle) (nomadic)	October 1985	909	0 - 72	2.6	--	Red Cross
37 Bourem (cercle)	December 1985	?	0 - 72 ?	26.5	--	Red Cross
38 Almoustarat	July 1986	210	0 - 72	21.4	--	SAP
39 Almousterat	July 1986	200	0 - 72 ?	12.0	(4.0)	Red Cross
40 Bamba	July 1986	?	6 - 60 ?	6.5	--	UNICEF
41 Bourem Central	July 1986	210	0 - 72	16.7	--	SAP
42 Temera	Aug - Sep 1986	?	6 - 60 ?	23.6	--	UNICEF
43 Almoustarat	Sep - Oct 1986	642	3 - 72	16.8	--	UNICEF
44 Almoustarat	October 1986	198	6 - 60	43.0	(3.5)	SAP
45 Tessit	October 1986	193	6 - 60	1.5	(0.5)	SAP
46 Bourem Central	Oct - Nov 1986	?	6 - 60 ?	16.0	--	UNICEF
47 Almoustarat	November 1986	825	3 - 72	9.8	--	UNICEF
48 Ansongo (cercle)	Nov - Dec 1986	204	6 - 60	8.3	(0.5)	SAP
49 Bourem (cercle)	Nov - Dec 1986	298	6 - 60	13.7	(2.0)	SAP
50 Almoustarat	March 1987	600	6 - 72	3.5	(0.8)	UNICEF
51 Bamba	March 1987	574	6 - 72	9.8	(2.8)	UNICEF
52 Temera	March 1987	505	6 - 72	7.1	(1.0)	UNICEF
53 Bourem Central	March 1987	600	6 - 72	10.2	(1.5)	UNICEF
54 Temera	December 1987	412	6 - 60	8.2	(0.2)	SAP

Sources for Table I:

1 Lefevre, 1986
2 Ibid.
3 Ibid.
4 Ibid.
5 Ibid.
6 Ibid.
7 Ibid.
8 SAP, 1986g
9 CNAUR, 1987a
10 SAP, 1987e
11 Benefice and Chevassus-Agnes, 1981
12 Lefevre, 1986
13 Ibid.
14 Ibid.
15 Ibid.
16 SAP, 1986d
17 Ibid.
18 Ibid.
19 SAP, 1987a
20 UNICEF, 1987b
21 SAP, 1987c
22 Lefevre, 1986
23 Ibid.
24 Ibid.
25 Ibid.
26 Ibid.
27 MSF, 1986
28 Ibid.
29 SAP, 1986b
30 SAP, 1987a
31 UNICEF, 1987a
32 SAP, 1987d
33 MSF, 1987f
34 Lefevre, 1986
35 Villeneuve, 1985
36 Ibid.
37 UNICEF, 1987b
38 SAP, 1986a
39 Red Cross, 1986
40 UNICEF, 1987b
41 SAP, 1986a
42 UNICEF, 1987b
43 Ibid.
44 SAP, 1986e
45 Ibid.
46 UNICEF, 1987b
47 UNICEF, 1986
48 SAP, 1987f
49 Ibid.
50 UNICEF, 1987b
51 Ibid.
52 Ibid.
53 Ibid.
54 SAP, 1987g

Acute malnutrition rates in virtually all studies are highest for children between 6 and 24 months of age. Several studies find a significantly higher rate of PEM among girls than boys, but cannot identify a biological reason or social custom that would account for this difference [3:26].

Only six studies have attempted to measure chronic undernutrition, as indicated by low height for age. Rates vary between 13 and 36% (See **Table 2**). Chronic PEM is generally highest for children between 24 to 48 months of age, and continues through age 14. Mondot-Bernard (1980) accounts for the high rates among children 6-14 year old by their high level of energy expenditure. The young girls, in particular, begin helping with household chores and carry heavy loads relative to their weight. [3:27]

Thus, a large proportion of Malian young women begin their procreative life at 14 - 17 years of age undernourished, and "share" this deficiency with their offspring, resulting in low birth weights. It seems advisable to target adolescent girls in addition to children under five for nutrition programs and education.

Regional Variation

Map 2 below shows the regional variation in prevalence of acute PEM among children 0-5, based on the same data sets as above. The 6th and 7th regions are the most vulnerable, though the prevalence is fairly wide-spread throughout the country, even in zones 1-4, characteristically considered major surplus grain production zones. It is noted that surveys were conducted following one of the worst harvests in Mali in the last 30 years, and that migrants from northern Mali, fleeing drought-stricken areas, were counted among the sampled populations. Even taking these factors into account, the extent of childhood malnutrition in regions 1-4 is still very high, arguing that child feeding, sanitation and disease factors unrelated to food availability played an important role.

There have been very few nutritional surveys conducted in cities.

Table 2

Height for Age Data, 1978-1987, Mali

TABLE 5

PREVALENCE OF CHRONIC PROTEIN-ENERGY MALNUTRITION AMONG CHILDREN IN MALI: A SUMMARY OF EXISTING STUDIES

STUDY SITE	STUDY DATE	SAMPLE SIZE	AGE IN YEARS	PERCENTAGE LESS THAN 90% STANDARD HEIGHT FOR AGE[1]	SURVEYOR
Region I - Kita, Bafoulabie, and Kenieba cercles	May 1981	1000?	0 - 14	35.8	World Bank/EMMPH
Region II - Nonsombougou arrondissement	April 1984	539	0 - 5	13.0	UNDP
Region III - Yanfolila cercle	March 1980	1443	0 - 14	16.7	EMMPH/UNDP
Regions II & III - CMDT Nord	Nov 1984 - Feb 1985	3660	0 - 5	15.6	EMMPH
CMDT Sud				16.0	
Region V - Koro (city)	December 1981	210	0 - 5	16.0	USAID
Bamako, Segou, and eight villages in Regions I, III, V, VI, and VII	July - August 1977 & January - April 1978	139 107	0 - 5 6 - 14	34.0 23.5	Mondot-Bernard

Source: Lefevre (1986) for all studies except Mondot-Bernard (1980) for final study

[1] All studies except Mondot-Bernard use Harvard standards of height for age. Mondot-Bernard uses NCHS standards. Children whose height for age lies below 90 percent of the standard are said to be growth stunted, an indicator of chronic malnutrition.

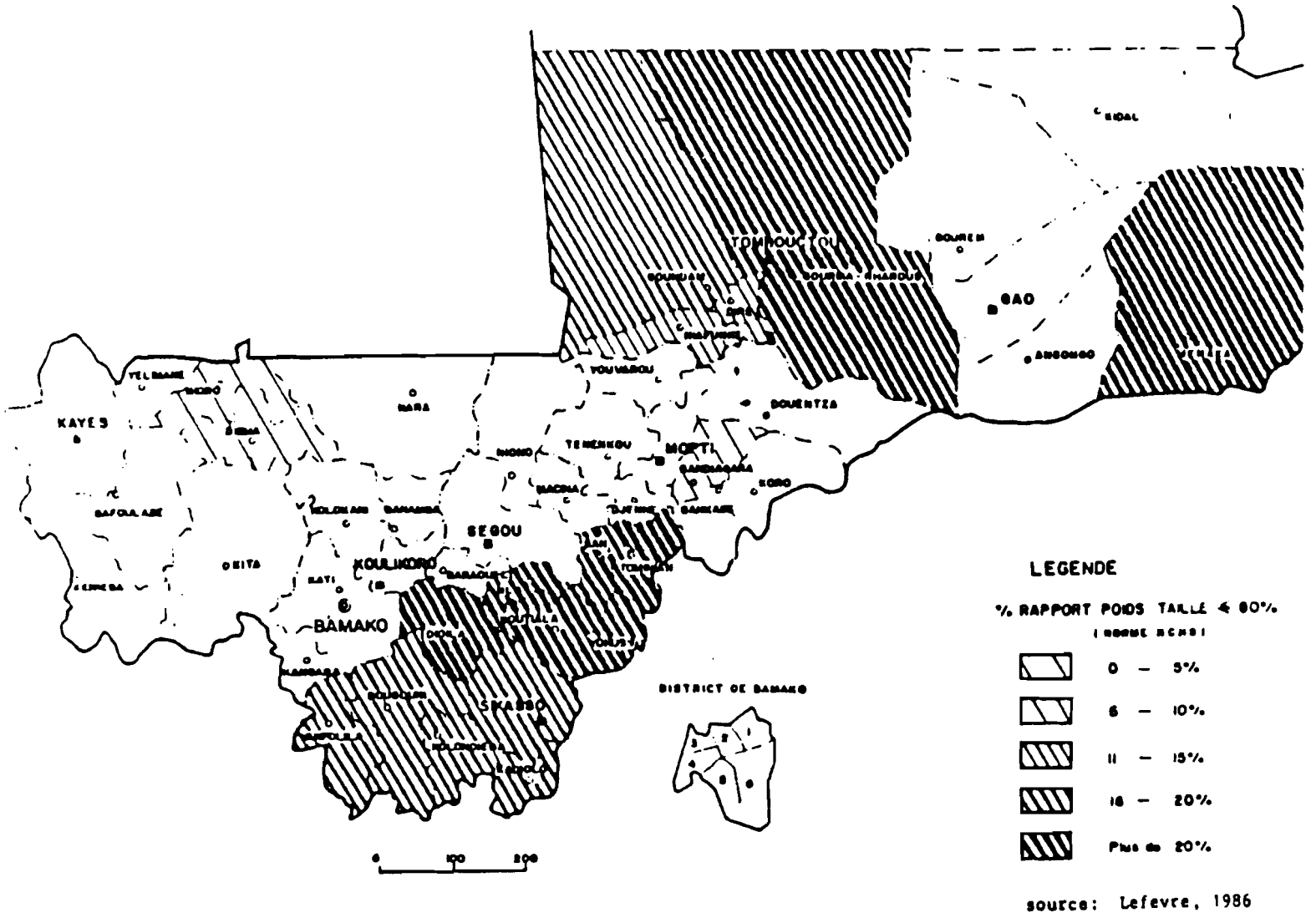
SOURCE: SUNDBERG 1988: TABLE 5

MAP 2

Regional Variation in Protein Energy Malnutrition

Nutritional Situation of Children Under Five Years

(0 - 59 MOIS)



SOURCE: SUNDBERG 1988: FIGURE 2, FROM LEFEVRE 1986

2. Vitamin and Mineral Deficiencies

Vitamin A

A country-wide survey of vitamin A nutriture has not been conducted in Mali, though it is slated as one of the priority activities of the National Program to Combat Vitamin A Deficiency (SEE RAPPORT DES JOURNEES DE TRAVAIL SUR LES CARENCES EN VITAMINE A AU MALI, JUNE 1988). In his position paper for the conference, D. Semega states that:

> "...the Malian population has been acquainted with night blindness...for generations. In fact, every ethnic group has its own term for the condition:
>
> | | |
> |---|---|
> | "Soufien" | Bambara |
> | "Wouro doumpicou" | Sarakolle |
> | "Pinkou" | Peulh |
> | "Goro-adana" | Sonrai |

And Semega notes, that

> "the traditional treatment is to give children suffering from this affliction the liver of small ruminants to eat."

A 1980 GRM Nutrition Service survey found that **severe vitamin A deficiency affected approximately 11.7% of the surveyed population in the 1st, 5th and 7th region of the country.** Earlier surveys conducted by ORANA (1978-79) found 5% of preschool-age children afflicted, and noted a seasonal deficiency that affected older children, but not the under-five group. The 1986 Helen Keller International survey evaluated eye signs among sedentary, displaced and nomadic populations. All forms of vitamin A deficiency were most prevalent among children 6-10 years old in the displaced group, (14%), with only 5% of the children 0-5 years showing any clinical signs. Approximately 9% of the older nomadic children were affected, and 5% of the younger children. Among sedentary groups, approximately 11% of children 6-10 showed clinical signs, and 5% of children 0-5.

These incomplete data suggest that Vitamin A deficiency is more prevalent among older children, whose vision is at stake. However, the 5 - 10% of preschoolers with the deficiency is probably underestimated due to the relationships demonstrated among measles, ability to fight infections, child mortality, and even sub-clinical levels of Vitamin A deficiency. The National plan targets children 0-5 years of age, pregnant and lactating women for Vitamin A interventions.

Anemia

Iron deficiency anemia was estimated by the Nutrition Service in 1985 to affect 40% of children and 47% of pregnant women in Mali, making it the second most widespread nutrition problem in the country. Anemia is attributable both to low intakes of iron, (aggravated by equally low intakes of riboflavin) and to high rates of parasitic diseases, including malaria. Children with anemia are physically weak, easily tired and usually have poor appetites. The behavioral cues to the mother that the child needs more food are masked, as children are often perceived to be "quiet, well behaved and non-complaining." Thus, anemia often contributes to other nutritional deficiencies in addition to posing its own health risk.

Vitamin C

Vitamin C deficiencies are most pronounced in northern Mali due to a nine month shortage of fruits and vegetables. A survey conducted in 1982 showed insufficient vitamin C intakes in eight villages surveyed in the 1st, 3rd, 5th, 6th and 7th regions, but adequate in Bamako and Segou. Dietary practices to maximize the bioavailability of Vitamin C and iron need to be promoted to make the most of scarce natural resources for these nutrients.

Iodine Deficiency

The Nutrition Services estimates that approximately **one third of the population is affected by iodine deficiency**--with the exception of the 6th and 7th regions whose salt source is the beds of the ancient Sea of Senegal, which is naturally iodized. Goiter prevalence rates are as high as 72% in some villages, due to a lack of iodine coupled with iodine inhibitors in the diet, and potentially genetic factors. Children born to iodine deficient mothers may suffer from reduced stature and lowered mental capacities, with cretinism the extreme condition. The GRM is preparing to launch a national goiter control program, fortifying domestically produced peanut oil with iodine or offering iodine injections in health centers throughout the country. An education program in conjunction with these efforts might also be advisable.

C. Seasonal Changes in Food Production and Health

According to M. Martin [Ref 6], the Bambara, a principal ethnic group in Mali, recognize three long seasons and one shorter one, each associated with agricultural activities, patterns of illness and changes in diet. These seasons are:

Samiya — Rainy season extending from mid-June to September. This is a period of heavy work with full days spent in the fields.

Kawla — Short season of change (higher winds and dryness) between September to early November.

In both Samiya and Kawla, malaria and fevers are common, with diarrhea, stomach aches, painful joints, fatigue, headaches, cuts and bruises common. In some regions, guinea worms appear in Samiya.

Fonene — The cold season, extending from early November through mid-February. Harvesting continues until mid-January, and more diverse activities such as house building, weaving and crafts take place. Many of the same illnesses persist, and outbreaks of whooping cough and meningitis are common.

Tilema — The hot season, extending from mid-February until the rain arrives in June. Eye problems are added to the list above, and children are more susceptible to measles and meningitis.

As part of **Peace Corp**'s Nutrition Mixed Gardening Training in 1986, eight Malian community development workers and 11 Peace Corps Volunteers produced the following calendar highlighting seasonal and monthly variations in climate and associated men's and women's workloads, children's activities, social and religious events, health fluctuations, income and expenditures, food availability and critical periods. Drawn from collective experience, this basic tool is a valuable reference which concurs generally with statistics for the region, as well as the description above.

Mali Seasonal Calendar

THE MALIAN REALITIES

	SEASONS	MEN'S WORKLOAD*	WOMEN'S WORKLOAD*	CHILDREN'S ACTIVITIES
OCT NOV DEC JAN FEB	WINTER little sun low humidity cool wind water avail.	.2:harvest storage threshing (gardening) (RURAL MIGRATION) .1:house repairs brick-making crafts	.3:harvest processing of gathered foods .2+gardening crafts ceremonies	.harvest SCHOOL gardening
MAR	T SEASON DRY		.2:crafts	

	SOCIAL/RELIGIOUS	HEALTH	EXPENSES/INCOME	FOOD AVAILABILITY CEREAL/VEGE/OTHER	CRITICAL PERIODS
OCT NOV DEC JAN FEB	ceremonies: marriages circumcisions	.Shisto. colds/flu measles diarrhia worms whooping cough colds meningitus	+sale of crops: .field .garden .gathered taxes ceremonies +crafts	LOTS/LOTS/ milk wild fruits	
MAR	sacrifices to the land	measles		no milk	

From Don Boekelheide & Amy Wilson, Peace Corps/Mali, IST: Nutrition Oriented Mixed Gardening, June 15-26, 1986 Final Report.

D. Food Consumption Patterns

The studies of food consumption carried out by Sundberg [Ref 3] and Martin [6] provide much information relevant to the planning of a nutrition communication program. Some key points are discussed below.

1. Rural Sedentary Diets

Among sedentary groups, coarse grains (millet, sorghum, maize) and rice account for 70-80% of caloric intake, with seasonal and regional variation in the relative proportions of these grains. Among the Bambara, men are responsible for measuring out millet, women and girls pound and prepare food. The general meal pattern, Bambara locutions and seasonal variations are as follows:

Early Morning
'Daraka'

'Seri' a thin porridge of boiled millet flour and water, with milk and sugar added, if available (also called bouillie.

'Moni,' a lumpy gruel with lemon or tamarind added, if available.

'Dege,' a liquid gruel with hot peppers added.

'Kini,' a more solid, pasty preparation for which the millet is ground rather than pounded, usually eaten with a peanut-based sauce.

June-October: Seri, Moni or Dege November-May: Seri or Kini

Mid-Morning
'Tilelafana'

'Toh', millet flour cooked to the density of bread dough, served with a sauce containing a combination of any of the following ingredients: baobob or moringa leaves, gumbo, tomatoes (when available), onions, hot peppers, 'soumbala' (a spice), and occasionally fish (usually dried) or meat;

'Basi,' millet couscous, prepared by steaming millet flour until it reaches a fluffy consistency, with a sauce of beans, manioc, tomatoes, onions, and/or peanuts. May also be eaten dry, with water or milk and

sugar. 'Basi' considered food for special occasions, or for travelers.

Rice, served with a sauce consisting of fish or meat, oil, and a combination of vegetables, groundnuts, beans and spices.

June-October: Toh or rice November-May: Toh, Seri, Basi or Rice

Mid-afternoon
'Wulalafana'
(optional) 'Dege' eaten year round

Evening
'Surafana'

June-October:'Seri' or harvested pulses November-May:Toh or rice

Nutritional Value of Diets

Although many families own chickens, they are generally only killed for special occasions. Eggs are not widely consumed, despite their abundance, due to beliefs concerning their harmful properties. The diet is generally sufficient in calories and protein, however, lacks several vitamins and minerals. In addition to seasonal shortages of vitamin-rich fruits and vegetables, deficiencies are aggravated by two additional factors: A relatively low intake of fats and oils limits the absorption of fat-soluble vitamins (such as A and D), and cooking techniques tend to destroy the Vitamin C in vegetables. Low intake of animal products contributes to widespread iron deficiency anemia, and the only significant source of calcium in the diet is green leaves.

2. Urban Diets

The meal patterns and components of urban populations are similar to those of rural sedentary groups, although there is more consumption of rice, and sauces are generally richer in oil, meat, fish or vegetables. There are some regional differences, with cereals accounting for a larger proportion of calories in Sikasso and Bamako, and milk and meat more important in Gao and Mopti. Urban diets have not been well studied, apart from household consumption surveys conducted in 1975 (OMBEVI, 1976) and 1985 (Sidibé, DNSI). The principal finding of these is that meat consumption in Bamako has declined (from 38.5 kg. per cap/yr. to 15.12 kg per cap/yr) reflecting both lower availability of meat due to drought and reduced purchasing power of urban households. In addition, eggs were consumed by only 20% of households surveyed.

3. Nomadic Diets

According to a 1983 study of Tuaregs in northern Mali, 68% of the calories in the diet come from milk, 24% from cereal and 8% from meat. The staple food of the nomadic Peul and Maure is similarly milk, complemented by cereals, meat, sugar and dates. However, cereal consumption increases, to account for up to 60% of the caloric intake during droughts, as the herd size is diminished.

Both milk and meat consumption peak near the end of the rainy season, though animals are not killed on a regular basis for consumption. During the dry season, milk is reportedly reserved for children and women.

As Nomadic populations frequent the northern part of Mali where fruits and vegetables are rare, they often suffer from Vitamin A and C deficiencies.

E. Child Feeding Practices

1. Infant Feeding

A systematic review of Malian child feeding practices has not yet been conducted, although surveys conducted in the 1960s and several recent ethnographic studies [Refs 5,6 & 7] provide a general picture. Malian women breastfeed their infants for an average of 18 to 25 months. Colostrum use varies, although it is reported that more women discard it, believing it harmful to the newborn. Complementary feeding does not begin until 8 to 12 months, and may be delayed until 24 months in some regions. The first food given besides breastmilk is bouillie, the millet porridge described above.

2. Food Restrictions

As is true for many people, Malians regard food as having more than "nutritional" properties, attributing bodily conditions and symptoms to different categories of food. Reviewing some of the restrictions noted in References 3 and 6 such as withholding red meat from children with measles or cool water from children with diarrhea, suggests that Malians may subscribe to their own version of a "humoral" medical system, that may have Islamic or indigenous origins. The examples given would be cases of withholding a "hot" food (meat) from a child with a "hot" illness (measles), and conversely, a "cold" food (water) from a child with a "cold" illness. This system would also account for a number of the restrictions noted during pregnancy and post-partum.

In addition, there are a number of local explanations for why certain classes of human being should or should not eat certain classes of food. Table 3 below lists a few dietary restrictions by ethnic group. More research on indigenous food categorization systems is needed.

TABLE 3

DIETARY RESTRICTIONS FOR CHILDREN AND PREGNANT WOMEN AMONG DIFFERENT ETHNIC GROUPS

ETHNIC GROUP	CHILDREN	PREGNANT WOMEN
Bambara	eggs -if eaten by a child who doesn't speak, he will become deaf-mute -can cause goiter -if eaten by a young girl before she is circumcised she will bleed a lot when circumcised meat animal organs, eyes and tongues millet (temporary) -a child born after the harvest does not have the right to eat foods older than him; he must wait until the next harvest to consume millet	eggs -her child will have the fragility of an egg slaughtered meat reptiles, monkeys, rabbits, deer animals which died in labor
Sarakolle		eggs -her child will be deaf mute meat -her child will be jealous animals with claws -her child will be anti-social animals which died in labor
Songhai	rice, toh -will retard child in walking	
Peul		python -the woman and child will become lazy goat intestines
Tuareg		bouillie, toh -will make woman sick unless eaten in the morning

Sources: UNICEF, 1987c; Nafo, 1984; Coulibaly, 1977.

3. Behavioral Variations

Ethnic differences that define traditional occupations (herding, farming, fishing), life styles (migrant v. sedentary), geographic location and social class distinctions (privileged or "noble caste" v. "low caste") contribute to differences in nutritional status and infant mortality [Ref 5]. However, individual care-taking behavior appears to mediate the power of ecological or economic variables associated with these larger factors, **highlighting the importance of beliefs, attitudes and social norms** to infant feeding.

For example, Hilderbrand et al[1] conducted a comparative study of child care and mortality among Tamasheq "Nobles" ("high caste") and the co-residing, dependent Bella (low "caste," descendants of former captive slaves) living in the delta of the Niger flood zone. Two important forms that Tomasheq use to demonstrate their wealth are to support large numbers of cattle and Bella servants. Tomasheq women become visible representations of this wealth by becoming obese, indicating they are well-fed and perform no manual labor. The most striking finding from this study is the higher survival rates (and better care) of Bella children, who are for all intents and purposes, the children of poor servants to the relatively wealthy Tamasheq. As stated in Hilderbrand,

> "... although noble women breastfeed their children for an average of 18 months, much of the actual care and supervision of the child is done by Bella nursemaids aged between seven and sixteen, who carry the babies around for most of the day.... Although the nursemaids generally look after their charges to the best of their ability, many of them are scarcely more than children themselves, and are unaware of the young child's needs or incapable of fulfilling them. At the same time the mother is less aware of any problems, because whenever [the child] is troublesome the nursemaid is called to look after it. Noble children are rarely washed, because when their mothers go to wash, they leave the child with the nursemaid, and when the nursemaids go to wash or get water, they generally leave the child behind.
>
> This contrasts strongly with the relationship between a Bella woman and her young child from whom she is rarely separated. When she is working, the child is either tied to her back or in a cradle nearby. The child goes with her when she goes to get water ... and is thus washed quite frequently. Bella women generally have water and

---

[1]Katherine Hilderbrand, Allan Hill, Sara Randall and Marie-Louise van den Eerenbeemt, "Child Mortality and Care of Children in Rural Mali," in Ref 5:184-207.

> usually food in their tents so that a child will not go thirsty even in the dry season when children get dehydrated very quickly.

A pointed example of the health impact of Bella infant care compared to Tomasheq is given in the case below:

> The whole attitude of nobles towards the health of their children and their powers of intervention is summed up in the approach to ...Fad. This word actually means 'thirst' but thirst is not a symptom but a cause. Fad is usually a hot illness (it is caused by a lack of cold water to drink. (On of the recommended cures is to hold the child in water for much of the day. As the child has diarrhea, and this is the same water drunk by the rest of the camp, it is hardly surprising that many children fall ill at the same time.) The women say that in the hot seasons their children get very thirsty but that they themselves are too tired and lethargic because of the heat to ensure that the children get enough to drink. ..It is interesting to note that although noble mothers do blame themselves and their lethargy for this illness, and consider Fad to be a killer, they are not sufficiently motivated to change their behavior patterns.

Hilderbrand interprets this in terms of the relative value to Tomasheq women of healthy children compared to their personal well being,

> "It is socially acceptable for one group of women not to take the best possible care of their children, because the social norms allow, even encourage, their lethargy, and prestige is maximized in preference to child survival. Prestige is acquired by being seen to do as little work as possible, to have others to work for you, and also by being so fat that work is impossible. Not only can Bella never attain the social status which demands that type of behavior, but society perceives them as workers and a working role is expected from them.

Thus, while the Tamasheq women have virtually no economic constraints upon them in comparison with Bella women...and the Tamasheq have a more developed, formalized medical belief system ...the Bella emerge as more competent as regards child health and mortality.

A less dramatic case of how beliefs and practices affect infant feeding, acting to mediate economic input and formal knowledge, is provided by Katherine Dettwyler. Dettwyler studied child feeding practices and nutritional status among 136 Bambara households in a suburb of Bamako. **Socioeconomic status (measured by a variety of household indicators) did not account for variation in**

nutritional status among the sample population of children. Growth performance was found to be highly correlated with **maternal attitude** towards infant feeding and health care. Examples of maternal behaviors which significantly affect the child's nutritional status include:

1. whether the mother will wake a child who is sleeping at mealtimes, or let him sleep through the meal,

2. whether a mother prepares special foods that she knows the child likes, and

3. whether a mother will allow a child who says he is not hungry skip a meal.

Therefore, while nutritional resources are limited in Mali, with 20% of the surviving children under five suffering from chronic malnutrition, and an equal proportion dying from nutrition-related causes in their first year, neither the environment nor economic conditions alone can account for this morbidity and mortality. Individual beliefs, attitudes and practices mediate the direct impact of these exogenous variables.

III. Current Nutrition Programming by GRM/USAID and Other Donors

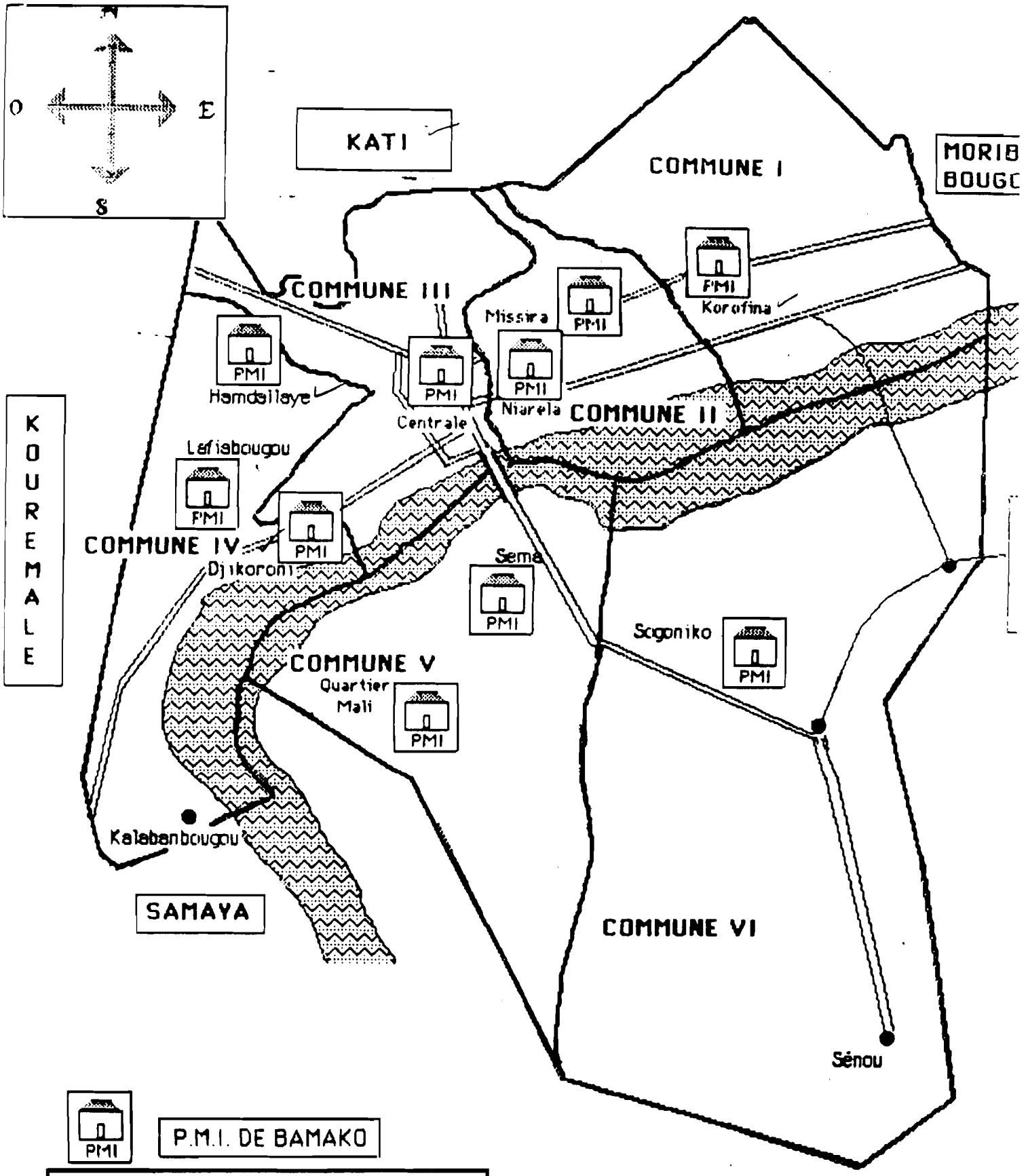
A. GRM/USAID

The Health Delivery system and its financing were reviewed in 1987 [SEE REFS 2 AND 4]. Key findings of special pertinence to the planning of a nutrition project include the following:

- The Ministry of Health and Social Affairs (MSP/AS) is the major provider of health services in Mali, with 345 facilities and approximately 3543 personnel. Following administrative divisions, each of the 46 "circles" and each of the 281 "arrondissements" has one health center. Bamako city has 6 and the district in all has 10. Of the 12 hospitals in Mali, three are located in Bamako.

- A review of medical staff resources conducted in 1984 showed that Bamako was the best served in terms of physicians (1/2500 people), midwives (1/2800), registered nurses (1/5600) and hospital beds (1/433). Apart for midwives, Koulikoro was the most underserved region for each of these categories (e.g. having 1 physician for every 55,000 inhabitants).

- Most Ministry health facilities were reported to be in poor condition, and specific objectives in the Ten year plan (1980-90) call for renovation of all 281 centers.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E
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KATI
COMMUNE I
MORIB
BOUGC
COMMUNE III
Missira
PMI
Korofina
PMI
Hamdallaye
PMI
PMI
Niarela
COMMUNE II
Centrale
KOUREMALE
Lafiabougou
PMI
COMMUNE IV
PMI
Djikoroni
Sema
PMI
Sogoniko
PMI
COMMUNE V
Quartier
Mali
PMI
Kalabanbougou
SAMAYA
COMMUNE VI
Sénou
PMI
P.M.I. DE BAMAKO
DISTRICT DE BAMAKO
ECHELLE = 1/100.000.
SANAKOROBA
Division Epidemiologie et Prevention

REGION DE KOULIKORO

CERCLES ET ARRONDISSEMENTS

NARA
1 Nara
2 Balle
3 Dilly
4 Fallou
5 Guire
6 Moudhia

KOLOKANI
1 Kolokani
2 Didieni
3 Massantola
4 Nossombougou

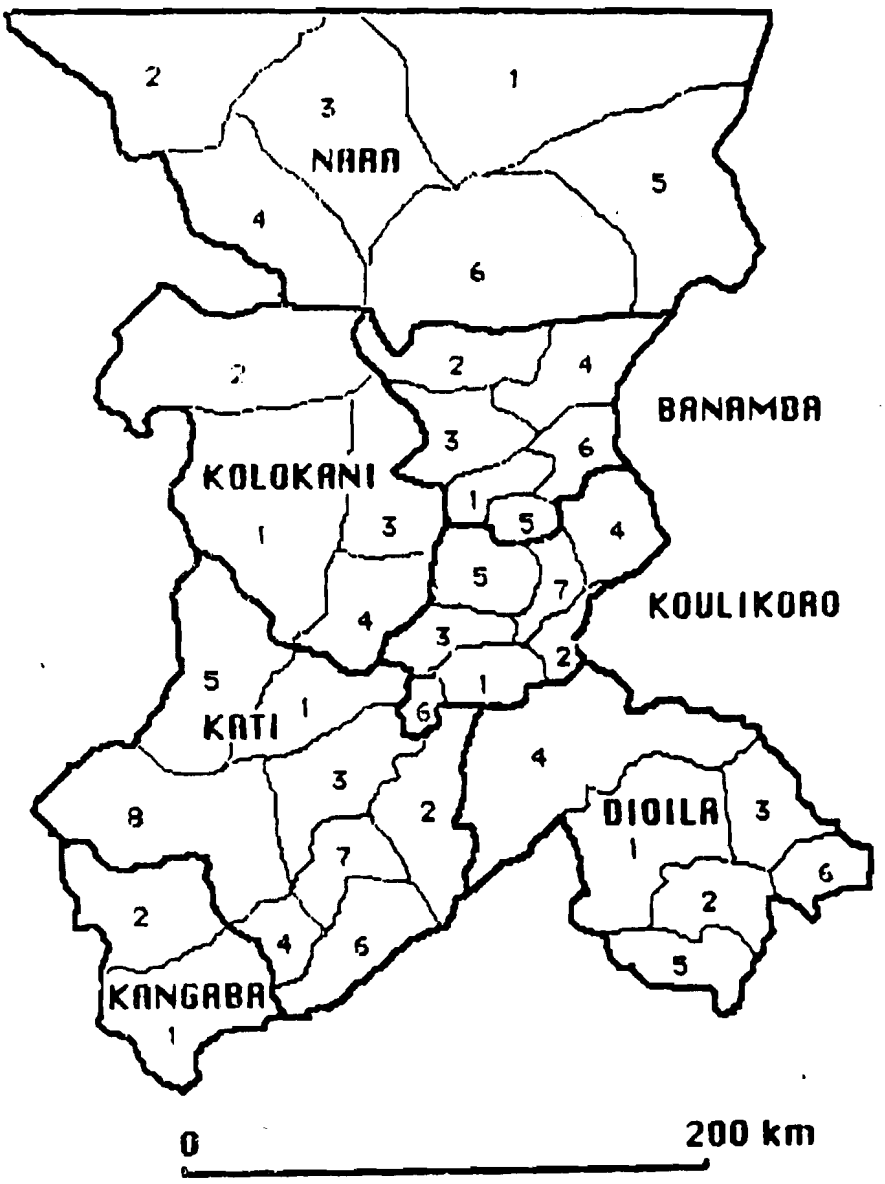
KATI
1 Kati
2 Baguineda
3 Kalabankoro
4 Kourouba
5 Negala
6 Ouélessébougou
7 Sanankoroba
8 Siby

KANGABA
1 Kangaba
2 Narena

BANAMBA
1 Banamba
2 Boron
3 Madina-Sako
4 Sebete
5 Touba
6 Toukoroba

KOULIKORO
1 Koulikoro
2 Kenenkou
3 Koula
4 Nyamina
5 Sirakoroba
6 Tienfal
7 Tougouni

DIOILA
1 Dioila
2 Banco
3 Beleko
4 Fana
5 Massigui
6 Mena



Division Epidemiologie et Prevention

Country-wide Interventions

Country-wide interventions of relevance to new nutrition programming include the following:

1. **USAID-Supported IFAHS**

> The Integrated Family Health Services Project (IFAHS/688-0227) will strengthen and integrate services in 15 maternal and child health/family planning centers in Bamako and Koulikoro. As noted in the baseline review, all centers currently lack some essential equipment and materials to effectively carry out MCH/FP activities. It has been noted that health education, nutrition demonstrations and oral rehydration activities are not regularly provided at all centers. When they are, most often they are directed to mothers of malnourished or dehydrated children, rather than used as a means to prevent these conditions.

Notes on nutrition sessions collected during the baseline survey indicate that:

> Mothers [in Bamako]...contribute a sum of money (25-50 CFA) or [those in the outlying centers of Koulikoro] bring a food commodity. The women themselves prepare the food,...making enough so that each child is able to taste the preparation. A nutrition lesson is given in conjunction with the demonstration. In 6 centers, visual aids are used to illustrate the nutrition message, however, the variety is very limited. Nurses, social workers or midwives coordinate the demonstrations,[with staff filling in if the appointed person is unavailable--little attention paid to background/training of "nutrition educator."]
>
> The preparations used most frequently for demonstrations include: an enriched porridge, a puree of potatoes, a vegetable soup and a type of bean cake, all cooked on a traditional wood fire using commonly found equipment.
>
> Personnel suggested that centers should be better equipped for demonstrations and staff trained in nutrition education.
>
> The IFAHS Project should bring all centers in the project area up to a minimal standard, improving the physical structure and providing sufficient materials to effectively deliver MCH/FP services. Training of personnel is a major component of the project [pp.30-31].

2. The National Program for the Control of Diarrheal Disease

This was approved in 1985 and is currently implemented with funding and technical support by USAID/PRITECH, UNICEF, WHO and Peace Corps. Along with ORT, the program calls for promoting appropriate infant feeding practices to prevent diarrhea, and to maintain the child's nutritional status as best as possible during bouts of diarrhea.

Activities underway include:

Training of 1200 health workers and community extension workers in ORT in all 7 regions of Mali. This phase is nearing completion.

Production of educational materials on Sugar Salt Solution in national languages, including posters, flyers, booklets, songs, radio and television spots. This work has been completed.

A second set of materials are scheduled for production, pending baseline qualitative research on safe introduction of solids and feeding during diarrhea. Initial activities of the NCP-assisted program could benefit from this research. AED is willing to help coordinate its implementation with the PRITECH team.

3. Other Government Nutrition Programs

a. Over 500 Nutrition Rehabilitation and Education Centers (CREN) or Community Nutrition Centers (CNC) were created and were responsible for the rehabilitation of more than 40,000 malnourished children during the 1985 crisis. Emergency food relief was distributed through these centers, schools, and food-for-work programs. Many of these centers have been shut down.

b. With support from USAID and other donors, a Famine Early Warning System has been established, and all regions of Mali were surveyed between 1984-1987 for prevalence of protein-energy malnutrition.

c. USAID contracted Shelly Sundberg [IN COLLABORATION WITH THE MSU FOOD SECURITY PROJECT], a doctoral candidate at the Stanford Food Research Institute to review all primary and secondary nutrition data sources on contract to USAID/Bamako. Sundberg reported on 54 nutrition surveys conducted by the GRM (in collaboration with other donors) between

1984-1988. Findings from these surveys were reviewed above [p: 14 - 20]. Ms. Sundberg is conducting household consumption and child nutritional status research in eight villages of the Koulikoro/Operation Haute Valle region of Mali. Her work includes both quantitative [3 day measured intake over 3 seasons, child anthropometry] and qualitative components [interviews on source of income, expenditure priorities, child feeding practices, food preferences and beliefs, and food distribution within the household]. A report of this research is due July 1989, at which time it is requested that Ms. Sundberg make a presentation of her findings to the DSF/NCP team. Ms. Sundberg plans to remain in Mali through October 1989.

d. Most of the rural areas of Mali are supported by NGO projects in agriculture, water, sanitation and health development. [See other donor activities, below.]

B. Multilateral Projects

1. The Joint Nutrition Support Project (JNSP, PCAN in French)

The Joint Nutrition Support Project is a multi-sector, rural development program financed by UNICEF and the WHO. It has been active in Mali since 1984 (planning and funding began in 1982). The Segou region, a rice and cotton agricultural zone with "sufficient infrastructure to give some prospect of success" was selected for the five year, approximately $5 million project. Segou has a population of over 1 million, and is divided administratively into seven circles, 39 arrondissements and 2083 villages.

An important emphasis of the JNSP is the participation of communities in the planning and execution of local interventions, ranging from water and sanitation, family food production, nutrition and child care, immunization and diarrheal disease control.

Since an objective of the program is to allow village committees to select and manage interventions, it is difficult to systematically assess impact as different sectors are emphasized, and different calendars are in operation, simultaneously. For example, the 1986 update highlights progress in the following areas:

1) 100 adult literacy centers in 96 villages served 2897 men and 160 women (5.2%). The low number of women is attributable to their socioeconomic role in Mali's society; their

household workload is very heavy and they are not able to participate unless authorized to do so by their husbands;

2) 14 school canteens were equipped and a seminar for 44 teachers was held dealing with nutrition issues and techniques for building school gardens. Seeds and other inputs were distributed to eight schools, which resulted in cultivation of 5 hectares producing 25 tons;

3) A project to improve the local breed of chicken was introduced in 15 villages;

4) Village garden projects in 34 villages have led to the cultivation of 30 hectares, producing 127 tons. 25,000 people benefited from the activity;

5) In the health sector, a situation analysis of the health sector was made and a detailed plan was prepared. Also an anti-measles vaccination campaign was held and 77% of all children between 9 months and 3 years were vaccinated.

In addition, a number of village-based activities continued to be developed, such as organization of women's cooperatives to make soap and dyes, instillation of mills, cisterns using solar pumps, bee keeping, vaccination of animals, provision of fruit trees, fish pond development and establishment of a veterinary pharmacy.

The external evaluation conducted in 1987 (EVALUATION EXTERNE A MI-PARCOURS DU PROGRAMME CONJOINT D'APPUI A LA NUTRITION, JULY 1987) in general faulted the JNSP for vagueness, commenting that objectives were imprecise, in many cases not operational, and not allowing for measurement of results.

In focusing on inputs designed to improve family nutrition, (primarily gardening and nutrition education), the evaluators noted that the interventions ran a great risk of failing, given that many of the pre-existing conditions did not bode well for success. Cited among these conditions were the presence of nutrition rehabilitation and food distribution programs which tended to produce a "passivity" on the part of local inhabitants, causing them to not take responsibility for their own food security.

The overall recommendations of the External Evaluation Team were that while JNSP had begun well in developing the "politique" of indigenous participation, it needed to reorient itself in line with concrete, measurable actions to improve nutritional status in the region.

Perhaps owing to this review, JNSP is considering funding a two year Action Plan to improve Vitamin A nutriture in the target area the first year, and broadening the geographic coverage in year 2. The Plan calls for research, publicity, training, agricultural production, massive dosing, treatment of ocular lesions, and regulations concerning Vitamin A as an essential drug.

As the Nutrition Division will be the lead organization for this program, it would be entirely appropriate and desirable for the Nutrition Communication Project to provide technical assistance to the IEC activities slated for implementation in 1989-90. These include:

- **Evaluation...**

  Develop a protocol to ...study consumption...

- **Information and Sensitization**

  Acquire or produce material aimed at heightening the awareness of administrative, policy and technical service officials as well as the NGOs [towards the problem of Vitamin A deficiency].

- **Training**

  ...Organize a training workshop for trainers (by HKI, IOTA and UNICEF)

- **Nutrition Education**

  Prepare a zone-by-zone inventory of vitamin a-rich foods that are locally available

  Evaluate nutrition education material currently in use in socio-health facilities and primary schools. Improve these and bring them into existence, if necessary.

- **Promote consumption of foods rich in Vitamin A**

  Evaluate the beliefs, attitudes and behaviors of target populations concerning consumption of vitamin-A rich foods (including those which could eventually be artificially enriched)

  Develop the conceptual basis and operational plan for a nutrition education program.

Fishman and Parlato discussed providing technical assistance through NCP to these efforts with the Nutrition Division, representatives of UNICEF and WHO, and Helen Keller International.

While all groups are favorably disposed to the idea, funding and administrative mechanisms will need to be worked out.

If NCP uses funds provided by ST/N to support Vitamin A related activities in Mali, formative research on constraints preventing consumption, pretesting and evaluation of materials will be priority targets of this support.

2. UNDP

According to the Project Document dated January 1986, the United Nations Development Program provided approximately $ 500,000 for an 18 month project to strengthen the National Commission for Drought Victim's (CNAVS) infrastructure to "prevent, plan and intervene." One of its objectives is to help the Government of Mali to convert from an "emergency relief mode to a development mode"... to address the problems linked to "drought, famine and other natural calamities." As a result of this and related projects, a Famine Early Warning System (Systeme d'alerte precoce-SAP) was established in Mali, and a number of surveys of the population level nutritional status were conducted (see Assessment of PEM above.) The project calls for no interventions at the population level, being primarily concerned with strengthening the government's ability to monitor problem zones, prevent famines and direct aid, if necessary.

It is to be assumed that this project has terminated, and the status of a follow-on project is unknown. However, as this UNDP project and programs related to FEWS are chartered to collect nutritional status data as one of their indicators, the MOH should see to what extent these data can be used in nutrition program planning before undertaking new surveys.

C. Private Voluntary Organizations

CARE

CARE's first health activity in Mali, the Macina Child Health Project (MCHP) is funded in part by A.I.D., and implemented in conjunction with the MSP/AS. Macina is an administrative circle of Segou with a population of 140,000 people located in 247 villages. This Child Survival project relies on 16 recent graduates of Mali's nursing and midwifery schools (who have not been hired by the civil service due to budget limitations) as health monitors. The health monitors are trained to provide vaccinations (with goals to fully immunize 80% of all 0-6 year-olds in the circle and 90% of pregnant women), and teach about treatment (ORT) and prevention of diarrheal disease, do growth monitoring and promote healthy child nutrition practices, and perform and instruct in aseptic delivery techniques. The arrondissements of Macina Central and Sarro (55 villages) only are targeted for these more labor-intensive activities.

Other CARE projects in Macina are an Agricultural Development Project focusing on gardening and village-level agro-forestry and a water and sanitation project that builds wide diameter cement wells for drinking water and improved earthen wells for gardening and other purposes.

In reviewing the Mid-term Assessment (April 1988) and Second Annual Report (September 1988), it appears that CARE activities have gotten off to a good start, with health monitors being recognized as authority figures in their villages, immunization and oral rehydration coverage goals on the way to being achieved, and growth monitoring initiated. The September evaluation notes, that the health monitors:

> organized women to participate in-kind or with small cash contributions to collective cooking demonstrations. ...In one village [where a CARE Agricultural Development in Drought Zones Project operates], all ingredients came from the local gardens and from the collective fishing which occurs in a nearby pond.... To date, recipes for enriched porridge as a weaning food and balanced meals have been introduced along with complementary nutrition discussions....One frequently taught recipe is **an enriched porridge which contains millet, fresh milk, fish, ground peanuts and a dried vegetable**. This porridge is popular among the mothers and the demonstrations are heavily attended. The idea of helping a child gradually adjust to solid foods is one that is catching on through these demonstrations. However, in rural Mali, changing nutritional habits is difficult due to the reluctance to prepare separate food dishes for weaning infants or pregnant women because of the additional cost and work involved.

On GM/P:

> ...The health monitors are very pleased to be doing growth monitoring and believe it will motivate mothers considerably to follow nutrition advice. Here also, the cultural competitiveness which exists among Malians can be used to an advantage in changing behavior as it already is used during village clean-up days when each well, household and village vies to be the cleanest. The health monitors believe mothers will also compete to have the healthiest child.

According to results of child weighing conducted in the 14 villages where health monitors reside, of 794 children, 63.8% were in a normal range, 26.8% suffered from moderate malnutrition, and 10.7% from severe malnutrition. Severe cases are followed monthly. The assessment notes that mother's comprehension of the growth monitoring is questionable, and that children's ages are frequently

mis-reported. However, it can be inferred from the report that health monitors find the activity helpful to them in making their assessments of child health.

Infant feeding objectives appear to be harder to realize. This is, in part, due to the difficulty of measuring success, as noted in the comments section of the September evaluation, "Measuring actual use [of recommended weaning food recipes] is extremely difficult; relying on self-reporting ..and..recall [which] is often not accurate and certainly not conclusive. For this reason, [an intermediate goal was arrived at of measuring] knowledge only."

Save the Children and World Vision

The Director of Save, Michelle Poulton and Sam Asare, Project Manager of World Vision, have indicated their interest in collaborating in the pretesting and field testing of health worker materials. Other areas for collaboration may develop as the MSP/NCP project takes shape. It should be noted that **SAVE**'s training course for animateurs familiaux (rural health workers), conducted in March 1988, devoted several days to growth monitoring. In particular, it stressed the importance of using **proverbs** (e.g. "Quelque soit le jet de l'urine, il finit par tomber sur les pieds," "Un seul doigt ne peut pas prendre le caillou," or "Si tu vas dans un village ou tu trouves tous les habitants faire des cris d'hyene, si tu ne les imites pas tu sera mange") to launch discussions of health and nutrition themes (See Save the Children /Mali March 8 training materials).

World Vision is experimenting with a new approach to growth monitoring, the "1-10 Grade System" and accompanying "Master Chart" for the clinic. This system, developed by Father Carlo Capone while on staff at CRS, has been adopted successfully in Indonesia and a number of programs worldwide. The advantage of the "grade system" is that it uses weight gain as its conceptual framework, and allows the health worker to measure and record a child's weight without having to convert that weight into a graphic representation. Instead, a master chart with weights and ages is used to assign a grade of 1 - 10 corresponding to five percentile points [1 is below the 5th percentile, 10 is above the 50th]. Discussions with parents concerning child nutrition are based on whether the child's "Grade" increased, decreased or remained the same as the month before. The greatest advantage is to the health worker, who can make an assessment of nutritional status much quicker than with a growth chart, and, if using the master chart--has a full day's record completed with no additional paper work.

Medecins Sans Frontiers

In the field of nutrition, this PVO emphasizes production rather than education. In a document prepared in 1986, (Propositions pour une politique nutritionnelle en VI et VIIeme regions [Tomboctou et Gao], Medecins Sans

Frontiers (MSF) states, "[In a region where there is a chronic deficiency of cereal grains, and the markets are completely empty of vegetables and fruits nine months of the year, speaking of nutrition education is a cruel joke. To be realistic, it seems possible to approach the problem by two routes:

> 1) malnutrition is often linked to excess catabolism due to episodes of infection, hence education on hygiene to reduce the duration,
>
> 2) any possibility of diversification of diet is linked to diversification of production; it is necessary, then, to facilitate village gardening initiatives.

Hence, MSF has laid out a course for itself of improving agricultural production and village level gardening as its primary nutritional input, and combating childhood infection and illness as the means by which it maximizes the nutritional value of what is consumed. It defines a role for health education, focusing on "sanitation." MSF works in the most arid zones of the country, the ones most vulnerable to drought and famine. **Taking their advice, it would not be wise to initiate a "nutrition education" program in those zones before increased production is more assured.**

Peace Corps

In her May 1988 reconnaissance visit report, Fishman suggested a number of activities for Peace Corps/Mali including Pre-service training in "Cross Cultural Nutrition Assessment. Peace Corps/Mali identified their greatest needs as being simple materials for volunteers and homologue animatrices on nutrition topics. They suggested posters and comic books in Bambara. They would also like materials for training PCVs and Malian counterparts in nutrition, and training of trainers in methods of researching and developing appropriate communication.

IV. STRATEGY for Mali Nutrition Communication Project

A. Institutional Framework

USAID's Child Survival Strategy and the IFAHS Project provide a two-fold context for technical assistance from the Nutrition Communication Project and AED. Most globally,

> "Health information, education and communication (IEC) activities are virtually non-existent. The Health Education Section of the MSP/AS reportedly suffers from a lack of sufficiently trained staff, as well as poor funding, new supplies and little support"[PRELIMINARY CHILD SURVIVAL STRATEGY, MAY 1987:11].

Thus technical assistance in public health communication, both as a **primary preventive** measure and **in support of other child survival interventions**, must be provided in a coordinated fashion (i.e. with other donors and other A.I.D.-funded programs) to all members of the DSF attempting to mount IEC programs.

1. DSF Objectives for Improved GM/P

In the **GOM, MSP/AS Five Year Plan (1988-1992)**, communication delivery and training needs are highlighted as priority problems requiring resolution.

The plan states:

> "Les activites liees a la surveillance de la croissance et du developpement de l'enfant touchent essentiellement les enfants de moins d'un an: le taux de couverture a Bamako est de 32%, 7.52% pour le reste du pays. Ceci est aggrave par le comportement d'un grand nombre de personnes chargees de les pratiquer. Les activites sont souvent assimilees a un acte mecanique de pesee, accompagnee dans le meilleur des cas de conseils...."(Section 3.2.2, December 1987).

The plan targets the "mechanical weighing" as contributing to the poor attendance at MCH centers and hence poor GM/P coverage, and calls for an improvement system-wide.

2. Nutrition IEC

In addition, the plan emphasizes the need to **heighten the priority of nutrition IEC**, and provide training and appropriate materials:

> "L'information, l'education et la communication (IEC) est encore trop souvent consideree comme une activite secondaire dans les structures sanitaires. Le personnel ne maitrise pas suffisamment les techniques de communication et souvent le contenu n'est pas bien adapte aux problemes prioritaires de sante du pays."

Again, health workers, as the point of contact between mothers and the "system," are not equipped to deliver messages that can lead to improved child nutritional status. They have no audio-visual aids, the lessons they have learned are not targeted to the groups they must serve, and they have received no training in interpersonal communications to help them "improvise" such messages on their own.

The Nutrition Communication Project was asked to provide technical assistance in these areas.

B. NCP Strategy: Multi-Sector and Multi-media

However, it must be stated that while the absolute priority of the DSF is to strengthen its infrastructure, and USAID/Mali is 100% behind this effort, it would not be wise for NCP and USAID to put all the "eggs" into the GM/P=Health Center "basket." Past experience shows [SEE AED REPORT ON GROWTH MONITORING AND PROMOTION: EXPERT COMMITTEE MEETING JANUARY 1989] that GM/P has the least impact when it is perceived as only a "health center activity," and it is delivered only through the health sector. The most successful GM/P programs, are:

1. tied to social and/or income generating activities for women,

2. use many vehicles (media) to get infant feeding messages across, and,

3. invest resources in the GM/P delivery agents -- and in media to promote their availability-- to make the agents credible, respected and attractive to the communities, which acts to improve health center attendance.

Any new GM/P program should benefit from these lessons learned. In the case of Mali, it is particularly important to find a non-health center entry point for some facets of GM/P, given the current low coverage of the population by DSF health services. This has been partially attributed to a poor public perception of health agents (SEE COMMENTS OF DSF BELOW). While a plan must, of course, assist the DSF to improve the service that it provides, through training and better educational materials, a focus outside of the health system is also recommended to increase the demand for GM/P, and extent to which the Malian population looks to the DSF worker to fill this demand.

When developing effective nutrition communications for Malians, it is not enough to consider only language, ethnic, regional or socioeconomic differences. We must keep attitudinal factors, which may cross-cut these larger divisions, in mind. In marketing research terms, we would want to "segment" the audience for nutrition education by "attitudinal profiles," which we will need to develop based on our research. It is clear from these two examples that a range exists in terms of **time and effort mothers are willing to devote to their children and the social norms that reinforce these attitudes.** Hence, some messages that will eventually have an impact on infant feeding might first need to address this, and other more "social" issues--and perhaps say very little about "nutrition" directly.

This "social marketing approach" is very simply the idea that **one can not only "buy good seeds," but one also must invest in "preparing the ground," or the new seeds will be largely wasted.**

While plowing, weeding and fertilizing are all accepted practice in farming, their counterpart activities in health education have been difficult to transmit.

C. Target Groups and Activities

The following broad lines of the proposed project were developed by NCP and the DSF (See Appendix A for details):

1. Primary Target Groups

Children 5 years of age and under are the primary beneficiaries of SMI services. Given that child survival is periodically threatened during the first 36 months of life, most gravely surrounding the "weaning period" when foods to complement breastmilk must be introduced carefully, the highest priority focus of the NCP program should be this age group, followed by children 3-5, as well as pregnant and lactating mothers. [Following our Assessment, we recommend that older children and adolescent girls also eventually be targeted, perhaps through in-school education, for messages on consumption of vitamin A and iron-rich foods.]

2. First Year Activities

The DSF believes strongly in the effectiveness of face-to-face communication, and therefore hopes to strengthen the capacity of health and social agents to assess and counsel mothers about appropriate infant feeding. Our primary objective will be to strengthen the capacity of SMI center personnel to provide counseling in appropriate child nutrition tied to concrete events of growth monitoring or other services, such as immunization, ORT, etc. The achieve this end, the following specific components are stipulated:

a. A program of "operations research" in several of the 15 centers to see what the difficulties are in mounting growth monitoring, and how to best add the counseling and education elements to activities in the centers.

b. A set of culturally and linguistically appropriate (or nonverbal) materials for use by health agents in counseling mothers about weight gain and loss, and appropriate foods to give children (including breastmilk) for the first 36 months of life. These would be used by health workers to counsel mothers during GM/P encounters. Related, though probably simplified materials would be given to the

mother to take home.

c. Health worker training modules in the correct (sensitive) use of these materials. This training curriculum, which must be integrated into the current DSF Training Plan, will also require inputs of research and development prior to its adaptation.

3. **Second Year Activities**

To support the efforts of health center personnel and reach families who do not use SMI services, additional media will be used in Year 2 of the program.

a. A regional workshop, to take place at the Centre d'Enseignement en Recherche Audio Visuel, University of Abidjan, on managing nutrition mass media has been funded centrally for **Fall 1989**. This would provide a common background to Nutrition and Health Education program managers in alternative media for nutrition promotion.

b. Radio programs and spots that support the activities of the SMI centers, reinforce the messages give there, and provide additional information and attitudinal promotion to women who do not currently participate in health center programs.

c. An outreach campaign for additional segments of the community that interact with mothers and influence her decisions concerning child care (husbands, elders, village opinion leaders, etc.)

d. Continuing professional-level training for decision makers, such as Semega, in managing nutrition communication programs.

e. Opportunities to participate in international or regional conferences on nutrition IEC, nutrition surveillance, etc. This cost could be split across several projects falling within the IFAHS.

D. IMPLEMENTATION PLAN

The DSF and NCP laid out a plan for the first two years of technical assistance to the DSF beginning sometime after January 1, 1989.

The primary objectives of the NCP project are to research, develop and implement:

1. A communication/education strategy, media and training materials to promote introduction of appropriate solids;

2. Simple procedures for growth monitoring and counseling;

3. A communication/education strategy to increase consumption of foods rich in Vitamin A.

To achieve these ends, technical assistance would be provided to develop the DSF's skills in the planning, implementation and evaluation of nutrition IEC activities. Although the EPS Section has specific experience in the application of the social marketing methodology via projects such as PRITECH, the section needs to enhance these skills and apply them to nutrition.

The technical assistance will focus on the following skills:

- research techniques to identify the messages (group interview, ethnographic observation, support of key personnel, etc.);

- training of health/social development personnel in interpersonal communication and motivation techniques;

- introduction of new strategies for using mass media and traditional forms of communication (such as griots, songs, tales, radio-serials and other popular formats) to pass along important messages on nutrition;

- management of IEC activities (coordination between the mass media, community leaders and education via the SMI centers);

- creation of training programs and didactiv material targeted to health and IEC personnel; and,

- evaluation of the IEC program through measurement of behavior change.

In view of budgetary constraints as well as the serious time burdens on DSF division heads, NCP recommended several options for providing technical assistance.

OPTION 1: Placement of a full-time IEC advisor during the first two years of the project to assist in start-up activities and to provide necessary technical support in health communication. The IEC advisor would provide technical

assistance to all IEC activities planned for the IFAHS project, including nutrition, family planning, oral rehydration and immunization. Total funding for the advisor would be arranged through the bilateral IFAHS Project.

OPTION 2: In collaboration with another country, Mali would share the services of a regional technical advisor (such as what was done with PRITECH during the start-up phase in Mali). For example, an advisor based in Niamey could travel to Bamako every two months.

OPTION 3: Mali would host a full-time advisor, though funding would be shared between the IFAHS Project (50%) and the Project Against Vitamin A Deficiency (50%).

In all options, the Senior Technical Advisor of NCP will monitor technical assistance and periodically visit the country for on-site assessment, program planning and evaluation. Specialized consultants will be recommended as needed. One area where the IEC specialist will need technical support is in the area of GM/P. To respond to the specific objectives of the GM/P component, AED recommends hiring a part-time, permanent advisor to assist in developing model growth monitoring routines, counseling strategies, messages and training. NCP has identified a specialist in this field, Katherine Dettwyler, who hopes to be in Mali on a Fullbright fellowship between July and December 1989. She would thus be able to provide timely technical assistance to those activities focused on infant feeding. Dr. Dettwyler lived in Mali between 1983-1985, conducting ethnographic research on infant feeding practices in Magnambougou, a settlement located across the river from Bamako. Dr. Dettwyler has since published several articles on the cultural and ecological factors affecting breastfeeding and weaning, as well as the nutritional status of Malian infants. [SUMMARIES OF TWO RELEVANT ARTICLES WERE PREPARED FOR THE DSF, ALONG WITH DR. DETTWYLER'S C.V. SEE APPENDIX C FOR THESE MATERIALS, AS WELL AS DR. DETTWYLER'S PROPOSAL TO THE FULBRIGHT FOUNDATION].

E. Involvement of PVOs

Given the managerial interest of CARE, Save the Children, World Vision and the Peace Corps Gardening/Nutrition projects in Mali, the strength of their field staff (monitors) and their flexibility to pilot new educational approaches, it would be very appropriate to involve these PVOs in testing promising program ideas for the MSP/AS. As discussed in the May report, the PVOs have produced no educational materials or aids for nutrition education activities, partially because of restrictions from the MSP/AS that only their materials (which do not exist apart from growth charts) can be used. The PVOs might be able to assist in the development and testing of materials on GM/P--particularly in providing suggestions

at the outset, and in assisting in operations research at the village level. This proposal is attractive to the PVOs and was well received by the MSP/AS representatives when discussed with them.

The MSP/AS will need to develop an operations research plan that would optimize the field experience and current operations of the PVOs, assigning some research questions to their staff (the "answers" would emerge as part of their normal routines.) The MSP/AS might have each PVO field-test materials in their own target regions, and/or participate in central testing and development activities in Bamako and Koulikoro districts.

In addition, with central funds provided for Vitamin A research and evaluation, NCP could assist the PVOs develop behavior change evaluation guidelines and studies, and provide training for PVO staff on their implementation.

Key Documents

1. Preliminary Child Survival Strategy, May 1987:11

2. C. Leighton, Preliminary Review of the Health Sector in Mali with Special Reference to Child Survival Services, PRITECH, May 25, 1987.

3. Sundberg, S. An Overview of the Food Consumption and Nutrition Situation in Mali, Final Report, March 1988.

4. Dah et al, Final Report, Baseline Data Survey, Integrated Family Health Services Project, Site Visits, Dec. 1987

5. Hill, A.G., Population Health and Nutrition in the Sahel, 1985. Highlights appear in Population Council Research Notes, No. 12, September 1986

6. Martin, M. A Food Intake Study in Two Bambara Villages, in Hill:289-318.

7. Dettwyler, K. Breastfeeding, Weaning and other Infant Feeding Practices in Mali, Dissertation and articles, 1985-88.

APPENDIX A:

Pre-Project Document

TRANSLATION

REPUBLIC OF MALI

Nutrition Communication Project
Pre-Project Document
Mali: November 3, 1988

This project was conceived to reinforce priority activities in nutrition managed by the Nutrition Department of the Family Health Division (ND/DSF), Ministry of Health. The overall goal of the Nutrition Communication Project (NCP) is to help the ND/DSF develop and test a social marketing approach to under five nutrition, focusing on appropriate introduction of solids and promotion of Vitamin A foods for pregnant and lactating women as well as young children. The DSF, Health Education Division has experimented with social marketing through a series of activities undertaken with the assistance of PRITECH in the national diarrheal disease campaign. NCP hopes to build upon this expertise in-country, and make the approach and public health communications methodology available to the Nutrition Division and collaborating organizations.

The Nutrition Communication Project (NCP) will assist the DSF to mount a pilot program focusing on growth monitoring and dietary improvement of children under five years of age in the Bamako district and the region of Koulikoro. The fifteen health centers in these areas serve approximately 150,000 women and young children. Funding for this component of the program will come from the USAID bilateral project, the Integrated Family Health Services (IFHAS) Project. A two year calendar of activities is currently planned, with the DSF taking the first steps in January, 1989.

In addition, NCP will assist the Nutrition Division in its National Vitamin A Deficiency Program. Helen Keller International and the Nutrition Division mounted a regional workshop on Vitamin A in August 1988. As a result of the increased attention on Vitamin A deficiency in Mali, the Nutrition Division and collaborating PVOs, such as Save the Children and CARE, hope to develop educational programs and materials to promote Vitamin A consumption. Vitamin A activities are scheduled to receive support from the Joint Nutrition Support Program (UNICEF/WHO), where they coincide with regions of the country (such as Segou and Mopti) where JNSP is active. NCP hopes to augment this support at the central level, by providing technical assistance to the Nutrition Division in researching and evaluating Vitamin A education materials and communications.

TRANSLATION

Objectives[1]

The objectives of the project are to:

1. Improve the nutritional status of children under 5. For those under 36 months, breastfeeding and appropriate infant feeding will be the focus.

   1.1 Promote breastfeeding starting from the first day of birth, including use of colostrum (increase current levels by 10%)

   1.2 Encourage exclusive breastfeeding for the first 4-5 months (improvement of __-__%)

   1.3 Encourage breastfeeding duration for as long a period as possible (20-24 months) (improvement of ___%).

   1.4 Promote the introduction of a variety of foods in the diet of the infant beginning at 4-5 months (a mixture of foods based on local products, complementary foods and foods rich in vitamins A, C, etc.) (improvement of __-__%).

2. Sensitize mothers to the importance of nutrition problems. Reinforce their capacity to appraise the state of health of their child and the measures to take to assure healthy growth and development.

   2.1 Development of a growth monitoring system which serves as an educational tool to make parents more aware of adequate growth of their children and appropriate feeding practices (improvement of 15% in the utilization of this service).

   2.2 Training of health and social workers to give them an understanding of the mother's health practices, allowing them to give nutritional counselling which is adapted to the reality of the community situation (training of 200 persons).

   2.3 Planning and production of educational materials and guides geared towards mothers and health agents in an effort to improve their capacity to appraise the children's state of health and to find ways of intervening.

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[1]The DSF will provide baseline figures to set health impact objectives. While it is appropriate to expect, and design, evaluated measures for health behavior change - lowered prevalence of disease is not likely to be measurable, or reasonable to expect in 2 years.

TRANSLATION

2.4 Social mobilization to raise community interest in infant growth monitoring, and to increase regular attendance at child weighings (attendance increase of 15% at weighing sessions).

3. Reduce the incidence of Vitamin A deficiency in young children (5 years or younger), as well as in pregnant and breastfeeding women.

3.1 Encourage introduction of foods rich in vitamin A in the diets of infants from the age of 6 months to 6 years (reduction of ___% in the prevalence of vitamin A deficiency, measured by _____).

3.2 Increase maternal consumption of products rich in vitamin A during the prenatal and breastfeeding periods (decrease of ___% in the prevalence of vitamin A deficiency, measured by _____).

3.3 Increase the demand and consumption of foods rich in vitamin A using mass media and other channels (with measured increase in consumption of vitamin A foods).

3.4 Stimulate the population to request vitamin A capsules for infants of lower age in the zones where that strategy against vitamin A deficiency is implemented (utilized by 15% of the target population).

4. Reinforce the technical capability of the Nutrition Division and Health Education of the Family Health Division, in the design and implementation of IEC activities using effective methodologies to encourage behavior change in the target populations.

5. Integrate nutrition education into the daily routine of MCH centers and reinforce the technical capacity of health and social agents to accomplish their tasks (increase of 50% in the staff knowledge, and the implementation of educational interventions according to goals established in the annual program).

TRANSLATION

Strategy

Social Marketing:

The Nutrition Communication Project begins with the hypothesis that the majority of households possess the necessary resources for improving the diets of infants. (In cases of emergencies, or during severe periods when basic foods are lacking, another approach is needed to improve infant feeding).

The challenge at hand is to convince all levels of society - parents, community leaders, leaders of villages, divisions and regions - that behavior changes, as minimal as they may be, can mean better health for their infants, their village, and their country.

If foods are available, an important step to bringing about these changes consists in finding the benefits that really count in the eyes of the parents and influential persons. The social marketing approach seeks the right combination of words, images, music, and sentiments -- a communication that is culturally appropriate -- in order to support the desired behavior.

The Nutrition Communication Project builds on this foundation by:

- Focusing on consumers--including parents, grandparents, community leaders and local authority figures--as active decision makers;
- Researching the cultural, environmental and economic factors associated with nutrition-related behaviors;
- Developing clear, culturally appropriate messages that promote a limited number of behavior changes;
- Using the most effective media (tv, radio, community promoters, in-school curricula; or traditional means such as banners, posters, sports events, songs or theatre troups) to reach each decision-making audience.

TRANSLATION

One important aspect of the social marketing strategy is the use of a multi-media approach. The idea is to have the messages travel across a variety of channels, as much by word-of-mouth as by mass media and traditional modes. This strategy touches the target populations at different moments over the course of the day with different types and levels of information. Another objective of the mixed-media strategy is to stimulate and increase overall communications. For example:

> The mother who goes to the health center in the morning sees a demonstration on the preparation of weaning foods. At home, while preparing dinner, she listens to a radio spot on the importance of complementing breastmilk starting from the age of 6 months. The next week, her husband advises her to take their child to a weighing session after having seen a pamphlet on the subject at the home of the village chief. Perhaps, later in the week, the mother will mention her visit to the SMI Center to her neighbor, which will pique the neighbor's curiousity to know if her child is gaining weight correctly.

In order to achieve success, social marketing strategy depends on the rigorous application of a well-defined methodology: research, planning, pretesting of material and training. This methodology is described in great detail in the appendix "Communication for Infant Survival."

Training

In the multi-media strategy, the training of health personnel, field personnel, and the village decision-makers (in their capacity as opinion leaders) is as important as the planning of audio-visual materials and radio/television programs.

An objective of the training should be to inculcate the approach of social marketing in the educational activities of public health personnel. This requires a knowledge of the milieu and the "whys" of current behavior. This approach also implies the necessity of finding solutions to nutritional problems in collaboration with the consumers, based on the resources available to the family.

Results of the KAP and ethnographic research will be used to reorient the basic training and retraining of key staff responsible for the improvement of nutritional behaviors.

TRANSLATION

Action Plan

The principal activities of the project will include:

1. The planning and execution of a KAP survey on infant feeding, on studying the factors that influence infant feeding decisions and on intra-household food distribution. This KAP study will have two important goals: a) to identify the questions which will serve to define the orientation of the program, and b) to collect the baseline data to monitor the program. A total of 250 interviews will be planned in 4 zones of the project (central Bamako, the periphery, and the 2 zones of Koulikoro).

2. A small-scale qualitative study will be carried out over the course of the KAP study in order to gather information in greater depth on key aspects of behavior.

3. The planning, pretesting, production, and distribution of educational material (mass media, print, guides, etc.) intended for different target groups, such as decision makers, parents, and health agents. The results of the research will allow for:

    - identification of concepts and themes for messages on the feeding of infants who are less than 36 months old, and for messages for the program against vitamin A deficiency;

    - direction for interpersonal communication, educational material, the training course, and the mass media;

    - creation of visual images that can be put on posters, pagnes (bolts of cloth), and other print materials;

    - creation of entire theatrical scenes, tales, songs, and key phrases to be presented by griots (traditional story-tellers), theater groups, singers, etc. These can also be broadcast by radio or television;

4. Operational research on growth monitoring systems and the fight against vitamin A deficiency: This will be organized using the SMI centers and NGOs already having growth monitoring programs or vitamin A interventions in operation. (CARE, for example, is interested in participating in the research). Problem analysis will be followed by tests of the new techniques, strategies and management activities. The strategies for the tests will be developed by the Nutrition Service and the INRSP, and carried out in the SMI centers by the health personnel (with the supervision of the INRS). This small-scale research will be carried out for brief periods during the life of the project.

5. Training of SMI centers' personnel and social agents. (Training will be integrated with the training already planned for 1989-1990, with special days for addressing nutrition and 2-3 days on IEC techniques). In particular, the following topics will be addressed:

    - use and interpretation of the growth chart and the organization of weighing sessions.

TRANSLATION

- methods for consulting mothers after weighing infants.
- teaching methods appropriate for SMI centers in the community (organization of fairs, participation of griots, decision makers, religious heads, etc.)
- methods to analyze the nutritional situation and identification of practical solutions for the families concerned.

An important aspect of the training phase will be to integrate educational actions of the socio-health personnel with mass media promotion. A key activity will be the development of a unified nutrition education program that identifies each month's priority subjects and themes. Following the research and development of the complete nutrition communication plan of this project, technical posters or references will be displayed in SMI workplaces.

Management plan

The Nutrition Section will coordinate and manage the activities of the involved organizations.

A. IEC Activities

The Health Education Section (EPS), as education specialists, will be responsible for the planning, implementation and evaluation of IEC activities in nutrition. This project will be the first large-scale effort of EPS to apply the methodology of social marketing to nutrition problems. Consequently, time must be allocated for personnel to do basic research, train health personnel, plan a communication strategy, and develop the necessary tools and radio and television programs.

The Family Health Division will designate an EPS agent to take charge of IEC activities in nutrition and to follow this component of the IFHAS Project. This person will act as liaison for the Nutrition Section, as well as for other government services and for the NGOs involved in the project.

A technical committee will be set up to give orientations and provid efficient project coordination. The committee will consist of members from the DSF, UNICEF, USAID, the Netherlands Project, and the NGOs who will participate in project activities.

TRANSLATION

This implementation team may include members from the following groups:

RTM:	Participation of audio-visual experts in the conception and production of radio/television programs.
DNAFLA:	Participation in national language field research and in the planning of material messages targeted for populations with low literacy skills.
Cellule Formation de DSF:	Integration of IEC/Nutrition training modules in the global plan for training of the DSF; and participation in the execution of courses for personnel and the planning of guides, educational prototype lessons and other material for socio-health personnel.
Div. Developpement Communautaire (DNAS):	Participation of community development technicians in IEC/Nutrition activities which will be organized in the 15 SMI centers in the intervention zones of the IFHAS project (Bamako District and Koulikoro Region).
INRSP:	Participation in operational research in growth monitoring, in zones to be determined by the DSF.
IER (Institut d'Economie Rurale):	Participation of sociologists in the qualitative survey. IER currently works on a project of "Food Security" and conducts interviews and observations in the villages to learn local feeding customs.
CERPOD:	Participation in the examination of KAP forms, and their computer processing and analysis.

TRANSLATION

Technical Assistance

Technical assistance will play a key role in the development of DSF's skills in the planning, implementation and evaluation of nutrition IEC activities. Although the EPS Section has specific experience in the application of the social marketing methodology via projects such as PRITECH, the section needs to enhance these skills and apply them to nutrition problems. These problems are among the most difficult to resolve.

This technical assistance will focus on the following:

- research techniques to identify the messages (group interview, ethnographic observation, support of key personnel, etc.);
- training of health/social development personnel in the effective techniques of motivation and increasing range of influence;
- introduction of new strategies for using mass media and traditional forms of communication (such as griots, songs, tales, radio-serials and other popular formats) to pass along important messages on nutrition;
- management of IEC activities (coordination between the mass media, community leaders, and education via the SMI centers);
- creation of training programs and didactic material targeted to health and IEC personnel; and
- evaluation of the IEC program.

In view of budgetary constraints, we propose three technical assistance strategies for consideration:

Option 1: Placement of a full-time IEC advisor during the first two years of the project to assist in start-up activities and to provide necessary technical support in health communication. The IEC advisor will provide technical assitance to all IEC activities planned for the IFHAS project, including nutrition, family planning, oral rehydration and immunization. Total funding for the advisor will be arranged through the bilateral IFHAS Project.

Option 2: In collaboration with another country, Mali will share the services of a regional technical advisor (such as what was done with PRITECH during the start-up phase in Mali). For example, an advisor based in Niamey, will be available to travel to Bamako every 2 months.

TRANSLATION

Option 3: Mali will host a full-time advisor, through funding shared between the IFHAS Project (50%) and the Project against Vitamin A Deficiency (50%).

In all options, the Senior Technical Adviser of NCP will monitor technical assistance and periodically visit the country for on-site assessment, program planning and evaluation. Specialized consultants will be recommended as needed. For example, to respond to the specific objectives of the GM/P component, AED recommends hiring a part-time permanent advisor, Katherine Dettwyler, to assist in developing model growth monitoring routines, counseling strategies, messages and training. Dr. Dettwyler will be in Mali on a Fulbright Fellowship between July and December 1989, and would be able to provide continuous technical assistance to activities focused on infant feeding.

TRANSLATION

- Activities Calendar

Stage	Date	Activities and Personnel
Planning		
	10/24-11/3	1. Planning of the project, budget, workplan and technical assistance. Personnel: Semega, SN; Bocoum, DSF; Pierre-Louis & Woodruff, USAID; Fishman & Parlato, AED
	11/7-12/24	2. Identification of officers (SN, EPS. Cellule Formation, INRSP, DNFLA, RTM) who will participate on the technical team; organization of briefing session on the project. Personnel: Bocoum, DSF; Semega, SN; Pierre-Louis, USAID 3. Finalization of AED/AID agreement for technical assistance Officers: DSF, AID, AED 4. Mapping of coordination lines between the governmental services and collaborating institutions (NGOs, Netherlands, UNICEF, etc.)

TRANSLATION

Activities Calendar

Stage	Date	Activities and Personnel
		5. Review of the DSF 1989-90 (IFHAS) training plan and integration of nutrition/IEC components. Personnel: Semega, SN; Bocoum, DSF; Pierre-Louis, USAID 6. Send plan to AED for commentaries.
Review of Studies		
	1/1-15	1. Collect and review Mali studies on weaning, infant feeding (0-36 months), and consumers in the IFHAS zone. Personnel: SN
KAP Study		
	2/6-24	1. Developing execution of the pretest and KAP instrument. Personnel: Officers of SN, EPS, INRSP, ONG colleagues, DNAFLA, AED consultant, interview team 2. Production of revised questionnaire. Observations and group interviews with public health personnel, parents, and decision-makers in order to guide the KAP study.

TRANSLATION

Activities Calendar

Stage	Date	Activities and Personnel
		3. Training of the KAP Study team and field research (observation and interviews): neighboring communities of the 4 SMI centers (total sample: 250). Personnel: EPS, INRSP Officers; interview team.
		3. Execution of the KAP Study in the field (2 weeks).
	2/27-3/3	4. Input of KAP data into computer; preliminary analysis. Personnel:
	3/6-10	5. Advanced analysis of data and preparation of the report with recommendations for the educational campaign. Personnel: EPS, SN Officers and head of the interview team. AED consultant.
Strategies for the Campaign		Preparation of strategies for the campaign: chose of target population, media, and themes.

TRANSLATION

Activities Calendar

Stage	Date	Activities and Personnel
Training		
	6/19-8/19	1. Revision of the training modules for the different categories of public health personnel based on results of the research: -- specific advice for parents -- orientation on KAP in nutrition -- techniques to communicate this information in the centers and the communities 2. Planning of a guide for the personnel on nutrition. 3. Planning of new components, modules, and didactic material. 4. Integration of new material in basic training, retraining, etc. Personnel: EPS, SN, Cellule de Formation Officers; AED consultant.

TRANSLATION

Activities Calendar

Stage	Date	Activities and Personnel
Planning of Educational Material		
	6/19-23	1. Pretest of concepts and messages Production of concepts and themes for the messages. Group interviews geared towards finalizing the messages and creating the elements of the campaign. Personnel: EPS, SN, DNAFLA, INRSP Officers; AED consultant
	6/26-7/14	2. Production of educational material (first draft) Creation of spots/radio programs, posters, models, advice guidelines, according to campaign strategy. Personnel: Production team of EPS, SN, Cellule Formation; AED, RTM, DNAFLA consultants
	7/17-28	3. Pretest of materials Aimed toward the beneficiaries [for example: parents, public health agents (for material geared to their orientation)] 4. Revision and execution following the pretest results.

TRANSLATION

Activities Calendar

Stage	Date	Activities and Personnel
		Personnel: EPS, SN Officers; AED, RTM, DNAFLA consultants; NGO participants; presenters; production contractors (printers, DNFLA, RTM, etc.)
	September	5. Selection of printers, production shops; negotiations of contracts, and supervision of work.
		Personnel: Project heads
Distribution		
	September	Preparation of a plan for the distribution of the educational material for the SMI, ONG; dissemination by radio; instruction by posters; and creation of a calendar for the orientation of public health personnel of the IFHAS Project.
		Personnel: EPS, SN, Cellule Formation Officers; AED, RTM, DNAFLA consultants; NGO participants
Current Activities in Public Awareness		
Oct 89-June 90		

TRANSLATION

- Activities Calendar

Stage	Date	Activities and Personnel
Operational Research		
March-Dec (same time as other activities)		Creation of a plan for the operational research component on growth monitoring of SMI centers and in the communities. This plan will identify the questions/problems to be studied in the RO, such as the "growth curve", "1 to 10 system", other visual presentations, distribution of tasks for the weighing, advice, education, etc. Personnel: SN Officer, Semega; INRSP, ONG partners; AED consultant
	current	2. Creation of guides for the observations and interviews; training; and experimental systems. 3. Operational research in the field. Personnel: SN, SMI, INRSP Officers; AED advisor; ONG partners

TRANSLATION

Activities Calendar

Stage	Date	Activities and Personnel
Retro-Information and Evaluation		
	10/2-6	1. Prepare a control and evaluation plan utilizing indicators such as "media tracking," and questions on the quality of foods consumed by infants 6-24 months old or the beliefs of mothers' concerning nourishment
	November	2. Retro-information poll on the media.
	December	3. Retro-information poll: May-June
	1990	4. Follow-up KAP survey and preparation of final project report. This report will provide recommendations for the continuation of IEC/nutrition activities of the regular IEC program of the DSF.

APPENDIX B
Summary of 1 - 10 Grade System
Prepared for MS/DSF, Mali

POINTS ESSENTIELS DE L'ETUDE SUR LE SYSTEME DE NIVEAUX

Un nouveau développement dans les techniques de suivi de la croissance infantile

décembre 1986

William S. Cole, Ph.D.
John E. Hull
Bambang Samekto, M.A.
Linawati Nesrif, M.A.

Catholic Relief Services/Indonésie
et USAID/Indonésie

Le système de niveaux est une nouvelle composante novatrice et potentiellement très valable aux programmes de suivi de la croissance des enfants. Le système a été conçu pour remédier au problème bien connu de l'intelligibilité des cartes Chemin de la santé. Le principal changement dans les méthodes de suivi de la croissance est l'introduction d'un simple tableau de conversion appelé Tableau du centre. Les données sur l'âge et le poids obtenues mensuellement aux centres locaux sont converties en niveaux analogues aux niveaux scolaires. Les concepteurs de ce système pensent que les données sur la croissance exprimées en "niveaux" son bien plus faciles à comprendre pour les parents et les agents des centres que les courbes de croissance compliquées et les cartes-Chemin de la santé.

Résultats essentiels

1. Le système de niveaux est de compréhension facile et peut-être utilisé par les agents et les mères: des interviews approfondies et des résultats de tests faits avec diverses variables appuient cette conclusion.

2. Il existe un parallèle étroit entre le système de niveaux de croissance et le système de niveaux scolaires: Il y a une étroite correspondance entre les deux systèmes car les niveaux qui sont acceptables vont plus ou moins jusqu'à 6 et ceux en dessous indiquent de mauvais résultats. Ce parallèle est probablement le facteur essentiel qui permet de comprendre pourquoi les parents apprennent aussi facilement à interpréter les implications de santé aux différents niveaux.

3. Les parents se souviennent très exactement des niveaux actuels et passés de leurs enfants: 93% des répondants connaissaient le niveau actuel de l'enfant et environ la moitié se souvenaient correctement et avec confiance du niveau de l'enfant il y a six mois. Les mois entre montraient une diminution progressive de la mémoire tel qu'on peut s'y attendre.

4. Il y a très peu d'association entre le niveau économique et la capacité des parents à comprendre et à se rappeler les niveaux des enfants: Par rapport à deux variables, plus de trois quarts des répondants les plus pauvres ont montré une compréhension totale.

5. Environ deux tiers des mères analphabètes de l'échantillon ont montré une compréhension totale du système sur les mesures utilisées. En ce qui concerne le rappel des niveaux, les parents avec peu ou pas du tout d'éducation n'ont pas été désavantagés par rapport à ceux qui avaient une meilleure éducation.

6. Certaines preuves suggèrent que l'utilisation du système de niveaux pourrait entraîner une plus grande demande d'information nutritionnelle et sanitaire de la part des parents: Une compréhension facile du système de niveaux, associée à une préoccupation face aux niveaux les plus faibles, suggère que le niveau faible pourrait servir de "symbole" des problèmes de santé pour les parents (analogue à la fièvre ou à la diahrrée).

7. En utilisant la Carte du centre, les agents étaient capables de déterminer avec précision les niveaux.

8. L'on a trouvé une source d'erreur facilement corrigible dans la détermination des niveaux par les agents de santé (il faut arrondir au chiffre supérieur).

9. Le système de niveaux est utile pour certains types de suivi mais pas pour d'autres: Les données sur les niveaux sont une mesure exacte et utile pour suivre la croissance et le progrès au niveau individuel. Les données sur les niveaux placées sur les Cartes des centres sont envoyées au CRS chaque mois et servent de méthode utile et efficace pour suivre les opérations du programme.

Recommandation

3. Etant donnée que les agents ont un problème pour arrondir les poids à la limite, l'on recommande de placer une note complémentaire sur le tableau indiquant qu'il faut arrondire au chiffre supérieur et non inférieur.

RESUME DE LA VERSION NUMERIQUE DES ENREGISTREMENTS SUR LA CROISSANCE

par

C. CAPONE, M.D. 1988

La courbe de croissance a deux fonctions principales: identifier les problèmes de la croissance (imputables surtout à la malnutrition protéinéique et calorique) et l'éducation des parents. Les courbes de croissance doivent être intelligibles non seulement pour les agents de santé formés mais aussi pour les parents qui ont eu peu ou pas d'instruction.

Lorsqu'on a introduit les courbes de croissance des enfants dans les pays en développement, l'on est parti de l'hypothèse que les parents connaissaient la relation fonctionnelle qui existe entre le poids et l'âge (fonction de la croissance). Et de fait, cette hypothèse était exacte. Cependant, on a également supposé que les parents ayant un faible niveau d'instruction pouvaient apprendre à interpréter la représentation graphique de la fonction de la croissance. Plusieurs années d'expérience au niveau de programmes de suivi de la croissance ont montré que cette deuxième hypothèse ne se vérifie pas entièrement. En fait, l'on a constaté qu'il était difficile si on ne dispose pas d'une éducation conventionnelle de comprendre les systèmes de coordonnées et de relier les enregistrements graphiques aux courbes de référence pour arriver ainsi à une évaluation quantitative de la croissance de l'enfant. Former les parents pour qu'ils puissent interpréter les représentations graphiques prend du temps et demande que les agents de santé aient des aptitudes spéciales. Les enquêtes ont montré que les parents de l'enfant ne comprennent que difficilement la représentation graphique de la fonction de croissance même après une formation intensive.

Plusieurs essais ont été faits ces dernières années pour remédier aux problèmes posés par la représentation graphique de la fonction de croissance. Une des solutions consiste à traduire la représentation graphique en classification d'état nutritionnel. Suivant la position de l'enregistrement sur la courbe de croissance, l'enfant sera classé comme normal ou souffrant de premier, deuxième ou troisième degré de malnutrition. Cette classification ne demande pas aux parents de comprendre la représentation graphique de la fonction de croissance. Il s'agit simplement

de faire la différence entre état normal et malnutrition. Cependant, cette classification est qualitative plutôt que quantitative et n'exploite pas la notion qu'ont les parents de la fonction de croissance qui est quantitative. Par conséquent, bien que certains parents puissent percevoir la signification d'une malnutrition au troisième degré, qui est d'habitude acommpagnée de signes physiques visibles, ils n'arrivent souvent pas à reconnaître les degrés moindres de malnutrition qui dans la plupart des cas ne sont pas accompagnés de signes physiques sinon un retard de croissance, car il est quantitatif et ne peut être évalué qu'en se référant à la représentation graphique de la fonction de croissance.

Une autre solution consiste à adopter l'image du Chemin de la bonne santé. Le Chemin de la bonne santé est l'endroit de la courbe de croissance où les courbes délimitent la fourchette de croissance normale. Cet endroit est montré aux parents comme étant le chemin sur lequel leurs enfants doivent marcher, sur lequel ils doivent grandir pendant les années préscolaires. Selon cette interprétation, l'enfant est soit sur le Chemin de la bonne santé ou hors du chemin. Les progrès sur le chemin ou les progrès vers le chemin est un changement quantitatif, dont l'évaluation correcte demande que l'on comprenne la représentation graphique du processus de croissance. L'auteur qui a passé de nombreuses années à mettre au point et à superviser des programmes de grande envergure de suivi de la croissance dans plusieurs pays du tiers monde vient d'adopter une nouvelle solution.

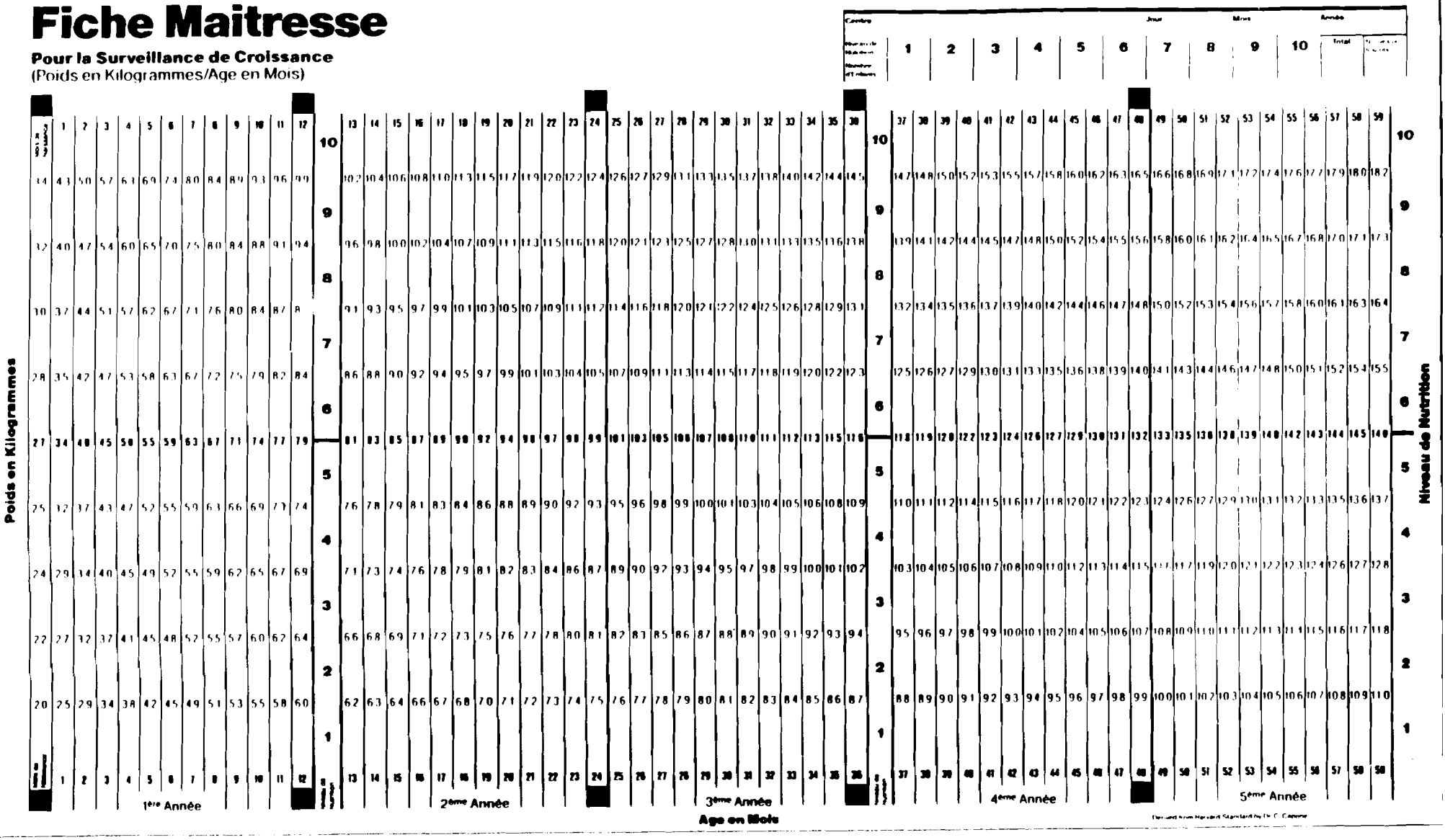
La Figure 1 montre que les coordonnées ont été remplacées par des numéros allant de 1 à 10. La valeur numérique de l'enregistrement dépend de la distance relative de cet enregistrement par rapport à la norme. Sur les figures, la ligne tout en haut représente 100% des Normes de Harvard. La zone au dessus de cette ligne est identifiée comme le niveau 10. La ligne tout en bas du tableau est 60% des Normes. La zone en dessous de cette ligne correspond au niveau 1. Les niveaux 5 et 6 sont des deux côtés de la ligne du milieu (qui est 80% de la Norme). Les niveaux 2 à 4 et 7 à 9 sont entre .

La représentation numérique est beaucoup plus efficace que la représentation graphique car elle permet de communiquer la notion de changement quantitatif de la croissance. Les gens qui ont peu ou pas du tout d'éducation comprennent mieux les chiffres que les coordonnées et les séquences des chiffres mieux que les courbes. Les personnes analphabètes peuvent apprendre à compter jusqu'à 10 et à reconnaître les symboles correspondants.

CARTE DE CENTRE

Fiche Maitresse

Pour la Surveillance de Croissance
(Poids en Kilogrammes/Age en Mois)



APPENDIX C
Abstracts of Articles and Resume of Dr. Katherine Dettwyler
Prepared for MS/DSF, Mali

ALIMENTATION POUR NOURRISSON AU MALI, AFRIQUE DE L'OUEST: LES CROYANCES ET LES PRATIQUES VARIENT

Katherine A. Dettwyler
Social Science and Medicine, 1986 23(7): 651-664.

Abrégé - Les travaux de recherche effectués au Mali en 1982 et 1983 indiquent une variation importante dans la croissance et le développement des nourrissons ainsi que dans les modes d'alimentation des nourrissons. En général, les modes de croissance des enfants maliens (N = 136) sont analogues à ceux signalés chez les enfants des autres populations pauvres de l'Afrique de l'Ouest, tant urbaines que rurales. Cependant, l'utilisation de moyennes pour mesurer la croissance dissimule le fait que certains enfants sont gravement malnutris alors que d'autres grandissent à un rythme égal ou supérieur au cinquantième percentile des normes du NCHS. Le niveau socio-économique en tant qu'indicateur de la capacité financière de la famille à se procurer les aliments et à payer pour les soins médicaux n'explique pas les variations dans l'état nutritionnel. L'on peut identifier plusieurs croyances fondamentales en ce qui concerne l'alimentation des nourrissons à partir d'une série d'interviews ouvertes avec les mères, les pères et les autres parents des enfants de l'étude ainsi que des observations pendant les heures de repas: (1) un enfant ne mange pas d'aliments solides avant environ huit mois: (2) si un enfant a faim, il mange; s'il ne veut pas manger, il ne faut pas le forcer; et (3) seul l'enfant sait quand il a faim et quand il est rassasié. Ces croyances s'expriment au sein d'une collectivité sous diverses formes de pratiques et comportements spécifiques. De plus, les mères n'accordent pas toutes la même importance au soins médicaux pour les enfants malades. Ces diverses croyances et pratiques concernant l'alimentation pour nourrissons, et tangentiellement les soins médicaux, forment des grappes divergentes qui permettent de classer les femmes dans une échelle d'"attitude maternelle" à trois niveaux. Dans l'échantillon, la croissance, suivant que l'enfant est rangé dans les groupes "faible poids" ou "poids élevé", est corrélée positivement avec l'attitude maternelle ($x^2 = 13,85$, $P = 0,001$). Il ne fait aucun doute qu'au Mali le système de croyances culturelles en ce qui concerne l'alimentation pour nourrissons et par suite les diverses pratiques que l'on peut observer chez la mère, jouent un rôle important pour l'état nutritionnel et le mode de croissance de l'enfant, surtout en ce qui concerne les conséquences sur le régime alimentaire et, en deuxième lieu, les soins médicaux. Les données montrent que dans le même contexte culturel général, face à la pauvreté la plus pitoyable, des subtiles différences dans les attitudes maternelles font que certains enfants se développent bien tandis que d'autres souffrent de malnutrition à divers degrés.

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INFANT FEEDING IN MALI, WEST AFRICA: VARIATIONS IN BELIEF AND PRACTICE

KATHERINE A. DETTWYLER
Department of Sociology and Anthropology, University of Southern Mississippi, Southern Station Box 5074, Hattiesburg, MS 39406-5074, U.S.A.

Abstract—Research conducted in Mali during 1982 and 1983 reveals a wide range of variation in both the growth and development of infants and infant feeding practices. Overall, growth patterns of the Malian children ($N = 136$) are similar to those reported for children in other West African urban or rural poor populations. However, the use of the averages of growth measures disguises the fact that some children are severely malnourished, while others are growing at or above the 50th percentile of NCHS standards. Socio-economic status, as an indicator of the family's financial ability to provide food and medical care, does not account for the variation in nutritional status. From a series of open-ended interviews with mothers, fathers and other relatives of children in the study, as well as observation of mealtimes, several fundamental beliefs regarding infant feeding can be identified: (1) a child does not need to eat solid food before approx. 8 months; (2) if a child is hungry, he will eat, if he does not want to eat he should not be forced to eat; and (3) only the child himself knows when he is hungry and when he is full. These beliefs are expressed in the community in a variety of specific practices and behaviors. Additionally, mothers differ with respect to the importance they attach to medical care for sick children. These various beliefs and practices concerning infant feeding and, tangentially, medical care, tend to form divergent clusters, which allows the ranking of women on a three level scale of 'maternal attitude.' In the sample, growth performance, as indicated by membership in 'low weight' or 'high weight' groups, is positively correlated with maternal attitude ($Chi^2 = 13.85$, $P = 0.001$). It is clear that in Mali, the cultural belief system regarding infant feeding and the variations in implementation of this system reflected in maternal attitudes, play an important role in determining the nutritional status and growth patterns of children, primarily through their effect on diet, and secondarily through their effect on medical care. The data show that within the same general cultural framework, and in the face of abject poverty, subtle differences in maternal attitudes result in some children who thrive, while others suffer varying degrees of malnutrition.

Key words—West Africa, Mali, infant feeding, maternal attitudes

INTRODUCTION

Many factors are known to influence the growth and development of children, including nutrition and disease. Socio-economic status is usually cited as the most important variable determining both nutritional status and health. Large-scale surveys comparing growth between urban elite and urban or rural poor populations, in Africa as well as many other parts of the world, seem to confirm this claim [1]. Data from Mali, however, indicate that more complicated processes are at work. Although the overall growth patterns of the children studied in Mali are very similar to those of children in other West African urban or rural poor populations, saying that "growth is poor because the people are poor" does not explain the wide range of variation observed within the Malian growth data. All of the people of the study community are very poor. According to the World Bank, almost half of the households in the study community have an income below the urban poverty threshold [2]. Likewise, mild and moderate malnutrition are widespread in children from 6 to 30 months of age. Average weight-for-age falls below the 20th percentile of NCHS standards [3, 4]. However, the use of the averages of growth measures disguises the fact that some children are severely malnourished, while others are growing at or above the 50th percentile of NCHS standards for weight-for-age.

The question becomes, 'What accounts for the fact that some children seem to be thriving under environmental and economic conditions which result in malnutrition for others?' In order to answer this question we need to understand, in some detail, the beliefs and practices concerning infant feeding in the community. Then we can examine how variations in infant feeding practices are related to infant growth patterns. This paper focuses specifically upon variation in patterns of providing solid food to infants, and the implications of these differences for growth.

METHODS

This research was conducted in Mali, West Africa, during 1982 and 1983. Bamako, the capital of Mali, is situated between the bluffs of the Manding hills and the Niger River. By 1965, the influx of migrants from rural areas had occupied most of the available housing in Bamako, and the excess population began 'spilling over' into the sparsely occupied land across the river to the north-east. The study community, known as 'Farimabougou' (a pseudonym), is one of approx. 10 peri-urban squatter communities that have sprung up across the Niger River from Bamako. Most of these communities are located a short dis-

ALIMENTATION AU SEIN ET SEVRAGE AU MALI: CONTEXTE CULTUREL ET DONNEES CONCRETES

Katherine A. Dettwyler
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Abrégé - Les modes d'alimentation pour nourrissons, fondés sur les croyances culturelles, influencent l'état nutritionnel, la santé et la croissance des enfants. Pour comprendre la malnutrition et la santé infantile dans une collectivité donnée, il est essentiel de connaître aussi bien les croyances que les pratiques concernant l'alimentation pour nourrissons. Par conséquent, il est capital d'utiliser des stratégies de recherche qui permettent de rassembler aussi bien des données "théoriques" traditionnelles (le contexte culturel) des données "concrètes" (observation des modes d'alimentation pour nourrissons). Une étude de deux ans sur l'alimentation pour nourrissons au Mali (1982-1983) dégage des données détaillées sur les croyances et pratiques se rapportant à l'alimentation au sein et au sevrage. Dans cette collectivité, pratiquement toutes les femmes allaitent leurs bébés. Les nourrissons sont allaités sur demande aussi bien pour des questions de confort que de nutrition. Le sevrage se fait à l'âge de 20,8 mois en moyenne, avec une fourchette de 6 à 32 mois (N = 136). L'utilisation du lait commercial est très rare. Les pratiques concernant l'allaitement au sein et le sevrage influencent la croissance et le développement du nourrisson pendant les deux premières années de sa vie. Cependant, contrairement à de nombreuses autres populations, la croissance d'un certain nombre de nourrissons dans cette collectivité s'est bien poursuivie après le sevrage. Certaines croyances traditionnelles relatives à l'alimentation pour nourrissons sont en train de disparaître sous la pression des critères de la vie urbaine alors que d'autres résistent au changement influençant par là de diverses manières la santé infantile.

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BREASTFEEDING AND WEANING IN MALI: CULTURAL CONTEXT AND HARD DATA

KATHERINE A. DETTWYLER
Department of Sociology and Anthropology, University of Southern Mississippi, Southern Station Box 5074, Hattiesburg, MS 39406-5074, U.S.A.

Abstract—Patterns of infant feeding, based on cultural beliefs, affect the nutritional status, health, and growth of children. In order to understand malnutrition and infant health in a particular community, knowledge of both the beliefs and the practices associated with infant feeding in that community is essential. For this reason, it is critical that research strategies for collecting both traditional 'soft' data (the cultural context) and 'hard' data (observed patterns of infant feeding) be employed. A two-year study of infant feeding in Mali (1982–1983) provides detailed information about breastfeeding and weaning beliefs and practices. In this community, virtually all women breastfed their infants. Infants were nursed on demand, for comfort as well as nutrition. Weaning took place at an average age of 20.8 months, with a range of 6–32 months ($N = 136$). Bottle/formula use was very rare. Breastfeeding and weaning practices affected the growth and development of infants during the first two years of life. In contrast to many other populations, however, a number of infants in this community showed improved growth after weaning. Some traditional beliefs about infant feeding are changing under the pressure of urban norms, while others remain resistant to change, with varying effects on infant health.

Key words—West Africa, Mali, breastfeeding, weaning

INTRODUCTION

Patterns of infant feeding in any community have an underlying basis in cultural beliefs concerning, among other things, the nature of children, the nature of food, and how, when and what kinds of food children should eat. In turn, patterns of infant feeding can have a major effect on the nutritional status, health, and growth of children. Therefore, a first step toward understanding malnutrition and infant health in a particular community is a thorough knowledge of the beliefs and practices associated with infant feeding in that community.

During the past decade, a number of cross-cultural surveys of infant feeding practices have been published. Much of this literature has focused on the 'infant formula controversy'—the trend in many Third World countries away from breastfeeding and toward the use of infant-feeding bottles and commercial formula, with detrimental effects on the health of children [1–3]. Only recently have detailed ethnographic descriptions of the traditional cultural context of infant feeding appeared [4–6].

While these contributions to a cross-cultural understanding of infant feeding are valuable, most of them have provided only general descriptions of cultural beliefs; variations in those beliefs and 'hard' data (actual patterns of infant feeding) are often missing. For example, in a discussion of the cultural context of breastfeeding among the Sidamo of Ethiopia, Knutsson and Mellbin found that informants claimed to nurse boys longer than girls, but no sex differences were observed in the weaning data they collected [7]. When discussing the Arsi Galla, Knuttson and Mellbin report a similar normative belief that boys should be nursed longer, but do not provide the objective data for comparison [7].

In other cases, general statements are made about the 'average' age of weaning, but it is difficult to determine if the information represents observations made by the anthropologist or statements made by informants which, additionally, may be retrospective, predictive, or normative. In an otherwise excellent article, Nardi reports from Western Samoa that:

> "Babies in Salamumu are *usually* weaned by *about* 15 months, although there is *some* variation, and at the time of this study one baby was still breastfed at 21 months" [8, p. 297, emphasis mine].

It is not possible to identify the nature of her source of information, and the lack of precision about variations in actual weaning patterns is, at the least, frustrating.

Additionally, for many populations, long-held traditional beliefs and practices about infant feeding are undergoing rapid change as people migrate to urban centers and come in contact with new ideas about infant feeding, not just 'Western' notions, but also concepts and practices of people from other regions of the same country. Beliefs and practices do not all change at the same pace or in the same direction, however, and such changes will have varying effects on infant nutrition. For a complete understanding of infant health in such situations, we must determine which beliefs are changing, and which are resistant to change, and we must identify those instances in which articulated beliefs have persisted, but actual practices have been altered. The only way to do this is to collect data about cultural beliefs *and* observe patterns of infant feeding, and analyze the relationship between the two.

This report is an addition to the rapidly growing literature on infant feeding, based on data from a peri-urban community in Mali, West Africa. The

CURRICULUM VITAE

KATHERINE ANN DETTWYLER

DOMICILE:
4105 Nagle St.
Bryan, TX 77801
(409) 846-0970

ADRESSE DU BUREAU:
Department of Anthropology
Bolton Hall 303H
Texas A&M University
College Station, TX 77843
(409) 845-5256

EDUCATION:

Doctorat d'Etat en Anthropologie	31 août 1985. Université d'Indiana, Bloomington, Indiana. Thèse de doctorat: Alimentation au sein, sevrage et autres modes d'alimentation pour nourrissons au Mali ainsi que leurs conséquences sur la croissance et le développement.
Maîtrise en Anthropologie	30 novembre 1980. Université d'Indiana, Bloomington, Indiana.
Licence en Anthropologie	12 juin 1977. Université de Californie, Davis Californie. Mention très bien.

EXPERIENCE EN RECHERCHE:

Novembre 1983 - présent: analyse de données collectées au Mali (les données pondérales à la naissance et les données sur la croissance), les données relatives aux interviews concernant les croyances culturelles.

Octobre 1981 - octobre 1983: recherche sur le terrain au Mali en Afrique de l'Ouest pour le doctorat: l'influence des croyances et modes culturels relatifs à l'alimentation au sein et au sevrage sur la croissance et le développement des enfants.

EXPERIENCE EN ENSEIGNEMENT:

1987 - présent	Professeur assistant au Département d'Anthropologie, Université A&M du Texas, College Station, TX 77843
1985 -1987	Professeur assistant, Département de Sociologie et d'Anthropologie, Université du Mississipi du Sud, Hattiesburg.
Janvier 1983	Programme de formation du Corps de la Paix, volontaire pour l'éducation nutritionnelle, Bamako, Mali.

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1988 "Intimité et indulgence: le manque de traumatisme au moment du sevrage au Mali", Association américaine des Anthropologues, Phoenix, Arizona, 16 au 20 novembre 1988. Présentation à faire.

1988 "Croissance et développement des nourrissons en Afrique de l'Ouest: les conséquences de l'anorexie et les modes d'alimentation du nourrisson", Ve Congrès international d'Auxologie, Exeter, Angleterre, 20 au 23 juillet 1988.

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1987 "Malnutrition socio-culturelle: Trois études de cas du Mali", Association américaine d'Anthropologues, New York, 2 au 5 avril 1987.

1984 "Alimentation au sein et sevrage et leur incidence sur la croissance et le développement", Association américaine d'Anthropologues, Denver, 15 au 17 novembre 1984.

INTERETS DE RECHERCHE:

Croissance et développement
Nutrition humaine
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Interaction bioculturelle
Ecologie humaine
Femmes de l'Afrique de l'Ouest

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Anglais (courrant), Bambara (bon), Français (moyen), Allemand (moyen)