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Niger Vitamin A Promotion Project

1991 - 1995

FINAL REPORT

Nutrition Communication Project
August 1995



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NIGER VITAMIN A PROMOTION PROJECT
January 1991 - March 1995**

NUTRITION COMMUNICATION PROJECT
Academy for Educational Development
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ACRONYMS

AED	Academy for Educational Development
ARI	Acute Respiratory Infection
BCR	Bureau Central de Recensement
CFA	(West Africa Currency)
DHS	Demographic Health Survey
HKI	Helen Keller International
KAP	Knowledge, attitudes and practices
MOH	Ministry of Health
NCP	Nutrition Communication Project
UNDP	United Nations Development Programme
USAID	US Agency for International Development
VAT	Village Animation Team

EXECUTIVE SUMMARY

The 1991-94 Vitamin A Promotion Project was designed to increase consumption of Vitamin A-rich foods by promoting seasonally available local products. Vitamin A deficiency is common, even though foods rich in Vitamin A are generally available or affordable for most families.

A 1984 survey in the Tahoua region estimated that 3.9% of children suffered clinical Vitamin A deficiency. This is four times the level at which Vitamin A deficiency is considered a public health problem.

The Ministry of Public Health (MOH) implemented the project with technical assistance from the USAID-funded Nutrition Communication Project (NCP) of the Academy for Educational Development. Helen Keller International (HKI) provided operational and financial management. USAID funded the three and a half year project, which had a total budget of US\$626,000 including \$57,000 for summative evaluation.

The project had two major components:

1. **Phase I: Pilot study.** During 1991-92, the project operated in 16 villages in one district of Tahoua, covering about 26,000 people. The pilot study was used to identify year-round Vitamin A-rich food sources and test village drama as an approach for reaching the target audiences. These activities cost \$276,000.
2. **Phase II: Multimedia campaign.** During 1993-95, the project expanded to 80 villages in 4 districts of Tahoua Department, reaching some 250,000 people. A ten-month campaign promoted four Vitamin A-rich foods (liver, dark greens leafy vegetables, squash, and mangoes), depending upon the season, through radio dramas and spots, drama performances, and group discussions using counseling cards. This component cost \$350,000.

The project was designed in two phases because of uncertainty regarding the amount of funding available. Tahoua, one of Niger's six regions, was selected as the project site because it has sufficient water to support vegetable production in the dry-season.

Overall, the project demonstrated that promoting locally available and affordable foods can improve the Vitamin A status of rural women and children. Multiple approaches are needed to reach rural audiences because of their limited access to information.

Objectives

The project's goal was to improve the nutritional status of vulnerable groups by promoting the consumption of local foods rich in Vitamin A. Vulnerable groups were identified as children between the ages of six months and six years, pregnant women, and nursing mothers.

Research and Formulation of Communication Strategies

Formative research during the first four months of the project established that it was possible to meet Vitamin A needs throughout the year from foods already available in this arid region and that all these sources were culturally acceptable and within the economic means of rural households. Three studies conducted by the project team each contributed important information. A Knowledge Attitudes Practice and Dietary Recall Survey helped understand dietary practices and constraints. A Farmers study explored ways to include Vitamin A rich foods in commercial gardens. A series of market studies identified locally-available Vitamin A food sources, established a calendar of seasonal “best bet” sources of the nutrient, along with recommended portion sizes for different target beneficiaries. The market studies also served to gage the supply and cost of foods as well as seasonal trends in household cash availability. Throughout, a particular effort was made to understand the economic, market and ecological constraints to Vitamin A food supply as well as the knowledge, attitudes, practices and preferences of the population. Evaluation results from Phase I showed that this approach worked well although the special feeding requirements for children needed more emphasis.

Project planners identified four target audiences: (1) men, who purchase most of their family's food; (2) women, who prepare and serve food; (3) commercial gardeners, who produce Vitamin A-rich foods for sale and home consumption; and (4) health and extension agents, who often introduce new ideas. The project attempted to shift cultural norms about men's role. Men are traditionally seen as providers of millet, the staple food. Project messages enlarged this role to depict men as providing their family with a variety of nutritious foods. Similarly, liver was promoted as a nutritious snack food for women and children, not just for men.

Target Behaviors and Messages

Project planners decided that the communication program would emphasize four key behaviors: (1) increase the frequency with which fathers buy liver as a snack for their children and wives; (2) encourage mothers to buy and share 50 grams of liver with their children weekly; (3) increase the frequency of children's consumption of greens; and (4) increase the production of traditional greens in dry-season commercial gardens.

Taking into account seasonal availability, household cash flow and consumer preferences, project planners identified several foods to promote at different times of the year: dark leafy greens, liver, mangoes, and squash. These foods are all commonly eaten. During the dry, cool season, cultivation of dark leafy greens in commercial gardens was promoted. Messages encouraged women and children to eat Vitamin A-rich snacks so that greater frequency of eating would lead to increased overall consumption of target foods.

Media Strategy

An analysis of villagers' information sources, contact with health providers, and mass media use concluded that conventional information channels have limited reach. Accordingly, project planners

developed the idea of village drama -- the use of amateur actors to perform dramatic and comedy skits in their own villages. This format had several advantages: it tapped the tradition of storytelling, could reach remote rural areas, and provide a means to engage local communities in developing their own health education programs. Project staff trained village volunteers to convey information about Vitamin A-rich foods and provided supervision and technical support. The village dramas provided an interactive vehicle for providing information and encouragement to adopt new practices.

In the project's second phase, the media mix was expanded to include radio broadcasts and interpersonal education by trained volunteers. Half the villages had village drama teams; all the villages were exposed to the radio and the educators. This design was to permit assessment of the cost-effectiveness of drama with its high demands for training and supervision.

A newly-opened regional radio station agreed to produce radio materials at low cost. It made live recordings of 42 village drama performances and broadcast them weekly over a 10 month period. It also created a series of radio spots on Vitamin A, which were aired twice daily for three months.

In each village, government health workers, teachers, and agricultural extension agents were trained to work with the drama groups and serve as volunteer educators. Following training in counseling and leading group discussions, they were asked to conduct at least one community group discussion per week as well as individual counseling.

In order to support the counseling and extend the messages to a wider audience, the project team developed counseling cards in two sizes -- a large size for use in face-to-face counseling, and a smaller, postcard size to aid village drama teams. Both cards contained the same messages and images. The project distributed 80,000 of the postcard-size cards to villagers to encourage them to spread the messages further.

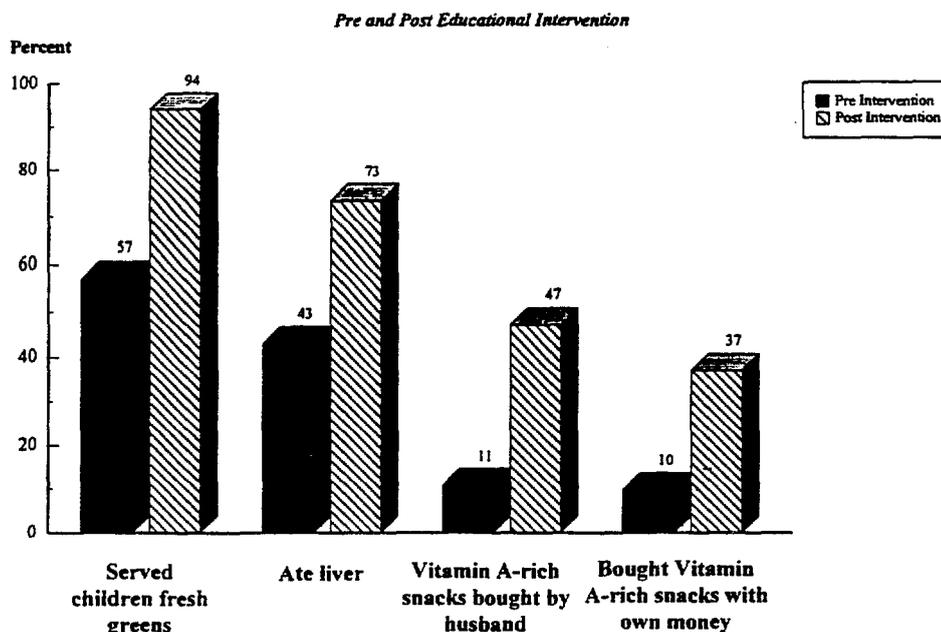
Evaluation Findings

An assessment of Phase I found that village drama was highly successful in reaching rural audiences, with 61 percent of men and 34 percent of women having seen at least one performance. Consumption of liver and greens rose among women but only modestly among children, indicating the need to design special strategies for this group.

For Phase II, a comparison of data from the January 1994 baseline and the November/December 1994 follow-up surveys indicates that the campaign reached its intended audiences and that Phase II influenced purchasing and consumption behavior. Key findings are:

- **Exposure to media.** The media mix was effective in reaching rural villagers. Researchers found that 60 percent of men and 40 percent of women heard or saw some element of the educational program. At least one in four women attended a drama team performance and saw the counseling cards. One in five women heard the radio skits and spots.

Women's Reported Consumption of Vitamin A-Rich Foods During the Previous Week



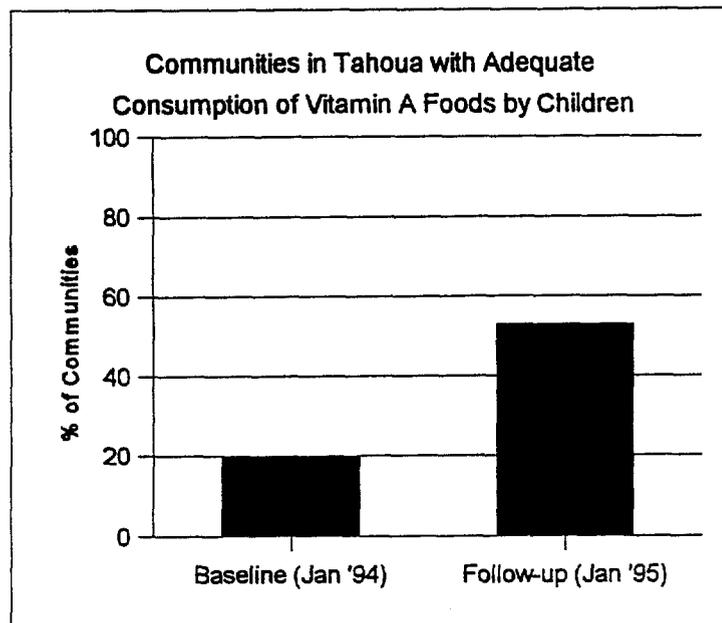
n=375 pre-intervention; n=406 post-intervention
Changes in these practices are significant at $p < .05$.

- **Knowledge.** The proportion of women who cited Vitamin A-rich foods as important for the health of children aged 1-2 years increased from 32 percent to 57 percent.
- **Consumption of liver.** Liver consumption rose dramatically. The proportion of women reporting that they had eaten liver in the week prior to the survey increased from 43 percent to 73 percent. Nearly half (49%) of the mothers reported that their children had eaten liver in the previous week, compared with 37 percent prior to the campaign. Liver consumption increased among children in all age groups.
- **Consumption of leafy greens.** Consumption of dark leafy greens showed major improvement. The proportion of children who had eaten greens in the week prior to the survey increased from 57 percent to 94 percent.
- **Food purchases.** The proportion of men who purchased liver for their family in the previous week more than doubled, from 6 percent to 15 percent. Similarly, 12 percent of the men brought home a prepared cooked salad from leafy greens (*yamoutse*); before the campaign this was a rare event. Overall purchase of Vitamin A-rich foods increased from 11% to 47%. Women also purchased the recommended foods with their own money. One in five women bought the prepared salad. The

proportion of women who purchased leafy greens and liver grew from negligible levels to 9 percent and 12 percent, respectively.

The percent of women reporting that their husband brought home snacks rich in Vitamin A (all sources) increased from 11 percent to 47 percent; the percent of

women who bought such foods with their own money increased from 10% to 37%.



HKI independently conducted food frequency surveys at the baseline in January 1994 and again in January 1995. Of the 15 communities surveyed in Tahoua at the baseline, only 3 had adequate consumption of foods rich in Vitamin A by children under five years. After the NCP had been in operation for 10 months the same survey methodology used in the same communities found that 5 more villages, a third of the total, had moved from the deficient into the adequate category. The HKI survey also revealed that liver, which had been heavily promoted, was

among the foods that contributed most to the success in Tahoua. In the adjacent region of Maradi, where health service providers were also trained to promote the consumption of vitamin A foods, but without NCP support and without the radio campaign, community education or village theater, the HKI food frequency survey indicated no increase in the frequency of consumption of such foods.

Some aspects of the campaign appeared to have limited impact:

- Although the campaign encouraged mothers to begin feeding a sauce with leafy greens to infants at six months of age, the proportion of mothers who did so increased only slightly, from 52 percent to 59 percent. This finding suggests that communication efforts need to be intensified to counter mothers' belief that greens cause indigestion.
- Little change in consumption of squash was observed. Possible explanations for this finding are that some villages do not grow squash and therefore the food may be even less easily available than the formative research suggested.
- Dry-season cultivation of greens by commercial gardeners--a secondary message--remained at a low level. Making this change required gardeners to lose income from cash crops and to purchase seeds. They were evidently not persuaded that the benefits outweighed the costs.

As expected, villages that had participated in both the pilot project and the phase II multimedia campaign showed significantly higher levels of knowledge and behavior change based on composite scores. Unexpectedly, however, the villages that received radio and group discussions showed greater overall change in knowledge and behavior than the villages with these media plus drama teams, even though drama performances were effective in the first phase. The non-drama villages were smaller in size and project staff speculate that this facilitated the discussion and sharing of ideas. Also, people in larger villages may have had less exposure to the drama performances due to distances and the tendency of the drama troupes to perform only in their own immediate neighborhood.

Institutional Development

The pilot project provided on-the-job training for MOH staff, who had little previous experience in communication programs. By working through the program planning and implementation process at an accelerated pace, staff gained confidence as well experience. The pilot project also provided rapid feedback on effective (and ineffective) approaches. The second phase further reinforced staff skills.

As an indication of the project team's newly acquired expertise, the UN Food and Agriculture Organization asked them to provide technical assistance to its project in Niger, and NCP sent them to Mali to train project staff in community drama techniques.

Lessons Learned:

The Niger Vitamin A Promotion Project demonstrated that effective strategies can be designed to overcome adverse conditions such as limited sources of Vitamin A-rich foods, geographic isolation, illiteracy, and poor access to information sources. In such a setting, communication programs must adhere to basic principles: research must be carefully targeted; programs must be community-owned; costs must be sustainable; and local professionals must acquire the necessary skills to replicate the process.

Key lessons that emerged from the project are:

- 1) Formative research does not need to be time-consuming and costly. Using a short list of highly specific questions, the project collected adequate information to guide program planning. All information fed directly into decision-making, with little wastage.
- 2) Village drama can be an energizing force for community involvement and a powerful way to build interest in a nutrition issue. Adequate supervision - probably on a monthly basis - is required to keep up motivation of volunteer actors and assure that the content of performances is on track. Program managers must devote funding and personnel for this critical function and must also monitor implementation closely.

- 3) Mass media can provide important motivational support to community-level activities and also extend the number of people reached by village level events. When a radio announcer introduces a drama performance in a remote village, for example, credibility of the event increases enormously, as does enthusiasm among those who contribute to the field activities.
- 4) A pilot project that is limited in scope and carried out over a short period can be a powerful on-the-job training arena for agencies and individuals having little previous experience designing communication programs. A pilot project allows staff to go through all essential steps - from planning to evaluation - in rapid succession. The format provides unusually rapid feedback on what works and doesn't work. Unseasoned staff can gain confidence and experience.

BACKGROUND

Niger is a West African Sahelian country of 7.4 million with limited arable land (only 3 percent of the total land surface); limited agricultural production (millet, beans, and sorghum) due to arid to semi-arid climatic conditions and lack of capital investment in irrigation or intensive farming methods; a consequent low per capita GNP - \$308 ¹, among the lowest in Africa; a low rate of investment in health services; a high rate of infant mortality - 134/1000 ²; and a low life expectancy - 47³.

The Government of Niger has been active in Primary Health Care since 1964, well before Alma Ata focused world attention on providing basic health care at the community level. In 1974 the President of Niger declared "health as a right" and created a comprehensive, integrated health care system. By 1985 some 45 percent of Niger's villages were linked to basic health services⁴. At that time in addition to over 2000 trained Ministry of Health technicians, an extensive system of unpaid traditional birth attendants and village-level health teams was in place. However, lack of infrastructure, training, and supervision gradually eroded the effectiveness of this network. Donor support in the late 1980's, including the USAID-funded Niger Health Sector Support Program, was directed to addressing these management and personnel issues. The social infrastructure of the country is severely limited and not expanding to meet population demands. Recent estimates are that between 33 percent and 45 percent⁵ have access to modern health facilities which could be the distribution/preparation points for food relief, nutrition education (and Vitamin A supplements). On average, women in rural areas are two hours away from a health facility⁶.

The prevalence of malnutrition, particularly among weaning age children is high. Fifty-three (53.0) percent of children aged 12-23 months are underweight (weight-for-age); 48.9 percent of children 24-35 months and 18.6 percent of 6 - 11 months old, although children under 6 months are relatively little affected. Nearly 40 percent of children are stunted by the time they reach 5 years - that is they fail to achieve normal height for their age - reflecting the effects of long-term malnutrition. Acute malnutrition (weight-for-height) resulting from more short-term illness and lack of food effects about 16 percent of all children under the age of five.⁷

¹African Development Indicators, UNDP/World Bank, 1992.

² DHS, Enquête Démographique et de Santé, 1992, Ministère des Finances et du Plan, Niamey; Macro International, Columbia, Maryland, September 1993.

³Recensement Général de la Population, Bureau Central du Recensement, 1992.

⁴Rural Health Improvement Evaluation, USAID, 1987.

⁵ Fishman, C., Reconnaissance Visit - Niger, AED, May 16-20, 1988.

⁶ DHS, *op. cit.*

⁷ Ibid.

Malnutrition is much worse in rural areas where three out of every four children are malnourished; the area of Tahoua/Agadez in which the Niger Vitamin A Promotion Project is situated (Tahoua Department) ranks third out of six in terms of both chronic and acute malnutrition⁸.

Complex factors contribute to the poor nutritional status of children. Agricultural productivity is low because of intense farming on depleted land without agricultural inputs - a situation caused and exacerbated by continuing population pressures (the Total Fertility Rate is 7.4)⁹, among the highest in Africa and the annual growth rate was estimated at 3.3 percent in 1988)¹⁰. Persistent drought has contributed to desertification, and the already limited arable land continues to decrease.

Because of this overall low economic productivity and agricultural output, not only are household food resources inadequate, particularly in the months before the harvest, but also rural incomes are low. A poor balance of payments position (the price of uranium, formerly a valuable export earner and Niger's principle export product, has fallen dramatically in recent years) has restricted food imports, thus limiting even further food availability for those with the income to purchase food from the market.

While there have been few food consumption surveys carried out in Niger, one small, but

TABLE A
Niger Fact Sheet

Total population (1990)	7.4 million ¹
% urban	19% ²
Total fertility rate	7.4 ³
Female literacy	17% ²
Per capita GNP	\$308 ¹
Women receiving prenatal care	30.1% ³
Deliveries in formal health facilities	15.5% ³
Deliveries by trained attendants	33% ³
Infant mortality rate (/1000 live births)	134 ³
Under 5 mortality rate (/1000 live births)	326 ³
Maternal mortality rate (/100,000 live births)	652 ³
Prevalence of undernutrition ³	
Age	Wt/Age Ht/Age Wt/Ht
<6 mos.	3.5 2.3 6.1
6-11 mos.	18.6 9.7 19.2
12-23 mos.	53.0 33.3 33.0
24-35 mos.	48.9 47.1 13.5

Sources:

¹African Development Indicators, UNDP/ World Bank, 1992.

²State of the World's Children, 1994, UNICEF.

³Niger DHS 1992.

⁸ Ibid.

⁹ Ibid.

¹⁰ Recensement Général, *op.cit.*

relatively recent¹¹ study indicated a low rural intake of meat, milk, oil, and sugar - calorie-dense and protein-rich foods that are more easily utilized by infants and younger children (as opposed to the more available staple cereals which provide low levels of calories and proteins for their bulk). If these findings are at all representative, they confirm anecdotal evidence that in many rural areas there is a limited variety of energy-dense and protein-rich foods.

Other factors contribute to the high prevalence of malnutrition. Low birth weight, caused in part by the poor nutritional status of mothers, is a major contributing factor as are short-birth intervals. Non-exclusive breastfeeding, with the introduction of water and non-nutritive foods, provokes diarrheal episodes without adding comparable nutritional value. When complementary feeding is initiated between 6-8 months, it is often done with the same bulky foods eaten by the family and feeding practices are far from optimal.

Millet, the staple food, is prepared in a manner especially designed to reduce hunger with minimum calories: it is manually pounded into a fine flour, then cooked with water as a gluey, viscous paste. This expands in the stomach, producing the feeling of fullness. While important to deprived adults, it is particularly pernicious for infants who fill up quickly before they get their needed nutrients. Mothers, who see their children refuse food, assume they are satisfied and make no further overtures to them. Finally, repeated cases of diarrhea and ARI¹² further reduce appetite.

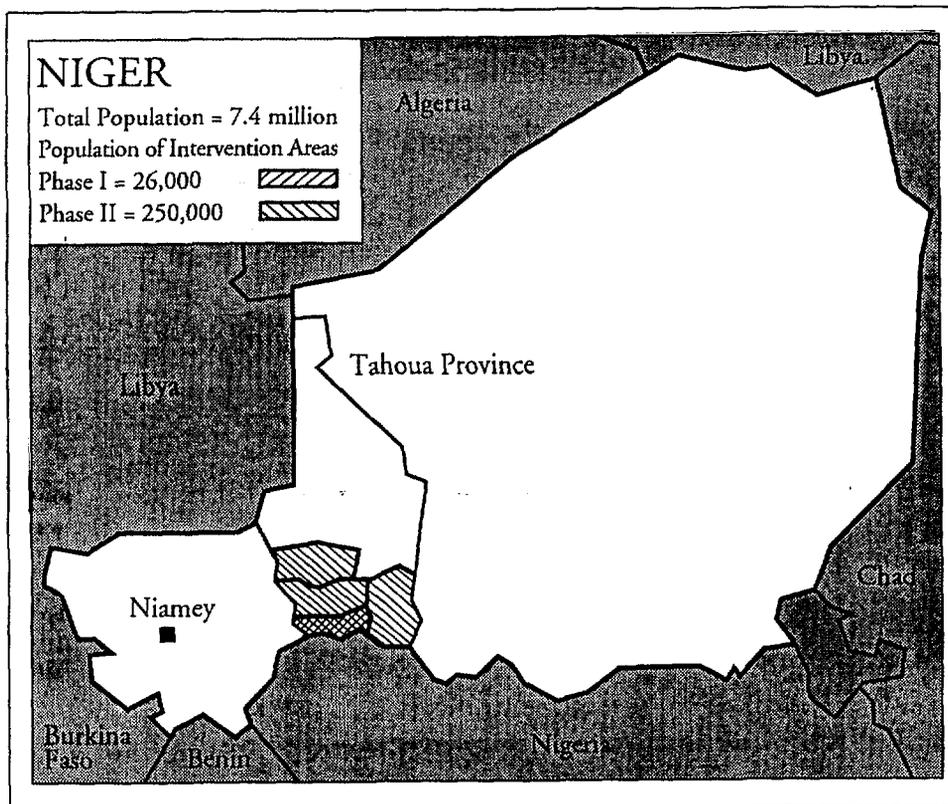
Nevertheless, energy and protein requirements for infants and children under two years of age are low enough to be met, in most cases, through modest family investments (intra-family redistribution, special infant meal preparation, and/or small additional food purchases). Weekly rural family expenditures on snacks (non-staple, nutritious foods) are often at least CFA 100 per week¹³, indicating a small but not insignificant flexibility in food purchases which could go, with appropriate education, to food diversification (e.g. energy-rich oil, noticeably restricted in most rural diets).

As importantly, men and women have little knowledge of the nutritional needs of pregnant and nursing women and young children. With more knowledge, some disposable income might be reallocated to these vulnerable groups and some currently available food redistributed.

¹¹Survey on the Impact of Urbanization on Consumption of Basic Foodstuffs in Niger, Instituto Italo-Africano, Rome and Direction Statistique et Informatique, Ministère du Plan, Niger, 1989.

¹²Nancy Keith estimates 7 major diarrheal episodes and seven ARI infections per year, based on her Ph.D. Field research done in Tahoua Department.

¹³Field Research in Birni N'Konni, Keith, N. Academy for Educational Development, May-June 1991. Women spend between 10-50 CFA per day on snacks. Men spend the same amount, but less frequently, with nearly 80 percent reporting they purchased snacks valued between CFA 10-50 between 1-4 times per week. Since cash is scarce during 8 months of the year, the expenditure amounts vary from a minimum of CFA 10 per week for men and women to a maximum of CFA 200 per week for men and CFA 300 for women. Anecdotal evidence suggests an average CFA 100 per week per family for snacks.



Vitamin A deficiency has long been recognized as a serious public health problem among the nomadic populations in the North. However, a series of studies over the past 10 years has documented that the problem is more universal:

- Studies of children 0 to 5 years conducted in Tahoua, in 1984 by Helen Keller International (HKI) and the Ministry of Health found prevalences of 3.9 percent for clinical Vitamin A deficiency, four times the level considered to be a public health problem.
- In 1985 a national survey conducted by the National Blindness Prevention Program found a 2.2 percent prevalence of xerophthalmia (night blindness and corneal lesions).
- A 1987 survey carried out by the UNICEF/WHO Joint Nutrition Support Program (JNSP) in five areas of the country found the prevalence of night blindness varying from 1.2 to 4.0 percent.
- A 1990 study by JNSP in the Department of Tillaberi found night blindness to affect 3.5 percent of children under five.

In a study conducted in 1994¹⁴, only 20 percent of villages had adequate Vitamin A consumption levels for children 12-71 months (based on detailed consumption data in sample households in Tahoua Department). Only a small variety of Vitamin A-rich foods are available. The consumption of Vitamin A-rich foods is infrequent and their quantities when consumed are small and do not provide sufficient amounts of the Vitamin to meet requirements.

Government commitment to addressing these problems is strong. A national blindness prevention program was launched in 1987 with funding from the French Government. Since 1986 HKI has been working through the MOH structure to test different strategies for capsule distribution. UNICEF, through the Joint Nutrition Support Programme (JNSP), has supported a number of pilot capsule distribution programs in different parts of the country. Other programs have included establishment of the Asian Vegetable Research and Development Center (AVDRC) to establish nurseries for Vitamin A rich plant species and establishment of a national policy to encourage dry-season vegetable production.

¹⁴Burger, Susan E., "Preliminary Results of a Helen Keller International-Ministry of Health (Niger) Public Health Survey on Vitamin A," New York, 1994.

TABLE B
Niger Project Fact Sheet

Population (in project areas):	Phase I: 26,000 Phase II: 250,000
NCP Partners:	Ministry of Health Helen Keller International
Collaborating Projects:	FAO Bouza Vitamin A Project HKI Vitamin A Project
Project Duration:	Phase I: January 1991 - September 1992 Phase II: September 1993 - March 1995
Funding:	Phase I Phase II
Core:	\$ 7,292
Vitamin A Funds:	\$106,467
Africa Bureau:	\$100,451
USAID/Niamey:	\$ 61,733 \$349,891
Total:	\$295,943 \$349,891
Media Mix:	Community-based Village Theater, Interpersonal Communication, Group Communication, Radio, Liver & Greens Festivals
Key Products:	1000 sets of 16 counseling cards 5000 sets of 16 postcards Radio: ● 42 village skits and 150 spots Training in Community-based Village Theater Techniques: Phase I ● 26 agricultural agents, teachers and nurses ● 16 five-member village animation teams Phase II ● 101 village agents ● 65 five-member village animation teams
Number of TA Visits:	20
Special Features:	Village Theater in communities and on radio. All materials produced in-country.
Research:	● 24 hour dietary recall (May 1991): 287 subjects ● Qualitative Field Research and KAP (May - June 1991), 251 interviews ● Forward Planning Assessment (December 1992), 240 interviews ● Formative Research (February 1993) (12 focus groups) ● Baseline Survey (January 1994): 474 interviews ● Final Evaluation (December 1994): 717 interviews

PROJECT HISTORY

A broad-based Vitamin A Prevention Program, with a focus beyond treatment of ophthalmologic problems and limited capsule distribution, was in the design stage when NCP conducted its assessment in 1989.

In 1988 following a series of structural and personnel changes, the Ministry of Health officially expressed the need to train health workers in nutrition counseling and interpersonal education techniques; and to develop appropriate educational materials at all levels of the health system in order to more directly address the problem of malnutrition.

In this context, USAID/Niger invited the Academy for Educational Development (AED) to carry out a nutrition education/communication assessment to identify ways in which the MOH could expand from its traditional nutritional surveillance/rehabilitation focus to a more preventive approach, centered around nutrition education.

As a first step to introducing new strategies, AED through the Nutrition Communication Project (NCP), received funding from USAID to assist the Nutrition Division to conduct qualitative research on infant feeding; and train MOH staff in the use of ethnographic assessment methodologies. The research, which consisted of 10 weeks of field research, was expected to serve as the basis for a comprehensive, large-scale nutrition communication effort.

However, when funding to mount such a program was delayed and was not expected to be available within the next year, USAID encouraged NCP to develop a small-scale, more narrowly focused communication project to support Niger's national program to eradicate Vitamin A deficiency, which was just getting underway. NCP was able to draw on limited core Vitamin A funds, and thus was able to launch the activity without losing further momentum.

Although the MOH and its collaborator, Helen Keller International (HKI), had been active in Vitamin A capsule distribution since 1986 (in Tahoua and Maradi Departments), it had no experience with programs to encourage the consumption of Vitamin A-rich foods.

In October 1989 the Mini-Project was designed.

PHASE I

Phase I of the Niger Vitamin A Promotion Project was designed to demonstrate that a well-designed communication project, even with a limited budget, could have a positive impact on the levels of Vitamin A knowledge, attitudes, and practices in rural Niger¹⁵. As such the project was intended to provide information to guide development of a national communication strategy to support the country's Vitamin A Action Plan, which was just beginning to take shape. Of particular interest was

¹⁵ Parlato, M. "Trip Report: Plan for the Vitamin A Mini-Project, September 18 - 22, 1989." AED, Washington, DC, 1989.

the feasibility of using a food-based approach in those areas of the country with adequate rainfall and water resources to support vegetable production.

Because of stringent budgetary limitations, Phase I:

- was carried out in a limited area - 16 villages; and
- used only one medium - village drama - a medium which, because of its volunteer nature, required only a limited financial investment, but which, as an adaptation of the popular itinerant drama troupes that have been used successfully in the West African region¹⁶, offered considerable promise for Niger.

Although Phase I was limited in size and scope, it was designed according to classic social marketing and modern communication principles - the use of audience research and the development of a consumer-oriented education campaign designed to achieve specific behavioral objectives.

Following is a discussion of the activities carried out as part of Phase I: Site Selection, Background Research, Behavioral Objectives (Messages), Thematic Treatment, Communication Channels, Implementation Plan and Evaluation. The section ends with Lessons Learned.

Site selection

Because of the experimental nature of Phase I, a number of criteria were established for the selection of the intervention area, which resulted in selecting Tahoua Department:

1. A year-round water supply and the presence of dry season gardening. Villages with dry season gardening were considered to offer the most promise of markedly improving their Vitamin A status, largely because vegetables could be grown and made available year-round. Tahoua Department was particularly endowed with wells because of an aggressive well-building program sponsored by Government within the five years prior to the inauguration of the Project;
2. Proximity to Niamey (425 Kilometers) and easy road access;
3. The presence of an on-going Vitamin A program. HKI had been supporting a Ministry of Health Vitamin A program since 1986. Although the program had focussed on capsule distribution, there was at least an awareness of the problem and an institutional organization

¹⁶ "On the Road with the Atelier Théâtre Burkinabè", Joy Morrison, Development Communication Report, Clearinghouse on Development Communication, 1988/3, No.62; "Oramedia in Africa," Frank Okwu Ugboajah, Mass Communication, Culture, and Society in West Africa, F.O. Ugboajah ed., Clearinghouse on Development Communication, 1985; *Persuadeurs de Village: Communicateurs, Informateurs, Educateurs Populaires décisifs dans les projets de développement national en Afrique*, CEFA/CAFS, Nairobi 1990.

established to deal with it;

4. The presence of a known and trusted international agency which could serve as Field Representative (for technical assistance and for financial disbursement). HKI had been the technical advisor to the Ministry of Health since 1986;

5. High prevalence of Vitamin A deficiency. As discussed above, Tahoua had significant rates of malnutrition and Vitamin A deficiency.

6. A single linguistic zone

The particular *arrondissement*, Birni N'Konni, was chosen because: a) it was an area in which HKI, AED's collaborator and Field Representative, already implemented Vitamin A programs; b) it was particularly well-endowed with year-round water¹⁷; and c) it had a diversity of village types (size, socio-economic development, water supply) that permitted a certain degree of comparative research.

Village selection was done according to a classification system: a) villages with dry season gardens and dispensaries; b) villages with dry season gardens only; and c) villages with neither dry season gardens nor dispensaries. The rationale behind this categorization was as follows:

Villages with dry season gardens were presumably those whose residents had the easiest access to Vitamin A-rich foods. While access to vegetables in the rainy season poses little problem, even for poorer families, access to dry season products is limited, both because of physical access (i.e. distance to regional markets) and cost (dry season products are more costly, given their scarcity.) The Project assumption was that implementing the project in those villages with dry season gardens would guarantee physical access and would offer Vitamin A-rich foods at costs lower than those at regional markets.

Villages with a dispensary were, according to MOH classification, those with a large population, near major roads, and with easy access to markets and urban areas. By extension, these villages were those with higher levels of income, better education, better health -more experience, education, and means to make important behavioral changes.

It was assumed that villages in the first classification - WITH A DISPENSARY AND DRY SEASON GARDENS would have access to markets both supplied by local dry season gardeners and by regional producers; and would have proportionately higher levels of education, urban contact, and other modernizing influences. In short, it would be these villages which would provide the benchmark for the program - inhabitants of these villages should not only learn more from the educational campaign, but do more with the information.

¹⁷ Niger has three climatic zones with only 3 percent of the land considered arable. This is located primarily in the South, which receives 300 to 650 mm of rain per year. (DHS, 1992)

Villages in the second category - WITH DRY SEASON GARDENS ONLY - are by nature more remote and isolated both geographically and socio-culturally than villages with dispensaries. However, the presence of dry season gardening should mitigate this isolation and provide the wherewithal for inhabitants to make improvements in their consumption of Vitamin-A rich foods. Therefore, it was hypothesized that villages in this category would have lower rates of knowledge, attitude, and behavioral change than the dispensary villages, but would experience significantly higher levels of change than those villages with no dry season gardens.

Villages in the third category - WITH NEITHER DRY SEASON GARDENS NOR DISPENSARIES - were chosen to explore what kind of improvement in Vitamin A intake is feasible in such disadvantaged areas. It was hypothesized that these villages would do significantly less well than villages in the other two categories. However, it was also hypothesized that even in these disadvantaged areas, given the proliferation of wild leaves and a strong education campaign promoting them, levels of knowledge, attitudes, and practices would improve over the life of the Project.

Background Research

Research was conducted in three principal areas to¹⁸:

1. Explore the causes of Vitamin A deficiency and, in particular, to determine to what degree lack of awareness and knowledge of Vitamin A deficiency and its prevention contributed to it;
2. Identify what Vitamin A-rich foods were available in the Project area, when, and where (wild, local cultivation/consumption, commercial market);
3. Determine what economic (i.e., cash, time) and social constraints limited the ability of families to modify their dietary practices.

A four-month investigation examined social, economic, and market forces affecting nutritional status. Extensive desk research was combined with carefully focused field studies. Technical consultants provided brief but intensive training to a small group of local researchers/interviewers (including staff of the Ministry of Health) who assisted in carrying out the field studies. The initial research package included a combination of desk research, in-depth interviews, market surveys, observation, ranking techniques, and ethnographies as well as a 24 hour dietary recall. Both men and women were

¹⁸Two major studies conducted as part of the Project provided the basis for program planning in Phase I:

Hung, Man-Ming, Report on the Availability and Consumption of Vitamin A-rich Foods in Niger, AED, September 1991.

Keith, Nancy, Field Research in Birni N'Konni: Vitamin A Communication Project, AED, March-June 1991.

interviewed. Researchers set out to answer nine important questions and to determine the project's specific behavioral targets, audiences, and communication channels. In particular, the studies were designed to investigate nine very specific questions which are presented in the box below:

Key Formative Research Questions

- Do existing sources of Vitamin A-rich foods (markets, gardens, in the wild, and so forth) supply adequate quantities to meet the population's needs and how elastic is that supply?
- Could Vitamin A needs be met in each of the three distinct seasons or would supplements (capsules) be needed to achieve full, year-round coverage?
- What quantities of Vitamin A-rich foods are being consumed by high-risk groups (children of different ages, pregnant and lactating women)?
- How large a gap exists between actual and optimal levels of Vitamin A intake?
- What Vitamin-A rich foods are available in different seasons, and what are the richest dietary sources of the micronutrient?
- What constraints exist to increasing consumption of different Vitamin A-rich foods (cost, taste, preparation time, image, etc.). And which foods are the most appropriate from a consumer's perspective?
- Are there periods of the year when families have disposable cash and could afford higher-priced animal sources of Vitamin A?
- How might commercial dry- season farmers be encouraged to increase their production of Vitamin-A rich foods?
- What channels of communication reach the target groups?

The major finding of the research was that affordable Vitamin A-rich foods can be found throughout the year -- with liver and fresh and dried green leaves offering the best sources, and that these foods are already eaten, although they are not consumed in sufficient quantities to meet requirements.

Green leaves grow wild during the rainy season (approximately four months) and are plentiful and affordable (amaranth, senna, jute, false sesame, gynandro, purslane, and urena) are plentiful and affordable. They are either harvested by individual family members or, more often, harvested by certain older women as a commercial venture. There are 32 varieties of edible wild leaves in Niger, although only certain ones (those listed above) are rich in Vitamin A¹⁹.

¹⁹Wilson, A., Gathered Foods in West Africa: A Neglected Component of Village Food Economy, M.Sc. Thesis, California Polytechnic State University, 1989.

Sorrel, a leaf which grows wild during the rainy season, is cultivated on irrigated land during the dry season although during this period it is relatively expensive. Baobab leaves, while available fresh during the rainy season, are most often consumed dry and imported from Nigeria.

Dried leaves (particularly baobab and jute) are abundant and available all year round, but due to Vitamin losses through oxidation, photodegradative and enzyme mechanisms, are only a moderately good source of Vitamin A and other Vitamins. They are moderately expensive when compared both to total family food expenditures and to the cost of in-season foods²⁰. Also, only small quantities are typically consumed; making it not worth the effort to try to change the practice of drying leaves in direct sunlight.

Fresh drumstick leaves are available during the rainy season. However, if the drumstick trees are watered, they will give leaves year-round. Because of the water needed and the attention required, they are relatively expensive to purchase.

In general, fresh leaves are universally liked by rural families, prepared either as *yamoutse* (also called *yamace* or *kopto*) greens boiled and served cold with peanut sauce and spices, or as a sauce to flavor staple foods. *Kopto* is eaten during the rainy season when leaves grow wild and are plentiful. Because during this season millet and sorghum stocks are near depletion, many families - particularly the poorest - consume as many leaves as possible. There is a preference for certain leaves. Jute and baobab leaves are by far the most popular²¹. This is noteworthy since most baobab leaves are imported from Nigeria and available dried.

A 24-hour dietary recall study²² done for the Project found that 71 percent of women and children had eaten green leaves the previous day, most (88 percent) in a sauce and the remainder in *kopto*. Keith in a subsequent questionnaire administered to 251 women in May - June 1991⁽²³⁾ asked about the period of availability of certain foods and how often they eat them when in season. Ninety-eight (98) percent of women said that they eat green leaf sauce "almost every day during the season;" and 74 percent said they eat *kopto* almost every day. The survey was conducted at the beginning of the rainy season (rains started early in 1991) when fresh greens were beginning to be available (see Chart I). It must be noted that leaf sauce contains a lesser quantity of leaves than *kopto*. Leaves are added to sauce mainly as a thickening agent, and are not meant to be a major food supplement. Consequently the amount of Vitamin A is limited.

²⁰ Hung,, M-M. *op.cit.*

²¹ *Ibid.* Nearly 80 percent of respondents in the researcher's recent field survey.

²² *Ibid.* (The dietary study conducted in 6 villages in Birini N'Konni in May 1991, included 287 subjects: 44 breastfeeding women with infants under six months, 50 pregnant women, 143 children, aged 7 months to 6 years and 50 men. Consumption frequencies, portion sizes, as well as information on availability and loss of foods was also obtained) .

²³ Keith, *op.cit.* .

Previous studies provide more details concerning consumption of green leaves by children. In a 1989, 24-hour recall survey of 826 children done by Africare in regions nearby to Tahoua, 29.2 percent of children under 3 years of age were reported to have eaten green leaves²⁴. (Only 1 percent of children had eaten other sources of Vitamin A.)

In a similar study done for PRITECH in 1989 in Birni N'Konni, 41.7 percent of children aged 5-28 months were found to have eaten leaf sauce the previous day²⁵. The study also reported that nearly 70 percent of mothers said they give leaf sauce to their children between 3-7 times a week²⁶.

As part of background research for the project, portion sizes were estimated and their Vitamin A values calculated. The portion of green leaves that are eaten when leaves are plentiful (in the rainy season) is 45g²⁷, containing 630 ugRE and considered of high Vitamin A value. This average portion is more than enough for young children for whom 25g per day is the recommended daily requirement, but not enough for pregnant and lactating women who would need 68g and 86g respectively. The Hung study concludes, however, that "given the current costs, it is probably possible to increase the consumption of fresh greens (through market purchase in non-seasonal periods) to meet requirements without too much of a dent in the food budget."

The average rural per capita income is estimated at \$246 (80 percent of the national average \$308), for a total family income of \$1230. Annual rural cash expenditures on food are estimated at 35 percent of this total or \$430.50. Weekly food expenditures, therefore, are CFA 4139 (at US\$ 1 = CFA 500). An additional 50g of green leaves daily would cost CFA 32, or less than one percent of the total weekly food expenditures²⁸.

However, availability of green leaves in off-season periods - regardless of ability to pay - is problematic. In many villages of Tahoua Department there are dry season gardeners - individual families with access to small-scale irrigation (e.g., deep wells or lake beds). These gardeners,

²⁴Baptiste, Chapko, Keith and Jones, Baseline Child Survival Survey in Dosso and Diffa, Africare, 1989. As reported in Hung, M-M., *op.cit.*

²⁵ Keith, N. Infant feeding, Weaning, and Diarrhea Disease Management among Hausas, June 1989, as reported in Hung, M-M., *op.cit.*

²⁶It must be noted, however, that the Phase I Evaluation (Koné, H., *Evaluation du Projet de Communication Sociale en Vitamine A*, AED, December 1992) done after the planning and implementation of Phase I and other, anecdotal evidence, indicated that mothers give greens to young infants far less than suggested by earlier data.

²⁷The average portion sizes in the survey were calculated from the total amount purchased divided by the number of adults eating it with children under ten counted as half an adult.

²⁸ Estimates of rural food expenditures were made as follows: A study done of Niamey urban households in 1987, reported in Hung, M-M., *op.cit.*, indicates that 65.6 percent of household incomes were spent on food. On the assumption that at least 65 percent of food consumption in rural areas is on locally-produced, domestically-consumed staples (millet, sorghum), then only 35 percent of income would be on food.

however, produce cash crops - primarily onions, but also peppers and cabbage - and do not include greens. Given the high market value of onions, particularly if village gardeners live near a road and can have commerce with Niamey, there is little incentive to diversify crops and include more greens. There is potential for sowing green leaf seeds around the perimeter of commercial gardens (this is done periodically, particularly in lean years) for home consumption. Since those villages with gardens have between 30-80 percent of families gardening²⁹, dry season cultivation of green leaves by these commercial farmers could add significantly to the supply.

In summary, the research on leaves established that:

- fresh greens are available during two of the three growing seasons.
- they are within economic reach
- they are consumed but not in sufficient quantity
- portion sizes given to children are adequate but those for pregnant/lactating women are not
- an estimated 50% of children 13 - 36 months, 60% of those 37 -62 months old and 75% of pregnant women have inadequate levels of Vitamin-A intake and are at high risk of deficiency.

Few data were available however, on the average daily amount of green leaves consumed by different target groups, which would have enabled project planners to establish quantitative consumption targets.

Given these findings the project team considered the possibility of increasing the amount of fresh greens eaten in season to "load" Vitamin A for the following dry season. At the time, however, Vitamin A experts, could not provide scientific guidance on whether storing of Vitamin A from vegetable sources was physiologically possible. Research had not yet been done on this issue. Research conducted more recently suggests that the body can store retinol (found in animal sources of Vitamin A) but that provitamin A and carotinoids, found in vegetable sources, may not be converted by the body in substantial amounts to a storable form.

Liver, in addition to green leaves is one of the most important Vitamin A-rich foods consumed in the Project area and was identified early on as a key potential target food. While liver is not eaten with the regularity of green leaves³⁰, because it is a concentrated source of retinol it is considered a particularly valuable and cost-effective source of the nutrient. Twenty-five grams of liver, for example, the average portion eaten when eaten (liver is eaten primarily as a snack and therefore infrequently and irregularly) reported by respondents in the Project area, contains 3750 ugRE of

²⁹ Keith, N., personal reference based on her Ph.D. dissertation done on nutrition in Tahoua Department and on field visits for this Nutrition Project.

³⁰ Hung, M-M., *op.cit.* Only 8.9 percent of a combined total of pregnant and lactating women and children 6-72 months old reported consumption of liver in the previous 24-hour period. In Keith, N., *Infant Feeding, weaning, and diarrhea disease management among Hausas*, 1989, the author found that only 3 percent of her sample reported giving liver to their children 5-28 months in the previous 24 hours; and 0 percent in a similar study she did for PRITECH (undated, untitled).

Vitamin A, nearly 7 times the content of a similar daily portion of green leaves. Perhaps more importantly, "Liver does not have to be eaten daily to supply enough Vitamin A. One 25g serving (average cost CFA 15) of liver every two weeks would provide enough Vitamin A to meet 75 percent of a pre-school child's needs for two weeks" (³¹). In order to have the same protective benefits, a child would have to eat 350 grams of green leaves - unlikely, at best except during the rainy season when leaves are plentiful. The quantities for pregnant and lactating women are many times that.

In addition, whereas the absorption of plant sources of Vitamin A found is limited by the fat content of the overall daily diet, liver is not similarly constrained. Furthermore, liver is an excellent source of most of other essential nutrients such as iron and folate.

Liver is a prized food, but because of its high price, is consumed primarily in small quantities as snacks. Fathers purchase 70 percent of the total liver consumed by the family - most of it in the form of small, prepared, grilled snacks for wife and children. Fifty percent of men³² indicate that they purchase liver snacks once a week; and 28 percent 2-4 times per week.

Of those women who do purchase liver, 63 percent indicated they purchase it from street vendors; 21 percent stated they buy raw liver and prepare it at home; and 12 percent said they did both. Less than one percent of women indicated they bought liver as a snack (³³).

Liver is available all year-round in the market, but disposable income is not. Keith found that spending money is available primarily in the post-harvest months of January-May, and in particular, January-March.

Squash and mangoes are two additional Vitamin A-rich foods available in the Project area. Mangoes are plentiful and eaten in liberal quantities in season between April and June. They are eaten by everyone, although there is some hesitation in giving them to young children. Some varieties are quite fibrous, thus reinforcing the tendency not to give them to infants and young children.

Squash is also available from November to February (under rainfall conditions), but not grown in all villages. While gardeners in Tahoua produce onions as their principle cash crop in both rainy and dry season, different villages diversify with peppers, cabbage, tomatoes, or squash. Markets in those villages that do produce squash offer the product in small quantities, affordable to most. Although, in principle, squash can be kept for a long time and thus be a good Vitamin A product to be kept after the rainy season, in fact it is hard to store, requiring a large amount of space and a special environment, making this vegetable one with a short seasonal availability.

³¹ Hung, M-M., Report on the Availability and Consumption of Vitamin A-rich Foods in Niger, AED, September 1991 .

³²Keith, N., *op.cit.*

³³ Ibid. Also 93 percent of women indicated that they buy snacks for their children and themselves. Twenty-four percent said they spend 10-25 CFA per day and 20 percent said they spend CFA 26-50 per day.

Overall Campaign Strategy

Based on the above research, the overall campaign strategy was based on four principles: seasonality, regularity, frequency and quantity. First, according to the formative research, each of the three seasons can be covered, if wild leaves are eaten during the rainy and immediate post-rainy season from June through October; if liver snacks are purchased in the market during the vegetable-scarce but cash-flush post-staple harvest period of November-March; and if seasonal mangoes are consumed in the hot season of April and May, high percentages of RDAs of Vitamin A can be covered at relatively low cost.

Second, although in some times of the year Vitamin A products are eaten regularly (such as wild green leaves in the rainy season and mangoes in the hot dry season), at other times and for other products (most notably liver during the post-harvest period), they are not. The project focussed on increasing regularity of consumption during all periods of the year.

Third, although regularity might be ensured (i.e., leaves eaten every week; liver eaten whenever the father goes to market), frequency might not. For example, to best assure adequate Vitamin A intake and to establish easily memorable dietary patterns, mothers should see to it that their children eat green leaves every day and liver once a week.

Finally, although regularity and frequency might be assured, quantity may not. Children, pregnant and lactating mothers, and infants may not be getting enough Vitamin A. For women, satisfaction of Vitamin A needs may be limited by economic constraints, but messages can urge eating more up to realistic limits. Infants can get enough Vitamin A if they are fed many times during the day (small stomach capacity and immature digestive tracts necessitate frequent feedings).

Behavioral Objectives (Messages)

Following are the five principal behavioral targets.

1. To increase the frequency with which fathers buy liver as a snack for their children and their wives.

As suggested above, fathers, who traditionally buy the family's meat, are the main purchasers of liver snacks for their wives and children. Since less than one percent of women buy liver as snacks; and since during the period of time during which liver is purchased (during the post-harvest, improved cash flow period) little else is available (Chart I, above), the husband/father becomes the key provider of Vitamin A for the family in the post-harvest period.

Liver purchases made by men, however, are irregular and periodic. First, fathers often buy snacks other than liver for their children. Second, cash for food or any other expenditure is severely restricted outside of the post-harvest months of January-May, and particularly January-March, and even through May.

Given these factors, the thrust of the educational campaign was to encourage fathers to purchase CFA 10 of liver per week for each of their children 6 months - 6 years of age; and CFA 25 of liver for their wives. Based on anecdotal evidence, men spend an average of between CFA 10-50 per week on snacks. However, this amount may go up to at least CFA 100³⁴ in the post-harvest season. While a liver expenditure of CFA 45 out of a total snack expenditure of CFA 50 may be difficult to achieve, it represents a much smaller fraction of total snack expenditures (CFA 100) in the post harvest season when cash is available and the supply of seasonable vegetables is at its lowest.

Recommended daily allowances for children for liver are 14g per week. The cost of that liver (1991) was approximately CFA 14 although liver is generally purchased in broiled bite size chunks in CFA 50 or CFA 100 portions. A purchase of CFA 10 for each of 2 children under 6 years per family³⁵ or CFA 20 per week would meet 71 percent of the daily requirements of the oldest (i.e. 6 years) child; at least 100 percent of children between 6 months and 3 years.

Recommended weekly allowances of liver for pregnant women are 42g (CFA 37) and for lactating women 56g (CFA 46). While CFA 25 is a relatively high proportion of daily requirements (68 percent), it is only 54 percent of the total for pregnant women.

2. To encourage mothers to assure that they and their children eat CFA 50 (about 50 grams) worth of liver per week.

Because men purchase most of the liver consumed by the family, and women traditionally do not buy liver, no specific message was developed to encourage women's purchase of liver. However, women were advised of the importance of liver for themselves and their children and were counseled to share CFA 50 worth of liver a week with their children every week. As in the message for men, the importance of frequency and regularity was stressed.

The message was intended to encourage women either to assure that their husbands brought home liver snacks from the market; to buy some themselves; and/or to share the liver of animals slaughtered for feasts and special occasions among themselves and their children;

³⁴ Keith, *op.cit.*, reports that 50 percent of women interviewed indicated they bought snacks every day; and half of these women valued their purchases at between CFA 10-50 - or between CFA 70-350 per week. Based on this evidence it is not unreasonable to assume that 50 percent of men spend at least CFA 100 per week on snacks in the post-harvest season.

³⁵ The 1992 DHS indicates an average rural family size of 6.1. If one assumes one man and one woman, there are 4 children. The DHS further estimates that approximately 50 percent of all children 14 and under (most likely living at home) are under 6 years, giving approximately two children.

3. To encourage mothers to increase the frequency of including green leaves in the diet of their 6 month - 6 year old children and by so doing, increasing the quantity.

As in the case of liver, the message concerning green leaves was frequency and regularity. As has been seen above, green leaves are consumed during most of the year. In the rainy season, when staple stores are diminishing, the consumption of green leaves goes up substantially and they become a surrogate staple food in many households, particularly the poorest. In most other times of the year, green leaves, usually dried, are added to sauces to flavor and thicken food. These dried leaves are added in very small quantities to flavor and thicken sauces and contribute little nutritional value. Certain leaves, such as red sorrel, jute and baobab are prized, and a variety of wild leaves are consumed.

Because of the familiarity with and appreciation of green leaves in the diet; because of the practice of most families to feed children from the communal pot; and because of the availability of wild or cultivated green leaves during much of the year, the key behavioral message to pregnant and nursing mothers was to eat green leaves daily and to assure that their under-6 year old children eat them daily during the entire year. However, as mentioned above, seasonality was the strategic element underlying all behavioral objectives. Therefore the essential message was to eat green leaves daily during the seasons of the year when they are plentiful.

The issue of dried leaves was addressed. Because the research (see above) indicated that although dried jute and baobab leaves are eaten and prized, they would not receive special attention for three reasons: first, because the drying process degrades the Vitamin A content, rendering them only moderately good sources of Vitamin A; second, because only small quantities are consumed and; thirdly, because they are relatively expensive. Because of their cost, dried leaves are purchased and used in very small quantities, largely to flavor and thicken sauces. Thus, there was no need for nor the ability to purchase additional dried leaves.

4. To increase the amount of green leaves cultivated by dry season gardeners.

Because dry season gardeners are first commercial entrepreneurs and second family providers; and because the commercial production of green leaves was not considered in the past, the main focus of messages for dry season farmers was on the interline and/or peripheral cultivation of green leaves; that is, for farmers not to take high-earning cash crops (onions in Tahoua) out of cultivation, but to sow green leaf seeds within already cultivated land.

A review of agricultural literature on the possible problems of co-farming wild greens with traditional garden vegetables indicated that both could co-exist: green leaves neither leach the soil, attract insects, nor affect other plant root systems, nor take inordinate amounts of water.

Messages to dry season farmers stressed that green leaves can be sold (during times of abundance there are often women from the village who harvest wild greens from millet fields and then sell them in the community) or eaten by the farmers' families. Although the sale price of greens during the early

dry season (October) are low (because of wild leaf harvesting), their price would go up substantially during the end of the dry season. The profits would be substantial, given the low investment made (interlined or peripherally-sown leaves would be watered with the rest of the crop and the cost of additional water would be minimal).

There were two additional secondary messages which were included in the campaign, although because of economic constraints, project planners felt that only certain farmers would be able to adopt them. The first message encouraged the dry-season watering of drumstick trees. This tree produces copious and highly-prized leaves during the rainy season, but during the dry season no leaves grow unless the tree is watered. Watering, however, is an economic investment - energy to water frequently (pumping, carrying water) in often withering heat has a distinct value. Furthermore, dried drumstick leaves, imported from Nigeria, are already eaten in significant quantities, suggesting that the price is reasonable. Also, residents of Tahoua have gotten used to and now prefer the taste of dried drumstick leaves, thus lowering the economic value of fresh leaves to dry season farmers.

A second message is to encourage the cultivation of a second dry season crop consisting only of green leaves, especially *l'oseille de Guinée* was considered but discarded. Since most farmers do not cultivate a second crop, it may be assumed that there are good economic reasons for this decision. Although project planners considered that within the dispensary villages (more wealthy) at least, there might be individual farmers with surplus labor (large families with unemployed or underemployed members) who might be persuaded by the dual arguments of economic and nutritional value, the likelihood of habit change was considered low.

5. To increase the frequency with which squash is prepared and served to children and pregnant and lactating women.

Squash is a good source of Vitamin A and is sold in the market in small pieces, enough to add flavor and substance to local foods. Not all villages, however, produce squash. This is apparently due more to tradition than to any strict agricultural or economic consideration. Some villages produce mostly onions, and diversify slightly (10-15 percent) with red peppers or cabbage; others diversify with squash and cabbage; still others with red peppers and tomatoes.

Messages concerning squash, therefore, were directed primarily to those villages whose markets carried squash.

Thematic Treatment of Messages.

The definition of behavioral objectives/messages provided the media planner and local drama troupe with the basic communication strategy of the campaign - all information was centered around these principal messages. The thematic treatment of each message - the form and format with which these messages are presented - was considered equally important, for it provides the social and cultural context within which people live. In short, the right cultural context makes messages more relevant and acceptable.

Background research, found that people in the project area already make an association between liver and the prevention of night blindness; and liver and protection of "the organism" (a literal translation from the Hausa which in a more figurative sense conveys the idea of total protection - of the individual components of the body and its physiology). The main theme, then, for presentations of the value of liver was protection of both the eyes and "the organism."

Thematic treatments for green leaves and squash were straightforward. Since there was no perceived health benefits attributed to either green leaves or squash, village drama introduced this relationship - that green leaves and squash are nutritious, beneficial not only for the eyes, but for protection against disease.

The thematic treatment for dry season farmers was equally straightforward, based on an economic argument about potential earnings.

Communication Channels

The itinerant drama troupes of West Africa have been successful not only because their performances are derived from long-standing traditions (e.g. story-telling *griots*; song and dance performances reciting local myth and history), but because they have reached areas where radio and television have yet to penetrate and, perhaps most importantly, because they have reached women who often still live secluded lives in cloistered villages.

Moreover, drama is an ideal vehicle for the presentation of the family dynamics involved in decision making. Not only can actors present information about, for example, the importance of Vitamin A-rich foods in a child's diet, they can also reenact in a dramatic way the familiar discussions between husband and wife about scarce household finances and improved diet and suggest resolution and compromise.

Itinerant troupes, however, have been relatively expensive, difficult to manage and supervise, and have often had a limited range, given social, cultural, and ethnic variations which occur within relatively narrow geographical limits (Burkina, for example, has over 40 languages and dialects).

Because of the proven potential of traditional drama, but aware of its economic and management limitations, the project developed a new idea - village drama in which village volunteers were organized into village drama teams, trained in the use of dramatic techniques to convey information about Vitamin A-rich foods (liver and green leafy vegetables in particular), and provided supervision and technical support. Village drama was selected not only to draw on local traditional culture, but to actively engage local communities in developing their own health education programs, and to provide an interactive, community-owned and -operated vehicle for providing local information to local people.

Lastly, village drama was considered particularly appropriate because certain key messages, such as the involvement of the father in the family's nutrition, have particular dramatic potential. Dramatic

encounters between husband and wife concerning family finances, child welfare and child rearing responsibilities, intra-family authority, etc. could highlight both the message and the constraints to be overcome.

Village drama had the following major characteristics. First, it was made up of village amateurs. Participation in village drama was open - anyone who wanted to participate, could join and did. Village drama teams were remarkably diverse, given the presumed demands of economic activity on the part of most of the population.

Second, the teams were autonomous and independent. Government health workers, educators, and agricultural extension agents (*encadreurs*) only provided initial training and technical assistance to the teams, did not micro-manage, and respected the basic philosophy behind village drama: that local communities can and will undertake health education largely on their own if such education corresponds to perceived needs, is within given social traditions and patterns, and does not require an inordinate and unrealistic economic (time) or financial investment.

Third, the village drama teams were given only the basic behavioral objectives, thematic guidelines, and program scenarios. They were then encouraged to use any dramatic technique they wished to convey information - humor, melodrama, skits, etc.

Implementation Plan

1. Project Management: the Ministry of Health, Nutrition Division, the Department of Health, Tahoua District, and the Médecin Chef (Chief Medical Officer), Birni N'Konni *arrondissement* were the government agencies responsible for the implementation of the Project. They supervised the health *encadreurs* (health workers who either worked at local village dispensaries, where they existed; or who worked at village dispensaries which served more than one village) who functioned as the unofficial heads of Project Training and Technical Assistance Teams, made up of non-Health Department personnel (primarily primary school teachers and agricultural extension agents).

HKI served as Field Advisor for the Project. Because of its long experience in Niger and in Tahoua in particular (HKI had collaborated with the Ministry of Health since 1989 in a capsule distribution program both in Tahoua and Maradi Departments). Responsibilities were to serve as the representative of AED in the field, and to assure that the basic principles and procedures designed by the Technical Committee were adhered to. They were also to act as comptrollers, disbursing and accounting for monies provided to Government for recruitment, organization, training, and supervision of local village drama teams.

AED was the initiator, designer, and chief technical consultant to the Project.

These partners were organized into a Project Technical Committee, headed by the Ministry of Health, Nutrition Division, which was the official implementing unit for the Project;

CHRONOLOGY OF ACTIVITIES

Chronology of Activities (con't.)

Activity	Phase I		Interim	Phase II	
	1991	1992	1993	1994	1995
Formative Research					
Quantitative research	■		■		
Strategy Design					
Review of research/strategy development	■		■		
Message development	■		■		
Educational Materials					
Development & pretesting			■		
Production				■	■
Training					
Training program design		■		■	
Training of trainers			■		■
Mass Media					
Development of radio programs				■	
Production of theater programs and spots				■	

Chronology of Activities (con't.)

Activity	Phase I			Interim	Phase II		
Implementation							
Provincial training workshops		■				■	
Materials distribution						■	
Field activities		■				■	
Monitoring visits			■				■
Theater festivals			■				■
Radio broadcasts						■	
Evaluation							
Evaluation Phase I			■				
Baseline survey						■	
Final survey							■
Lesons learned workshop							■

2. **Selection of Participating Villages:** A total of 16 out of 45 villages were selected for participation in the project. This number was determined by budgetary constraints: 16 villages was the maximum number possible using village drama.

Within these 16 villages, 4 had both a dispensary and dry season gardens; 8 had only dry season gardens; and 4 had neither dispensary nor dry season gardens. The reason for the 4:8:4 breakdown was because: only 4 villages had dispensaries; most villages had dry season gardens and, because of their importance, double the number of both dispensary and "neither" villages was taken.

The selection procedure was as follows: members of the Project Technical Committee visited those villages which had been identified by an AED Consultant (N. Keith), who had done previous and similar research work in Birni N'Konni. These villages had been pre-selected as those with a willing and cooperative village leadership and with active, committed *encadreurs*.

Village leaders, when contacted, were given a description of the project and its goals and objectives.

3. **Selection of *Encadreurs*:** in each village all health workers, teachers, and agricultural extension workers were selected as *encadreurs*. In 8 of the villages there were no *encadreurs*; and in the remaining 8 there were at least three (a total of 26 *encadreurs* were used in the *arrondissement*). This variation corresponds to the development level of the village. All villages with dispensaries, for example, had a health worker, who was automatically included. These dispensary villages were also likely to have both a school and an agricultural extension worker. In Phase I all *encadreurs* did not live in the villages in which they resided.

In those villages in which there were no *encadreurs*, health or agricultural workers from other villages were designated as *encadreurs*. They trained local village drama teams and provided technical assistance to them on a regular, but periodic basis. Although this necessarily skewed the results of the project (i.e., those villages with resident *encadreurs* received more continuous and extensive supervision and technical supervision than those that did not), project planners suspected that village residence was important (the evaluation vindicated this decision) and wanted to test out the theory.

To lessen this disadvantage of villages in which there is no resident *encadreur*, the Committee attempted to promote a special *esprit de corps* among the 26 trainer/supervisors. They were all trained together and told that although they would have separate village responsibilities, they would be responsible for the entire *arrondissement* and the entire project;

4. **Selection of Village Drama Teams:** as indicated above, Birni N'Konni *arrondissement* was selected for participation in Phase I of the Project because of its accessibility - it was the *arrondissement* closest to Niamey; its water supply - many, if not most villages had a plentiful water supply, either with wells or natural reservoirs; and because of its familiarity - one of the principal AED Consultants on the Project (N. Keith) had done extensive field research in this area;

In each of the 16 villages selected to participate in Phase I of the project, members of the Committee assisted local leaders in the creation of village drama teams and the selection of actors. No age, sex, or other descriptive criteria were provided on the assumption that the most appropriate individuals, based on village norms, would be selected; and on the assumption that whatever the characteristics of the actors, relevant and engaging dramas could be built around them;

5. Training of Trainers: the Project Technical Committee trained the *encadreurs* who were then responsible for training each of the 16 Village Drama Teams. The 5-day training included:

- an orientation about Vitamin A - why it is important in the diet, in which foods it is found, its particular properties (e.g. fat solubility, fragility in cooking, storage in the human liver, etc.), daily and weekly requirements, etc.
- a presentation of the major messages to be included in individual dramas
- a presentation of the overall communication strategy - the concept of SEASONALITY, and how with a combination of wild and cultivated leaves, seasonal fruits, such as mangoes, dry season garden produce, and purchases of Vitamin A-rich snacks, such as liver, most of the year's Vitamin A requirements can be covered
- a presentation of the thematic context within which different messages are to be couched. The role of the father, for example, in family nutrition; the role of the mother as both provider and consumer
- a presentation of model dramatic scenarios - dramatic formats which include the subject of Vitamin A in an entertaining way; and an opportunity for extensive practice
- a presentation on how to train local village drama teams, focussing on their amateur nature, their inexperience with health or other development themes, but also their spontaneity and innovativeness
- a presentation of *encadreur* supervisory/technical assistance requirements - what each government agent is required to do after the dramas begin: how many times to visit the troupe; what to observe; how to provide constructive advice; how to keep good records; how to report back to supervisors, etc.

A Role Play Guide was prepared by AED and provided to all *encadreurs* to help them in both their training sessions and in their supervisory visits.

6. Training of Village Drama Teams: the training of village drama teams included the major elements described above. That is, each team was given an orientation and background in Vitamin A, and presentations on how to incorporate basic messages and themes into a dramatic format. There were two aspects of the 5-day training course (held in 3 groups of 5-6 villages each): "classroom"

instruction; and practical training. In the practical training, drama teams, working from scenarios prepared by *encadreurs*, were expected to design a skit (the final performances consisted of 3 10-minute skits), to practice it, and then to give a mock performance before the *encadreur* and village audience;

7. **Performances:** each village drama team was instructed to carry out at least one performance (of 30 minutes duration - 3 10-minute skits) per week; and the duration of the campaign was to be four months. The one-performance-per-week schedule was based on the likely number of performances an amateur troupe would likely put on. Similarly, the 4-month duration of the campaign was based on practicality. Because of the usual delays in approvals, programming, logistics, etc., the project could not start as early as anticipated. When it did begin, there were only four months left before the rainy (planting) season when it was anticipated that performances would begin to taper off;

The 18 month drama experiment to promote production and consumption of Vitamin A-rich foods culminated in a liver and green Vegetables Mini-Festival. The day long event brought together 16 5-member village animation groups to three centralized locations, where members of the Niamey-based Technical Committee were on hand to review all the dramatizations, award personalized certificates of achievement, and hand out custom designed T-shirts sporting large orange squash on the front, and Nigerians savoring Vitamin A-rich foods on the back. Some village groups left their villages on foot at 4:00 a.m. in the drizzling rain to be on time for the festival activities beginning at 9:00 that morning. And, during the planting season! Local inhabitants - especially pregnant and lactating women - were encouraged to attend; their reactions were gauged to ascertain comprehension, acceptability, and entertainment value of the numerous theatrical presentations. The festivities concluded with a *mechoui* (roasted lamb) shared with the village chiefs, elders, and the stars of the production.

8. **Supervision:** given the guiding principles of autonomy and independence which governed the development of the village drama team concept, there was no formal supervision of drama teams in the traditional sense. The village actors, after all, were only volunteers and provided guidance and technical assistance from *encadreurs*, not formal supervision. There was supervision of the *encadreurs*, however. Because the *arrondissement* staff (whether Health, Education, or Agriculture) could not allocate additional time to specially supervise the *encadreurs*, HKI representatives and AED consultants and staff provided project monitoring which included a review of *encadreur* activities;

9. **Stipends:** because of the volunteer principle of the village drama teams, it was decided only to give non-cash stipends which were intended more as acknowledgments of good performance rather than incentives for better performance. As such, after final regional theatre festivals - showcases for individual dramatic efforts - small awards were given - t-shirts, soap, a diploma, and a special meal (*m'choui*).

The *encadreurs*, however, were given a small per diem to cover food and transport while on supervisory missions.

Evaluation and Lessons Learned: A semi-quantitative evaluation conducted after the end of Phase I³⁶ indicated that the drama skits were popular and well-attended: 60.8 percent of men and 34.2 percent of women saw at least one play during the course of the 4 - month event period.

More importantly, a significant proportion of women reported that they had changed their behavior.

The Evaluation, however, did not measure differences between and among the different categories of village (with dispensary, etc.). While it was clear that the villages with no dispensary and no dry season gardens understood and purportedly acted upon the information presented less well than the other groups of respondents, because of the insufficiency of the data and the limitations of the research design, one could draw no further conclusions. Furthermore, the results indicating relatively poor performance of the non-dispensary, non-garden villages were expected. These villages are among the District's poorest, and access to Vitamin A-rich foods was more restricted.

In all 16 villages, drama was performed regularly - an average of one performance per week over the life of the project³⁷. This is particularly significant because levels of outside supervision were low; and because the value of the non-cash stipends offered was very low, and in no way could be construed as an artificial incentive to performance.

The conclusion of the Project Technical Committee, therefore, was that voluntary, autonomous, independent village drama was a viable means of communication that demonstrated significant changes in knowledge, attitudes, and reported behavior. The Committee could not conclude, however, that it was a cost-effective means of communication. Although the inputs required to initiate and maintain a village drama program are relatively straightforward (training, supervision), such inputs multiplied on a large scale, particularly with the increased supervisory needs described below, could be cost-inefficient.

The system of non-resident encadreurs (i.e., villages whose drama teams were supported and supervised by health or other government agents who resided outside the village) worked poorly. Health *encadreurs* in particular made infrequent visits to Project villages other than their own, ostensibly due to the heavy workload of regular official responsibilities and the lack of transport.

³⁶ Koné, H. Evaluation du Projet de Communication Sociale en Vitamine A, République du Niger, Ministry of Health, Academy for Educational Development, Helen Keller International, December 1992. The methodology was a semi-quantitative one: a quantitative sample survey of 120 women and 120 men taken after Phase I was compared with data collected from the KAP survey done by Nancy Keith before Phase I (251 women). Therefore, although the pre- and post-campaign evaluations are not comparable, the results nevertheless give an indication of certain trends that have taken place.

³⁷ Ibid. (Questionnaire-based interviews were conducted in 16 villages).

In addition, some *encadreurs* indicated³⁸ the stipend allotted for inter-village travel, purchase of incidental, Project-related items (e.g., food for the role-playing exercises as part of in-service training), etc. was not sufficient. Finally, because the stipend advance was often not received in time, some *non-resident encadreurs* were forced to spend their own funds.

The *esprit de corps* fostered by the Project in an attempt to build solidarity and commitment even by *non-resident encadreurs* was insufficient to compensate for the constraints of workload and lack of transportation;

Perhaps because of the lack of support from *non-resident encadreurs*, a number of village drama teams desired more supervision from "Niamey" - i.e., from central Project management³⁹. Although one of the initial principles of the Project was to reduce the amount of higher-level supervision, respecting the autonomy of the village drama groups and allowing for their own development of ideas, it appeared that timely visits from higher-level management could provide an important incentive;

Only some of the 16 village drama teams had women actors. Although many of the teams created roles for women, they had male actors play the parts. In many ways this added a certain local flavor and humor to the drama, but in others detracted from the real dramatic moments that can be created when men and women are reenacting domestic scenes. Based on this experience, the Project Technical Committee made the participation of women a prerequisite for participation in Phase II;

The principal communication strategy - seasonality - according to which messages about seasonally-available Vitamin A-rich products were to be disseminated each in their own season and phased with messages about the consumption of market-purchased liver during the cash-rich post-harvest season, was not adhered to for a number of reasons.

First, village drama performances began only in March 1992, allowing only a four-month period before the rains at which time they had to stop. Had the Project begun when planned (September 1991), there would have been 10 months of project time instead of four. During this time seasonal messages could have been disseminated at the appropriate time, and messages anticipating the wild greens growing season during the rains could have been developed.

In their evaluation the Project Technical Team indicated that because of the critical nature of the strategy; because of the fact that all background research pointed to such a seasonal approach; and because of the fact that such a seasonal approach could accommodate Vitamin A requirements for the entire year within the economic constraints of even poor families, they should have factored in procedural delays and made a significant effort to start the program much earlier in the year.

³⁸ Ibid.

³⁹ Ibid. Koné writes "...each time a team from Niamey visits the village, the enthusiasm of the village drama teams increases - *quand les gens viennent de Niamey, cela a plus de poids.*"

Although most village teams performed at or above target levels (i.e. one performance per week) at the beginning of the four month period, this performance tended to diminish as time went on. The Phase I Evaluation indicated the need for some kind of stipend (CFA 2000 recommended) to be paid at regular intervals throughout the Project (e.g., on the occasion of a supervisory visit from Niamey). This stipend would be both a reward for past performance and an incentive for maintaining the same level of commitment;

Although the intervention of village drama alone raised KAP levels⁴⁰, Project planners realized that to raise them more consistently and to higher levels would require a more comprehensive media approach, most notably including interpersonal communication, but also including mass media and support print materials. In fact, the Project was initially designed with this more comprehensive approach in mind - Phase II was to use village dramas if their potential was shown in Phase I, but interpersonal communications and radio would definitely be programmed;

The Phase I Evaluation suggested that fewer young children than anticipated were eating green leaves in the quantities required to meet RDAs. Although weaning infants are fed from a common pot and therefore do get some advantage from Vitamin A-rich foods, they apparently get too little for the following reasons. First, many sauces are made with dried leaves only, added to provide flavor and thickening, but without substantial nutritional value. Second, these infants do not eat frequently during the day, to compensate for their small stomachs and immature digestive systems. Third, these infants do not eat *kopto*, for mothers feel that eating straight greens will cause stomach upset. Finally, they do not eat mangoes, because of a similar fear that the fruit will cause diarrhea. The Project Technical Committee concluded that a special and particular focus in Phase II should be placed on the vulnerable 6 - 18 month child.

PHASE II

Introduction and Summary

Phase II of the Vitamin A Promotion Project was a more traditional and more complete communication project, than Phase I, limited as it was by budgetary constraints. Phase II was comprised not only of village drama, but also of interpersonal communications (via government health, education, and agriculture agents), mass media (radio), and support print material (counseling cards and educational postcards). The goal of Phase II was to effect a significant change in levels of knowledge and awareness about Vitamin A and Vitamin A-rich foods, and to influence a positive change in dietary practices. Phase II activities were to be programmed in light of these new objectives but also to take advantage of the lessons learned from Phase I.

⁴⁰ Koné, H. *op.cit.* found that the percentage of women reporting they ate liver in the past week rose from 51.6 percent to 69.2 percent; and the percentage of women who indicated that they gave liver to their children in the past week rose from 50.6 percent to 65.0 percent.

Phase II was carried out in 4 of the 6 *arrondissements* of Tahoua Department, including Birni N'Konni, in which Phase I activities were undertaken as well as Illela, Bouza and Madoua. The other two *arrondissements*, largely desert regions with political unrest and little vegetable production, were not included. A total of 80 villages were included, approximately 20 in each *arrondissement*.

The Project's media mix was selected based on the following reasons. First, Phase I indicated that village drama was, in fact a successful and promising communication technique - one that demonstrated positive results and required relatively little financial or technical input.

Second, the history of nutrition communication over the past decade has shown that interpersonal communication - individual counseling and/or group discussions - is the *sine qua non* of behavior change. Although traditional, folk, mass, and print media can raise levels of awareness and understanding and can create favorable attitudes towards particular behavior changes, they have been successful in actually changing nutritional habits in only a few, highly selective and controlled cases. Interpersonal education - the intervention of credible, knowledgeable institution- and community-based personnel - can provide individuals with personalized information and can allow them the interaction required for them to explore in depth new, and often complex subjects.

Niger has such a system of change agents - health workers, agricultural extension agents, and teachers (all engaged as *encadreurs* in Phase I) who all provide information about development to village communities and who, because of their training, experience, and terms of reference, could be engaged as nutrition educators. In Phase I, only 4 villages (those with dispensaries) had health workers as *encadreurs* because health workers are found only where there are dispensaries.

The mass media have traditionally been used to introduce new ideas to a large audience; to serve as frequent reminders of these new ideas or of the particular habit change promoted; to provide practical information about new products or services; and to support interpersonal staff or other field workers by providing them with information pertinent to their work, recognizing their work or accomplishments, thus reinforcing a positive image both for them and for their clients.

According to the Project baseline survey for Phase II done in Tahoua Department⁴¹, 41.1 percent of households have a radio; 52.8 percent of women say they listen to radio; and 26.9 percent of them indicate they listen to a radio station in Niger, assumed to be Radio Tahoua because of its proximity and link to the national grid. Radio Tahoua states that during their very limited broadcast hours (3 hours per day, of which 2 are locally-produced), the station "is very popular"⁴².

The choice of counseling cards as support materials to be used by interpersonal agents was also based on international communication history. Such counseling cards have been particularly successful in

⁴¹ Baker, S., et al, *Enquête de Base sur les Connaissances, les Attitudes, et les Pratiques en matière de Vitamine A*, AED, January 1994.

⁴² Ibid.

nutrition campaigns in Indonesia and a range of other countries where they are used to show appropriate feeding behavior for different age children and for children experiencing different health and growth problems. Project planners felt that such cards would be of use not only to support the *encadreur*/interpersonal agents during their counseling and education sessions, but also to serve as message cards to orient the radio station, and as models for the reminder medium, postcards.

Phase II activities drew on the experience of Phase I. The data from the Phase I KAP study, providing background information on the target population, was used as the basis for programming of Phase II, and the central messages of Phase I were retained. A second KAP study was carried out in January 1994 to corroborate the Phase I findings and anecdotal evidence collected during Phase I⁴³. A qualitative study⁴⁴ related to attitudes and practices in the project area, was also carried out which gave particular attention to exploring ways to increase the consumption of greens and liver among infants and young children.

The training and supervision procedures established for the village drama teams remained in place, although they were modified to include new terms of reference for *encadreur*s (they were to become interpersonal educators of the general population as well as trainers and supervisors of village drama teams), and to include more outside (i.e. Department and *arrondissement* supervisory personnel). Also, all *encadreur*s lived in the villages in which they were to work.

The system of stipends for village drama teams was changed to make them less end-of-Project rewards for exemplary service to in-service and more an incentive.

An evaluation framework was made part of project design with a sample-based quantitative baseline and post-campaign survey methodology.

Completely new elements included: the training and programming of health and other community-level government personnel to act as interpersonal educators; the programming of radio spots and programs; the production and programming of counseling cards (for the use of interpersonal agents) and postcards (as reminders for the public).

Detailed Phase II activities

Site selection

Tahoua Department was retained as the venue for Phase II for the same reasons it was chosen for Phase I: it was well-endowed with year-round water; and HKI was already active in Vitamin A work. In addition, Tahoua was chosen because a core of *encadreur*s from the original 16 villages was still in place and could not only continue their activities in Birni N'Konni, but could also serve as key trainers of new *encadreur*/interpersonal agents.

⁴³ Ibid.

⁴⁴ Popenoe, R. Formative Research: Vitamin A Social Marketing Project, AED, February 1993.

Four out of the six *arrondissements* in Tahoua Department were chosen to participate in the Project. Two were not included because of persistent political and social unrest and a largely unproductive desert environment where the supply of Vitamin A products is severely limited.

Eighty villages were chosen to participate in Phase II. This number reflected budget availability more than any other criteria. At 20 villages per *arrondissement*, this covered 40-50 percent of each *arrondissement*.

Because of the Phase I finding that villages with resident *encadreurs* did better than those without, all villages in Phase II had resident *encadreurs*.

Also, it was decided that all 80 villages should have either dry season gardening or access to a regional market. Those villages in Phase I which had neither a dispensary nor dry season gardens and were, de facto, villages with little or no access to markets, performed very poorly in terms of increases in levels of knowledge, attitudes, and practices. Their poverty level and lack of access to Vitamin A rich foods was simply too great to permit any latitude in significant dietary modification.

Additional village selection criteria were:

1. size: all villages chosen were to be large - a minimum of 1500 inhabitants (this done to maximize cost-benefit and to permit more research flexibility);

The 40 villages in which drama teams were programmed were larger in population size than the 40 which had interpersonal education and radio only. The Project Technical Team felt that to maximize the considerable investment in the manpower resources necessary to organize, implement, and manage village dramas, as large a population as possible should be covered. Since the budget was sufficient to cover 80 villages, a 40-40 split was made.

2. accessibility: all villages were to be near roads to facilitate supervision; and

3. proximity: all villages were to be relatively close to one another also to facilitate supervision.

New research-based selection criteria were established for Phase II: the 80 Project villages were divided into two groups - 40 with drama, radio, and interpersonal education (with counseling cards); and 40 villages with radio and interpersonal education only. This division was created to enable an analysis of the programming and operations of village drama teams on a large scale.

Although the Phase I experience with village drama was successful on a small scale, because of the complexity of the enterprise - the training of drama teams in each village, the need for frequent supervision/technical assistance of these teams, and inherent problems of maintaining the motivation of a volunteer-based intervention - Project planners felt the need to assess the viability and cost-effectiveness of this new medium on a larger scale.

Therefore, based on a before-and-after evaluation, one could determine whether the villages with drama teams did better (i.e. higher post-campaign levels of knowledge, awareness, and preferred practices) than those without. Carefully monitoring costs, project planners could then determine comparative cost-effectiveness.

The dispensary/non-dispensary distinction established in Phase I was dropped in Phase II, largely because of the poor performance of health workers.

Background research

A qualitative study consisting of 12 focus groups and in-depth interviews conducted in the 3 new *arrondissements* (Illela, Bouza and Madoua) in February 1993 corroborated the findings of Phase I. The research recommended that more specific focus should be placed on the nutrition of young children under six months of age. Related to this was the recommendation that more specific reference be made to mangoes, a particularly rich source of Vitamin A, prized by adults, but given rarely to young children. A Phase II KAP study⁴⁵ involving 474 interviews with men and women was undertaken in Illela and Birni N'Konni in January 1994⁴⁶ which found little variance in Vitamin-A related knowledge, attitudes and practices in three new regions added in Phase II but, found less variety of Vitamin A-rich foods in the Northern *arrondissements* (Bouza & Illela) due to less water and fewer dry-season gardens. Income levels were also found to be lower.

Behavioral objectives (messages)

The core messages adopted for Phase I were retained. The following additions and modifications were made. First, whereas Phase I included only "children" as a target group, Phase II placed an increased emphasis on infants, and messages developed on the importance of proper Vitamin A feeding beginning at 6 months. Messages included the necessity of frequent feeding to accommodate the small stomach capacity of the infant; the importance of mangoes in the infant's diet when in season, and the importance in giving only small quantities at one time.

During Phase I it was decided not to include a message on mangoes because they are so highly prized as a food, that any message to increase consumption would be senseless: people eat as many mangoes as they can pick and afford during mango season. However, it was realized that one beneficiary group that did not eat mangoes was infants between the ages of 6-18 months, largely because mothers consider them too fibrous for babies and likely to cause diarrhea. While fibrous mangoes in large quantities will, in fact cause diarrhea in infants as well as older children, small slices of mangoes will provide minimum daily requirements of Vitamin A without side effects.

Second, although a message on the dry season watering of drumstick trees was given in Phase I, the

⁴⁵Baker, S. *op.cit.*

⁴⁶Popenoe, R. *op.cit.*

Project Technical Committee decided to give it particular importance in Phase II. This is because of all the messages given to farmers in Phase I (Interlining/Peripheral Cultivation of Green Leaves; Cultivation of a Second Crop of *l'Oseille de Guinée*; and Drumstick Tree Watering), Drumstick Tree Watering seemed to be the most easily accepted and acted upon.

Thematic treatments

These also remained the same. As Phase I, the overall campaign strategy was seasonality: a family, eating seasonal foods rich in Vitamin A, and supplementing the diet with liver purchased in the market during cash-rich post-harvest periods, can meet most of its needs of the micronutrient.

The thematic treatments were developed by the Project Technical Committee with significant input from an AED Consultant⁴⁷.

Communication channels

1. Village Drama: As indicated above, based on the promising results of village drama in Phase I, the Project Technical Committee wished to continue the use of this new medium, testing its viability and cost-effectiveness on a large scale. As for Phase I, there was on the average one performance per village per week, with 3 ten-minute skits per performance. As in Phase I, the official duration of the village drama program (the time period after which there was no more *encadreur* supervision) was four months, a time period limited again, as in Phase I, by late start-up and encroachment of the rainy season. Some villages, however, continued performances on their own.

2. Interpersonal Education: Interpersonal education was considered indispensable for eventual behavioral change, and the expansion of the terms of reference of *encadreurs* to include counseling and group discussions about Vitamin A was considered feasible. In the original 16 villages of Birni N'Konni, the existing *encadreurs* would simply be given additional training in interpersonal education concerning Vitamin A themes with which they were already familiar. For the remaining 64 villages, new *encadreurs* who are residents of the village were selected and given three major tasks: I) training of village drama teams; ii) supervision/technical assistance of these teams; and iii) interpersonal education - a minimum of one community group discussion per week.

3. Counseling cards: Flipchart-size counseling cards, with the basic Vitamin A messages on one side (to be consulted by the educator) and an illustration of the specific behavior being presented on the other (for the audience) were prepared to support interpersonal education sessions;

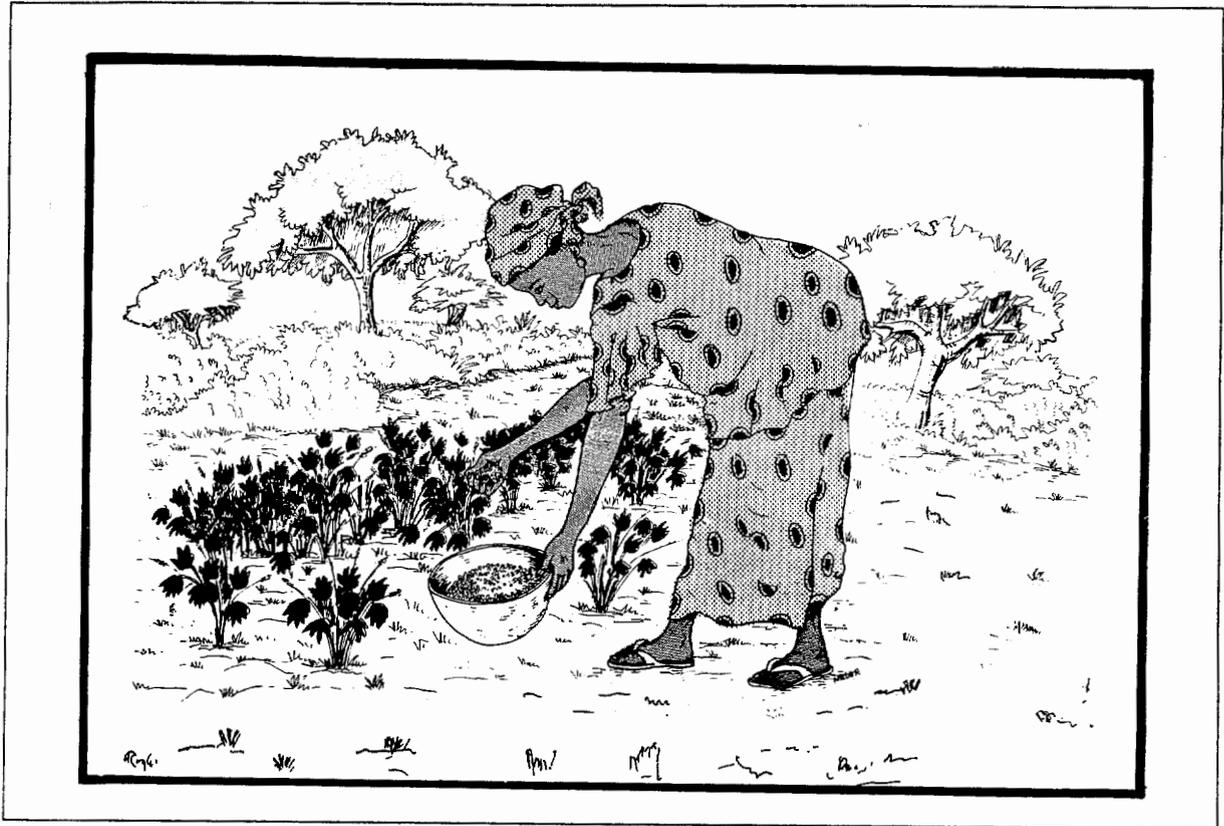
⁴⁷ Nancy Keith, author of Field Research in Birni N'Konni Vitamin A Communication Project, cited above, prepared detailed thematic guidelines and role play models for village drama teams. These taken together provided a comprehensive thematic (i.e. socio-cultural) context for the nutritional messages (see Keith, N., Trip Report: Niger, AED, January 1992.)

FIGURE A
Counseling Cards



- Intended Use:** Aid health personnel and community development workers in communicating priority messages during individual counseling and group nutrition sessions
- Production Data:** 250 sets of sixteen 11" x 17" laminated cards
- Audience:** Health personnel, agricultural extension agents, primary school teachers and members of village animation teams.
- Language:** French.

FIGURE B
Postcards



- Intended Use:** Support interpersonal education sessions, extend reach of program by enabling villagers to communicate messages to family and neighbors
- Production Data:** 80,000 (5000 sets of sixteen 4" x 6" cards)
- Audience:** Community development agents and the rural population
- Language:** Hausa, French.

4. Reference Postcards: Postcard-size counseling cards, reproductions of the larger originals, were used as experimental reference guides for both the village drama teams and radio station producers;

5. Radio dramas: Radio Tahoua, the newly-established local FM station, was selected to produce and broadcast programs and spots on Vitamin A. Radio dramas were recordings of village drama (and also of some discussions in non-drama villages). A radio recording team went to selected villages, recorded specially-performed dramas (live recordings were not of high enough quality for radio broadcast), and aired 42 different ten-minute skits, one per week for 10-and-a-half months.

This strategy of recording village drama team performances and broadcasting them over Radio Tahoua was decided upon because it would give public acknowledgment both of villages and individual actors (every radio drama clearly identified the village and the actors) and would therefore serve as an important incentive to them.

This strategy was also practical. Radio Tahoua had the recording equipment and experienced technicians, and it avoided the potentially risky approach of asking a new station to develop new program formats for an unfamiliar topic. Past West Africa regional experience with drama series found that considered time and technical assistance was required to create interesting story lines and successfully integrate "messages" into the entertainment format.

6. Radio spots: Radio spots, based on the core messages, and summarized in the Counseling Cards, were produced by Radio Tahoua. Given budget constraints, it was not possible to consider the use of private advertising agencies for the development and production of these spots. Furthermore, the few advertising agencies that do operate in Niger deal almost exclusively with commercial products for an urban, middle class audience.

7. Village Festivals: "Liver and Greens" festivals were held at the end of the "campaign".

Implementation Plan

Most of the activities were carried out in a manner similar to that of Phase I. However, in some cases, either based on the experience of Phase I, or because of the new scope of Phase II, these activities were modified:

1. Project management: the Project management remained the same, with the Ministry of Health Nutrition Division retaining overall implementation responsibility; HKI serving as AED Field Representative; and AED serving as primary technical advisor.

Because of the large number of villages - 80 - in Phase II compared to the 16 in Phase I, and because 4 *arrondissements* were engaged rather than one, a more highly organized management structure had to be devised. First, the Director of Medical Services of Tahoua Department was given real

management responsibility, since a significant number of his staff (at least 40 out of 101 total) were engaged as *encadreurs* in the 80 Project villages.

In addition, since not only health workers but teachers and agricultural extension workers were to participate in the Project, the District Director of Medical Services also had to develop and maintain a functional liaison with the heads of the Education and Agricultural Service at the Department level.

The Project Technical Committee, therefore, thoroughly briefed the District Medical Officer and the District Directors of Education and Agriculture and provided them with a detailed operational guide for the Project: the major activities that were to take place, a time schedule for these activities, and an indication of which personnel from which service were to carry them out.

Because of the size of the Project, the *Médecin Chefs* (chief medical officers) of the 4 *arrondissements* were designated by the Department Medical Officer as the key operational managers of the Project. It was their job to maintain direct supervision over their own health personnel, and, according to an agreement reached between them and their counterparts in Agriculture and Education (sanctioned at the Department level), over non-health personnel as well. It was *arrondissement* personnel who supervised Project activities.

2. Village selection: The methodology for selecting large and small villages was as follows: first, the 10 largest villages in each *arrondissement* (40 in 4 *arrondissements*) were selected as village drama villages. The 10 next largest in each *arrondissement* were then selected as non-village drama villages.

3. Selection of *encadreurs*: Since it was decided that all villages in Phase II should have a resident *encadreur*, all *encadreurs* in each of the 80 villages were selected. The total number of *encadreurs* was 101;

4. Selection of drama teams: The methodology for selecting village drama teams was the same as that used in Phase I except that women were deliberately added: leaders of each of the villages selected were met, informed of the purpose of the project; the obligations and responsibilities of the actors to be chosen; the basic criteria for selection; and the small rewards and stipends to be provided;

5. Selection and use of radio: Radio Tahoua was selected to be used in Phase II because of its regional coverage and its willingness to participate in the program. All villages that had a drama team (40) were covered by the radio program.

Once the villages were chosen, a recording team from the radio station went to the villages, and recorded a studio performance of a skit - that is, not a live performance which, because of environmental noise, would not be suitable for broadcast.

The spots were broadcast immediately before and after the local news, the time of highest listenership. The skits were broadcast on Sunday afternoon before a popular concert of traditional music.

Because it was decided not to use professional advertising or production talent, spots were produced simply. Local radio talent wrote and produced traditional background music; a narrator read the spot which was based directly on the information provided in counseling cards.

In terms of frequency, two spots were aired daily, six days a week for three months, the number estimated as sufficient to thoroughly inform the populace about the message (the purpose of the spots was to first inform, then to remind). The spots were aired free of charge.

6. Training: A Master Training Team consisting of members of the Project Technical Committee plus a Consultant⁴⁸ was constituted. These Master Trainers trained 4 *Arrondissement* Training Teams, comprised of health, education, and agricultural field workers who were considered by their superiors to be potentially good trainers. These teams received training in interpersonal education - how to communicate the core Vitamin A messages within the thematic context provided - and in community organization - how to organize, supervise, and support village drama teams. The agents were trained in how to incorporate Vitamin A information into their daily responsibilities. For example, teachers introduce observations of local gardens, songs composed on the subject, picture card games matching complementary foods, etc. in their classrooms while agricultural agents could introduce and encourage the planting of Vitamin A-rich plants and trees consumption of such foods in their daily talks with local farmers. The training time for village teams was reduced from 5 days used in Phase I to 2.

These *arrondissement*-level trainers then trained field workers in all 80 villages (only the field workers in 40 villages received training in how to work with village drama teams);

7. Supervision: Because of the more evolved management structure, supervision in Phase II took place at all levels. That is the Department Medical Officer reviewed the Project activities undertaken under the jurisdiction of the 4 *Médecin Chefs* and liaised with the Directors of Agriculture and Education to assure that the non-health personnel were complying with Project protocols; the *Médecin Chefs* were the key operational managers of the Project. The individual *encadreurs* supervised the Village Drama Teams.

8. Stipends: the system of stipends was maintained throughout Phases I and II. Small rewards were given at the end of the Project at Regional Drama Festivals. Actual expense money was provided to *encadreurs* who had to travel to supervise other villages; and to members of the *arrondissement* supervisory teams who also visited villages. In-kind contributions, such as lanterns, mats, food, were provided to village drama teams (purchased from the expense money of *encadreurs*) for their performances.

⁴⁸Dandara Kanté, long-term consultant to the AED Nutrition Communication Project in Mali.

EVALUATION AND CONCLUSIONS

A comprehensive evaluation was carried out of Phase II. It consisted of a baseline survey carried out before the initiation of Project activities⁴⁹ and an evaluation survey carried out in December 1994 at the end⁵⁰. It measured the changes in knowledge, attitudes, and reported practices among the population in general; among different groups of the population (e.g. men, women); and between the two categories of villages (i.e., drama villages and non-drama villages).

The Baseline Survey consisted of 474 questionnaire-based interviews, done in 15 villages in 2 of the 4 *arrondissements* included in Phase II. A total of 375 women and 99 men were included in the survey. The Evaluation Survey was carried out in an equal number of villages in the same *arrondissements* as the Baseline Survey. There were 717 respondents in the Evaluation Survey - 406 women and 311 men. In addition to a quantitative analysis, there was a qualitative component to the evaluation process in which the evaluation team interviewed *encadreurs*, village drama team actors, etc. to assess the performance of Phase II activities.

Following are the major findings of this evaluation.

Exposure to Media

Overall, 60 percent of men and 40 percent of women heard or saw some element of the 10-month Vitamin A Promotion Program. Exposure to radio among women was encouraging.

- ▶ 21.2 percent of women heard skits on the radio; 19.5 percent said they heard radio spots; 26.4 percent saw counseling cards (and presumably received some kind of interpersonal counseling); and 26.7 percent saw a skit. The figure for radio skit listenership is considered good, since it represents nearly all women who reported that they had listened to radio in the week prior to the evaluation interview (29 percent listened to the radio during the previous week). Twenty-six (26.4) percent is a relatively low figure for women who saw counseling cards, for it coincides with the 26.7 percent who said they saw a skit. Furthermore, the Evaluation indicated that counseling cards were most used after a skit performance, suggesting that at least in the drama villages, interpersonal education was not carried out as planned.

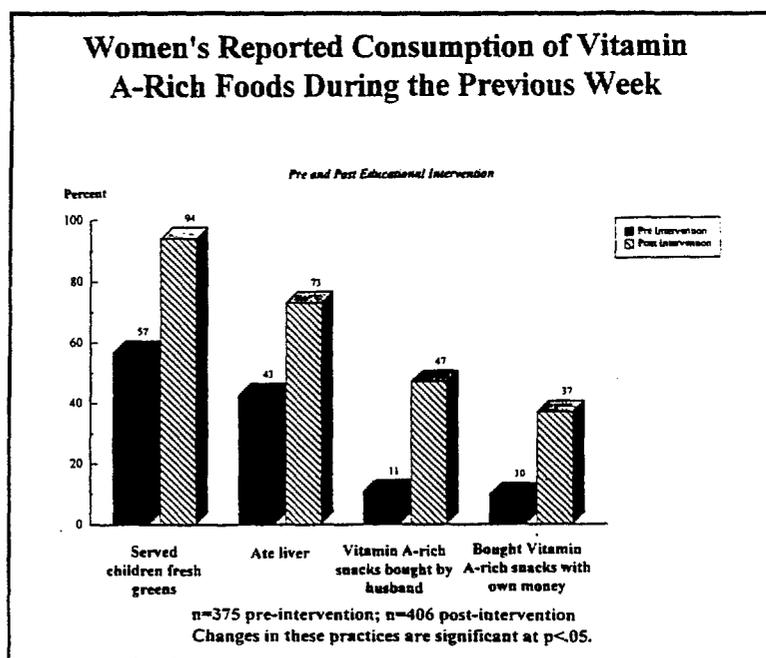
The 26.7 percent figure for women who saw skits is considered a relatively low figure, given the novelty of the skits, the fact that they are performed free and with local actors, were performed once a week, and were performed in villages while not small were not exceedingly large (the largest village did not exceed 3500 inhabitants).

⁴⁹ See Baker, S. et al, *op.cit.*

⁵⁰ Yoder, P.S., Final Evaluation Report, Vitamin A Promotion Project, Niger, Ministry of Health, AED, HKI, November - December 1994, August 1995.

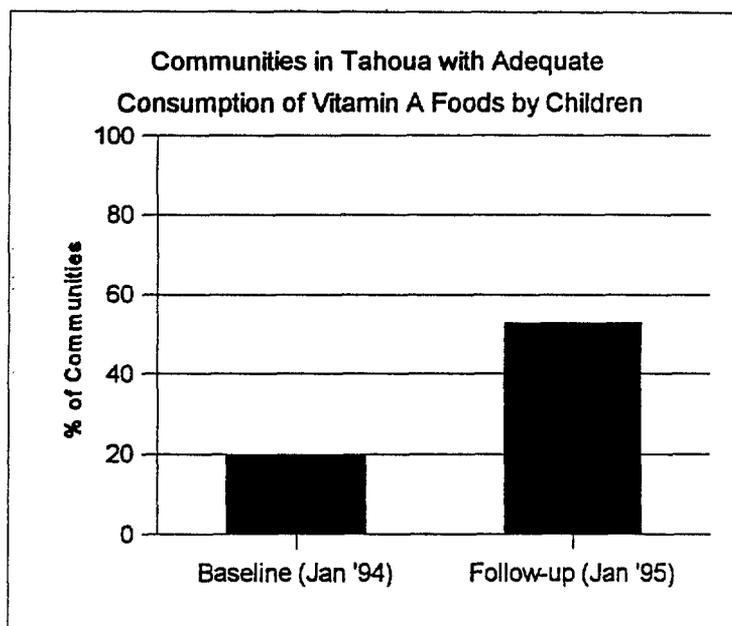
Overall Knowledge and Reported Behavioral Change

- ▶ the percentage of women who cited specific Vitamin A-rich foods as important for health for children 1-2 years increased from an average of 32 percent to 57 percent - an increase of nearly 100 percent
- ▶ prior to the campaign only 43 percent of women said they had eaten liver in the past week, whereas 73 percent indicated they had done so afterwards
- ▶ whereas only 6.1 percent of men indicated they had brought home liver before the campaign, 15.0 percent indicated they had done so after the campaign. This more than 100 percent increase is particularly important because it is traditionally the father who does most of the market purchases and whose role is to bring home snacks for the children
- ▶ the percentage of women who reported that their husbands brought home liver increased from 5.6 percent to 26.4 percent; and the percentage of women who indicated they brought home liver purchased with their own money increased from under 1 percent to 12.3 percent
- ▶ the percentage of women who indicated that their children eat liver increased from 36.8 percent to 48.5 percent
- ▶ the percent of women reporting that their husband brought home snacks rich in Vitamin A (all sources) increased from 11% to 47%; the percent of women who bought such foods with their own money increased from 10% to 37%
- ▶ the percentage of children under 5 reported eating green leaves (in all forms) increased from 57 percent to 94 percent (the data are not dis-aggregated by age to indicate how many infants 6-12 months consumed greens). The evaluation did show that there was no change in the consumption of green leaf-based sauce between the baseline and the evaluation and that percentage remained low (11.5-11.7 percent). This seems to indicate that this message was not communicated well or that there was strong resistance to it. In Niger as in many countries, fruits and vegetables are often restricted foods for young infants because of the gastric distress supposedly caused.



- ▶ the percentage of women who reported giving liver to their children 1-5 months increased from 12.8 percent to 25.3 percent. This result is particularly important because messages about liver for infants was a new and important message not included in Phase I.
- ▶ changes in reported consumption of squash and fruit were insignificant. This null effect for squash was perhaps due to the fact that the vegetable is not produced in all villages; (the evaluation was done during a period of the year when squash is available). The fact that there was no impact on fruit consumption for infants may be due to the fact that the main fruit promoted - mangoes - were not in season in November or December when the evaluation was conducted. There is strong resistance among mothers not to give mangoes to this age group. In fact, certain varieties of mangoes grown in this part of Niger are quite fibrous and even in the small quantities recommended by the Project, they were not considered acceptable.
- ▶ there was little dry season cultivation of greens reported in the baseline; and similarly little or no mention in the evaluation. Those dry-season farmers reporting cultivation of squash remained low (12-13 percent) and remained constant

HKI independently conducted food frequency surveys at the baseline in January 1994 and again in January 1995. Of the 15 communities surveyed in Tahoua at the baseline, only 3 had adequate consumption of foods rich in vitamin A by children under five years. After the NCP had been in operation for 10 months the same survey methodology used in the same communities found that 5



more villages, a third of the total, had moved from the deficient into the adequate category. The HKI survey also revealed that liver, which had been heavily promoted, was among the foods that contributed most to the success in Tahoua.

In the adjacent Department of Maradi, where health service providers were also trained to promote the consumption of vitamin A foods, but without NCP support and without the radio campaign, community education or village theater, the HKI food frequency survey indicated no increase in the frequency of consumption of such foods⁵¹.

⁵¹ Helen Keller International, Using the HKI Food Frequency Method to Evaluate Food Promotion Intervention, Case Study from Niger, Nutrition Newsnotes, Spring/Winter 1996, Issue No. I.

Comparison of Drama and Non-Drama Villages

- ▶ Villages without village drama teams did significantly better on both measurements of knowledge and reported behavioral change than villages with these teams. This is a surprising finding because of the higher socio-economic level of the drama villages, and the fact that drama villages had more media. Whereas the non-drama villages had only interpersonal education and radio, the drama villages had radio, interpersonal communication, and village drama. One explanation for this is that villages without drama teams invested more time and effort into interpersonal education. The qualitative part of the evaluation indicated that in the drama villages the counseling cards (an integral part of interpersonal education) were used primarily as props and after drama skits during discussion. As a result they reached the same audience as the skits.

This relatively simple intervention may have taken the place of more serious and involved interpersonal work where *encadreurs* may have organized special groups, both large and small, to teach about Vitamin A⁵². *Encadreurs* may have done this more elaborate organization and intervention in non-drama villages.

Another explanation could be that the non-drama villages were all smaller and more remote than drama villages. This smaller size may have resulted in an active word-of-mouth sharing of ideas: messages about Vitamin A received by some members of the community were shared and discussed with others, creating an energized communications environment; whereas in the larger drama villages, the concepts were less fully shared and discussed. More importantly perhaps was the fact that follow-up (after the Evaluation) interviews found that village drama teams tended to perform in their own neighborhoods (of larger villages). Although the Project trained multiple drama teams in the larger towns, these neighborhood drama teams combined their efforts, which resulted in a much smaller number of performances these neighborhood drama teams combined their efforts, which resulted in a much smaller number of performances. Also, apparently they focused on their own neighborhoods and did not effectively reach out to the community at large.

Finally, whereas the skits stopped in drama villages at the onset of the rains because the men had to work in the fields (and the few women actors were unwilling to continue their drama work alone), the interventions in the non-drama villages continued until the end of the Project.

⁵²It must be noted that because of important socio-economic differences between drama/non-drama villages (drama villages were larger, with dry season gardens, with dispensaries, nearer roads, and with consequent higher socio-economic levels), comparisons between the two categories of villages can only be used to suggest trends rather than to make conclusions with confidence. See Yoder, op.cit.

Phase I and Phase II Villages

- ▶ Villages that had participated in Phase I did significantly better⁵³ than villages that had not participated in terms of both knowledge and reported behavior change. While in some respects this is an expected result, it suggests that there is a correlation between time and impact - the longer a program runs, the greater likelihood of changes in levels of knowledge and behavior.

It should be noted that no systematic evaluation of the design of radio broadcasts, skits, or interpersonal communication was carried out. That is: was the quality of the spots, the interpersonal encounters, and the village skits high? Was the training of the *encadreurs* sufficient? Was the number of performances, radio broadcasts, interpersonal sessions and the length of time allotted sufficient to permit significant change? As suggested in the paragraph above, time seems to be an important variable.

Qualitative Review

In addition to a quantitative study, the Evaluation included interviews with key participants (i.e. *encadreurs*, village drama teams) to determine their assessment of the performance of the Project. Important findings follow:

Village drama skits were performed on the average of once every two weeks, considerably less than the minimum one-per-week hoped for by Project planners. This may have been due, however, to the fact that in Phase II, village teams were given less demanding guidelines than in Phase I. That is instead of being told that they were to perform at least one performance per week, they were told to perform "as many times as they could."

However, *encadreurs* expressed concern that without regular stipends, the village drama teams would quickly lose interest, suggesting that despite the volunteer nature of village dramas, some form of compensation to actors would be required.

Furthermore, according to supervisors and village drama team actors, insufficient funds were allocated for the purchase of props, costumes, etc. thought important if not necessary by village team actors.

These economic factors might have played a role in diminished performance and should at least be addressed in further village drama efforts.

⁵³On two key knowledge-related questions (Correct answers for age of introducing liver and greens to young children); and on two behavior-related questions (Women who reported having eaten liver and who reported that the family ate greens), villages who participated in Phase I did significantly better than those who did not.

Interviews with members of the Technical Advisory Committee (TAC) showed strong support for the goals and overall strategy of NCP. Conversations with individuals members of the TAC suggested that some would have liked more input in the operational details of the project. A new phase of the project would do well to make more explicit the respective responsibilities of the TAC as well as NCP in Washington.

During the survey of men and women several members of the district training team in Illela and Birni N'Konni were interviewed to ask about their supervisory activities and their impressions of the work of the village promotional agents they knew. Also interviewed was the radio journalist in Tahoua, Hachim Mohammed, who participated in the initial training workshop for district trainers and who was in charge of preparing and broadcasting the radio programs for the NCP. These interviews were conducted to compare the experiences of the three levels of personnel trained by the project: district officials who acted as trainers of trainers, village agents who led group discussions with counseling cards or who worked with the village volunteers (VAT) to present the skits, and the village volunteers themselves (in the villages with a VAT).

The majority of the village promotional agents, or supervisors, are primary school teachers or agricultural extension agents. More specifically, three-fourths of the supervisors met with by the evaluation team were either directors of schools or agricultural agents for an agricultural development project. Many villages have two supervisors, and most, but not all, live in the project village. They were asked to participate either by a district official or the village chief. Most expressed satisfaction with the initial training, but about half requested a follow-up session. Involving primary school teachers presents certain benefits to the NCP: many of them incorporate project information in their teaching, and they usually live in the village of their assignment. However, many of them travel during the holiday period, and a certain number are transferred to other schools each year. One of the members of the supervisory team in Illela reported that six of the 29 teachers working with the project in Illela district have been transferred to other schools, and thus lost to the project.

In discussions about project activities, three points were made by nearly all the supervisors in villages with a VAT. First, it is generally the supervisor who suggests a theme; the VAT then works out a skit based on that theme. Second, the counseling cards are used in the skits to introduce the subject, to make a point within skits, or as decoration for the stage. Third, the VAT presents these skits usually twice a month. The themes presented involve promoting the following foods: green leafy vegetables, mangoes, squash and liver. Dry season gardening is also a theme frequently mentioned. No one reported difficulties in working with the VAT in general, so the working relationships must be generally good from the perspective of the supervisors.

All of the supervisors reported that the team from Niamey had visited them at least once, and that the district team had visited the village at least two or three times. Two villages on the main road in N'Konni reported monthly visits from district officials. They expressed the desire for monthly visits from the district team to encourage them as well as encourage the members of the VAT. The district team in N'Konni reported that they are unable to visit nearly all the villages regularly, and they are unable to properly evaluate village activities, since they have but three days every two months for supervision.

Host Country Capacity Development

The Vitamin A Project is the first that the Ministry of Health's Nutrition Division has carried out using a social marketing approach. Beginning with a short, highly-focussed pilot project, enabled the inexperienced team to quickly gain practical understanding of the communication planning process and obtain rapid feedback on the project elements that worked and didn't work. Phase II provided a second opportunity to learn how to design and execute a communication program. Reflecting their new skill, team members were asked to provide technical assistance to an FAO project in Niger and transfer community drama techniques to Mali.

LESSONS LEARNED

Although the intervention in Niger was designed for a difficult and unique environment, and both messages and media were tailored for a distinct population, a number of lessons emerged which are applicable to other Vitamin A social marketing programs.

- ▶ A food-based approach to improving the Vitamin A status of a population is feasible in those zones of the country with adequate water and an existing base of commercial dry-season vegetable production.
- ▶ Obtaining the right kind of information on which to base a communication strategy does not have to be a time consuming, costly, and complicated undertaking. Use of a short list of highly specific questions to guide formative research can keep researchers focused on essential issues - that is, only those required to identify realistic and concrete behavioral targets, the right target groups, and ways of reaching them. The project found surprisingly little "wastage" in its research efforts. Most of the information collected fed directly into crucial decision making.
- ▶ Local teams can manage many elements of program research. This project did not hire any research or advertising firms. International specialists were able to design necessary research studies and train local interviewers, many of whom were Ministry of Health personnel.
- ▶ Village drama can be an energizing force for community involvement and a powerful way to build interest in a nutrition issue. Adequate supervision - probably on a monthly basis - is required to keep up motivation of volunteer actors and assure that the content of performances is on track. Program managers must devote funding and personnel for this critical function and must also monitor implementation closely.
- ▶ Careful planning at the village level can significantly extend the reach and effectiveness of communication activities. For example, rural groups appear to respond favorably to activity goals that are challenging yet realistic. While allowed to set their own activity goals, drama groups performed more frequently than when goals were set for them by the national project

team. Since the dynamics of larger villages (over 2,500 people) differ significantly from smaller villages, reaching a high percentage of the population requires an implementation plan which specifically includes activities in each village neighborhood.

- ▶ Mass media can provide important motivational support to community-level activities and also extend the number of people reached by village level events. When a radio announcer introduces a drama performance in a remote village, for example, credibility of the event increases enormously, as does enthusiasm among those who contribute to the field activities.
- ▶ More precise and refined media planning could significantly increase the reach and effectiveness of communication programs in rural areas of West Africa. Village size, for example, appears to be a key factor in how information flows and the kind of media mix that is most effective. (The lesson from this intervention was that the impact of drama groups will drop substantially with the size of a village if local planning does not ensure wide coverage. Radio coverage also varied with village size, with significantly more listeners in larger villages.) Overall access and exposure to mass media and community events also vary extraordinarily by gender. Careful audience segmentation by village unit and also by gender could be expected to improve the impact of communication efforts.
- ▶ Multi-media was a key strategy for reaching women, whereas men were exposed to multiple channels, women because of their more circumscribed lives tended to be exposed to only one channel - - and this varied from woman to woman with equal overall exposure to radio, drama and talks. Using more channels increased chances of reaching them.
- ▶ A pilot project that is limited in scope and carried out over a short period can be a powerful on-the-job training arena for agencies and individuals having little previous experience designing communication programs. A pilot project allows staff to go through all essential steps - from planning to evaluation - in rapid succession. The format provides unusually rapid feedback on what works and doesn't work. Unseasoned staff can gain confidence and experience.
- ▶ From the time formative research is complete, a three-channel media mix consisting of interpersonal communication, community-based drama and mass media can be launched in Africa in approximately six months, if print materials and radio production are kept simple.
- ▶ A communication strategy which includes strong links between channels not only creates an environment in which each activity reinforces each other, but also facilitates program implementation. For example, counseling cards designed to help focus interpersonal communication on priority messages -- also served as props in village-drama and as briefing materials for radio spot production. Having a radio technician tape village skits for broadcast was an easy, economical way to extend the reach of the skits and created tremendous grassroots enthusiasm for community events.

Although the Niger program was in many ways a lesson in how to design strategies for adverse conditions, this challenge also helped keep the program focused on essential principles: that research must be carefully targeted; that programs must have a "community link"; that costs must be sustainable; and that institutionalization of systematic approaches among local professionals is key to long-term success.

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