



Population and Human Resources Department
The World Bank
June 1991
WPS 706

Successful Nutrition Programs in Africa

What Makes Them Work?

Eileen Kennedy

The seven factors associated with successful nutrition programs in Africa. And a call for evaluations that focus on process as well as outcomes.

WORKING PAPERS

Population, Health, and Nutrition

WPS 706

This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — is part of a larger effort in PRE to identify "best practices" in program implementation in the population, health, and nutrition sectors. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S6-065, extension 31091 (50 pages).

Little of the literature on nutrition between 1960 and the 1980s included assessments of effective nutrition programs. In this important study, Kennedy focuses on factors associated with successful nutrition programs in Africa.

In 1989 the World Bank mailed a survey to 330 people: 110 responded, and 66 nutrition programs were identified as successes. Kennedy includes case studies for six of these (two in Mali and one each in Ghana, Nigeria, Togo, and Zaire) in the report.

Seven factors (which Kennedy discusses at length, with illustrations from the case studies) were mentioned repeatedly as important to the success of nutrition programs:

- *Community participation.* For community-based programs to be successful, even with active local involvement, some implementors suggest that there needs to be awareness and commitment of the leadership at higher levels of government.

- *Program flexibility.* Donors should commit themselves to a project long enough that approaches that don't work in certain areas can be modified.

- *Institutional structure.* It is more important to use an existing institution, even if it is not ideal, than to create a new institution. Donors

are typically interested in working with the public sector, but many of the success stories had strong ties to the private sector.

- *Recovery of recurrent costs.* A contentious issue. Some respondents claimed that if cost recovery is an indicator of success, there are no success stories. The extent and depth of poverty in Africa will necessitate external financing for years to come.

- *Multifaceted program activities.* In the more effective programs, nutrition is linked to broader activities involving food security and income-generating activities.

- *Well-trained and qualified staff.* Projects cannot create the charismatic leaders associated with many successful projects but inadequate support can stifle them.

- *Infrastructure.* Programs and projects work better in areas where there is physical infrastructure and an adequate health care delivery system.

Kennedy concludes that these findings are preliminary and require further validation on the ground. If we are to understand what works, programs need to be evaluated better not only for outcomes but also for design and management.

And all evaluations — internal and external — should focus on process as well as outcomes.

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by
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INTRODUCTION

Implementation issues appear to be critical in the success or failure of nutrition interventions throughout the world. A 1989 meeting of the International Nutrition Planners Forum in Seoul, Korea (INPF, 1990) concluded that "how" a program is implemented may be as important, or in some cases more important, than the type of intervention. Yet we have little information on the process of implementing "successful" nutrition program or projects. This is particularly true for Africa.

The purpose of this paper is to focus attention on the implementation of nutrition interventions in Africa with the aim of identifying critical elements needed for effective implementation. This effort builds on earlier work conducted by Olayinka Abosede and Judith McGuire (Abosede and McGuire, 1989) in which the authors identified four factors that seemed to be present in successful nutrition programs; these elements were community participation, training, growth monitoring/growth promotion and supervision. These four elements were culled from four successful projects in Zimbabwe, Iringa, Tanzania, Senegal and Zaire.

The next step in identifying the components of successful implementation was to assess whether these same four elements were to be found in a larger set of cases. In addition, we were interested in whether there were other crucial factors of implementation. The intent was to be as specific as possible for each element; for example, rather than simply saying supervision is important, going a step further with a more discrete analysis of number of workers per supervisor. number of encounters with workers per month, training needed for the supervisors etc.

This type of process analysis is rarely reported in evaluations of nutrition programs. Because of the dearth of information in the published literature, a mail survey was carried out

in late 1989. A letter was sent to approximately 330¹ individuals asking them to identify "successful" nutrition interventions(see Attachment One for copy of the letter.) The definition of success was deliberately kept vague so that various dimensions of success might surface - success in getting a program/project started, success in sustaining an intervention, success in alleviating malnutrition. While one cannot say that delivering nutrition services will automatically reduce malnutrition, it is clear that unless people participate (frequently and regularly) it is unlikely a program will have a significant impact. We were therefore interested in programs that had been effective in getting services out to the community.

To repeat, the main objective of this exercise was to document effective nutrition programs in Africa and to identify generalizable lessons about the manner in which these programs have been implemented. The issue of publicly versus privately provided nutrition services was raised frequently as a concern since most donors are typically interested in working with governments. Yet many of the nutrition "success stories" seem to have strong ties to the private sector. The emphasis in this paper was to examine as many types of primary health care programs - public or private, government or non-governmental organization (NGO) - to determine what has worked in Africa. What can be learned from all aspects of effective public health programs that will allow nutrition effects to be enhanced? There are some generic issues related to implementation which seem to transcend the public/private sector debate.

The statement in the covering letter that "The widespread perception is that nothing works in Africa," evoked a lot of responses. As of mid-May, 1990, 110 individuals/institutions had responded. Of these 110 replies, 66 specific nutrition programs or projects have been

¹ This was the number of people contacted with the first mailing; however this initial letter was shared and thus the number of individuals finally contacted was somewhat larger.

recommended as successes. A list of the specific case studies that have been nominated as successes² is shown in Attachment Two.

The original intent of this project was to use the data obtained from this mail survey to synthesize the information on the process of effective implementation. A sample of two forms received is contained in Figure 1. The amount and type of information contained in these summaries is typical of what was received. The information contained in these two samples is very thinly laid out and, by itself, would not have permitted an assessment of what is it about these programs that have led to success. Therefore two additional measures were taken.

First, a wider audience of African policy makers and program implementors and others involved in nutrition activities in Africa was contacted to elicit further information on the elements of successful implementation. A total of 78 additional persons were interviewed as part of this exercise. Each of these people were asked the same two questions initially: What works in nutrition in Africa? Why?

Simultaneously a subset of 6 projects from the original 66 was selected for further review. These 6 "in-depth" projects were representative of the types of nutrition interventions that had been nominated as successful. Additional interviews were conducted with staff who had contact with these six projects to obtain more information on what contributed to their success. In addition, we were interested in whether the factors identified from the mail/telephone interviews as important were also contained in these six in-depth case studies.

The remainder of this report concentrates on summarizing the information received from these different sources: the 110 institutions/individuals who responded to the initial letter, the

² Some projects were nominated more than once.

Figure 1--Exa. les of projects nominated

TOGO

Catholic Relief Services is responsible for distribution of PL-480 foods with the GOT's Infant Feeding Centers Program, as well as through school feeding centers. In 1986, CRS and the Social Affairs' Division (MOH) concluded that their activities, growth monitoring and food distribution, as well as nutrition/health education, were having little impact on participant children's nutritional status. Two specific actions are being taken to follow-up on this finding. First, CRS is working with the GOT to phase over distribution of PL-480 food to the GOT. Secondly, CRS is implementing an Operations Research Project to determine what problems existed in their growth monitoring system, and what solutions could be effective in addressing those problems. Data was collected, and problems were identified and prioritized. Four specific solutions were developed and are being tested. At a final project workshop, the GOT and CRS will review the process data to determine what solutions should become part of the institutional plan of their Infant Feeding Centers Program. This will occur in February 1990.

NIGERIA

The project goal is to improve nutrition and health of young children and their mothers primarily by reducing mortality and morbidity due to malnutrition, diarrhoea and dehydration, immunizable diseases among children under five, and due to poor maternal health in women in child bearing age especially high-risk pregnancies.

The major thrust of the project is on malnutrition being accomplished through the promotional and educational services provided by Project trained village health workers serving in three project Local Government Areas. Growth monitoring/promotion activities including feeding program are some components of the project. Sustainability is being addressed through integration into Primary Health Care system as well as community support.

78 telephone or personal interviews, and the 6 "in-depth" case studies. Before proceeding to a discussion of factors associated with successful implementation, each of the six "in-depth" case studies will be briefly described.

CASE STUDIES

The six case studies chosen for more detailed analysis are described more fully in appendix A. Below is a synopsis of each.

(1) Macina Child Health Project, Segou Region, Mali

This project was originally funded under an AID, child survival grant. The project was implemented in conjunction with CARE.

The project provided preventive health/nutrition services in 65 villages in the region. Activities included diarrhea control, immunizations, growth monitoring/growth promotion, health/nutrition education. Many of the child survival activities were conducted in tandem with other community level sanitation activities like a well project.

(2) Infant Feeding Project, Togo

The project started as a joint effort between the Government of Togo and Catholic Relief Services (CRS) supported by U.S. food aid. Originally growth monitoring and food distribution for preschoolers was carried out in 83 feeding centers throughout the country. A 1986 evaluation concluded that much of the activity in these centers had been unsuccessful. There was no observed change in the nutritional status of participating children. The program

underwent a major overhaul as a result of this evaluation. Mothers were trained to assume responsibility for some of the center activities including food distribution. This freed up staff to become involved in growth monitoring and growth promotion activities in a more meaningful way. The food transfer became a less prominent feature and health/nutrition education was given more of a priority. (the nomination form for this project is shown in Figure 1)

(3) Imo State Child Survival Project, Nigeria

This project was carried out by Imo State District Health Officials in conjunction with Africare. Child survival activities were carried out by volunteers. The project is currently exploring ways to incorporate income generating activities into the project. (the nomination form for this project is shown in Figure 1).

(4) Applied Nutrition Program, Ghana

The program is carried out jointly by the government of Ghana and Freedom From Hunger Foundation. The Government of Ghana concluded that the long standing Applied Nutrition Program (ANP) did not by itself seem to be having a major impact on nutritional status of preschoolers. Recently in Kintampo Region, a credit scheme for women was introduced as part of the ANP. As part of credit scheme women are required to participate in the nutrition program activities.

(5) Mali Institutional Development Enterprise and Nutrition Program (MIEN), Mali

This project is carried out jointly by a Malian PVO and the Freedom from Hunger Foundation. The project which began in mid 1988 is an attempt to integrate nutrition activities

into a small credit scheme for women. The first loans under this project were dispersed in December 1988.

(6) Nutrition Project, Kinshasa, Zaire

A program to combat malnutrition among 50,000 preschool aged children in Kinshasa. The project concentrates on increasing attendance at growth monitoring. Mothers are trained as home visitors. A low cost, commercially available weaning food has been developed. The project currently receives no government or external donor assistance.

These six cases were selected for a more detailed analysis because they were representative of the range of intervention types reflected in the 66 nutrition interventions that were nominated as successful.

FACTORS ASSOCIATED WITH SUCCESSFUL NUTRITION PROGRAMS

There were seven factors that came up repeatedly in the 110 nominated nutrition projects and in the interviews with the additional 78 informed respondents; these important elements for ensuring successful implementation of nutrition programs and project included community participation, program flexibility, institutional structure, recurrent costs recovery, multi-faceted program activities, training and staff qualifications, and infrastructure. These factors are not listed in order of importance.

Each of these factors will be discussed separately. In addition, the six case studies selected for detailed assessment were reviewed to evaluate the relative importance of these

characteristics for the individual programs. So, for example, if the majority of the informed respondents indicated that community participation was needed for effective implementation, we were interested in whether community participation was seen as an integral part of the six "in-depth" case studies.

Table 1 presents an analysis of the role of these seven factors in the six "in-depth" case studies. Most of the seven factors are present in each of the six in-depth case studies. This type of dichotomous analysis - yes/no - does not allow one to determine the relative importance of each of these implementation components. A more quantitative analysis is needed in order to assess the relative importance of each of these implementation factors. This is presented in the following discussion. The summary that follows is a synthesis of the 110 responses via letter, the 66 individual nominated projects and the 78 follow-up interviews. Where possible lessons learned from the six in-depth case studies are drawn into the discussion.

Community Participation: Multi-Level Perspective

There has been a lot of attention focused recently on the importance of community participation in nutrition and health interventions. It was, therefore, somewhat surprising that there was not a consensus from the mail responses or from the telephone interviews that community participation was absolutely necessary. This view was based heavily on the fact that there is not a lot of documented evidence that community participation is associated with success. An alternative point of view came from many Africans working outside of governments. In every case, those interviewees said that community participation was an essential element for successful implementation. Each of the projects listed in Table 1 have community participation as one element of the programs. Interestingly, the projects in Togo and Ghana did not start out with a strong community participation orientation. However,

Table 1--Characteristics of in-depth case studies

	Mocine Child Health Project	Infant Feeding Program Togo	Imo State Child Survival Project	Ghana Applied Nutrition	Credit/Nutrition Program - Mali	Kinshasa Urban Nutrition Program
Community Participation	X	X	X	X	X	X
Program changed over time	X	X	X	X		X
Government involved	X	X	X	X		
Recurrent costs covered by locals		X				X
Multi-faceted activity	X		X	X	X	X
TRAINING						
•Highly educated staff	X				X	
•Frequent training	X	X	X	X	X	X
•Paid staff	X	Mixed	Mixed	Mixed	X	X
Built on existing infrastructure	X	X	X	X	X	X

both of these projects later developed a means of having the community involved in planning, decision making and implementation because the program staff believed that this would make the program stronger.

Community based nutrition programs of whatever kind tend to be small and often are organized and implemented by a non-governmental entity. Shrimpton (1989) in a review of community based nutrition programs worldwide concludes that there are few examples of community based programs that are government run. This is not easy to explain.

Given that many people, including most Africans outside of government surveyed in this exercise, believe that community participation is essential, little is apparently part of government-run nutrition program. Part of the explanation is provided from a review of the Iringa Nutrition Project in Tanzania. This community based project was started as part of the UNICEF/WHO Joint Nutrition Support Program (JNSP) carried out in conjunction with the Government of Tanzania. This program was very effective in getting the program started at the grass roots level; a recent external evaluation indicated that the Iringa project has been associated with a significant decrease in the levels of malnutrition in preschoolers (UNICEF/WHO, 1988). Although the active participation of the local community is credited to be one reason for success, the meaning of community participation goes beyond the village level. For community based programs to be successful, even with active local level involvement some implementors suggest that there needs to be an awareness and commitment of the leadership at higher levels of government. (Yambi, 1989).

In addition, the historical perspective is often lost in an evaluation of programs. The ease with which community participation was effected in Iringa relates to Tanzania's political history. President Nyerere's Arusha Declaration in 1967 emphasized that people's participation in the development process is critical; this declaration was reinforced by a political ideology that supported a community orientation and perhaps more importantly, an

administrative structure. (Yambi and Mtaló, 1990). Primary Health Care committees were established throughout Tanzania in the 1970's. Thus by the time the Iringa project was planned, there was a long, successful history of community involvement in health decision making where this rich experience of villagers working together is absent, it is necessary to introduce participatory decision making at all levels including the highest level of government. The first step in getting this multi-level commitment to nutrition programs is create an awareness that a malnutrition is a serious problem with implications for the economic development of the country. Since the 1960's, Tanzanian attention has been focused on the nutrition problem and aggressive community based approaches to it.

Malawi went through a similar process. While Tanzania has had a very decentralized approach to policy and programs, Malawi, in contrast, has had a more centralized government. In the mid-1980's, attention was focused on the malnutrition problem in Malawi as a result of the mapping of malnutrition rates for different areas of the country. This information was brought to the attention of one key minister. As a result of this, the nutrition issue was discussed at a cabinet level meeting and ultimately a Food Security Unit was established in the Office of the President. This is somewhat surprising because for years the government of Malawi tended to downplay any nutrition problems in the country. It is now routine for ministers and permanent secretaries to discuss the food security and nutrition implications of a range of proposed and on-going policies and programs.

The Togo infant feeding project nominated as an example of a successful program reports that one of the reasons for the success of their country wide program is because of interest at all levels from permanent secretaries in government down to the mothers themselves. This multi-level community participation created a keen awareness of the malnutrition problem.

In order to sustain this high level of participation at senior levels the awareness of the nutrition problems must be followed up with successful implementation. This is exactly what

happened in the Macina Child Health Project described in Appendix A. The tribal chiefs/elders became convinced that the program was working because as one elder commented, "we used to have 10 to 12 infants die each year in this village, last year we had none. This program is good." This is a very powerful statement. The evidence of success helps reinforce the initial commitment to the program.

The converse phenomenon usually happens. If key policy makers do not believe that malnutrition is a problem or do not see "success" stories in nutrition programs, it is unlikely that these senior officials will be supportive. Therefore not only do there have to be programs that are effective but equally important senior officials need to be aware of these successes. The countries in Africa where the awareness of nutrition successes have been most pronounced tend to be ones where there is a specific entity in government charged with dealing with food security/nutrition issues - examples include Malawi, Tanzania, Zimbabwe. Where nutrition issues are divided between ministries of health and ministries of agriculture, nutrition is typically a low priority on the policy agenda.

There are some "rules of thumb" for effective community participation that emerged from the 110 projects nominated and from the personal interviews:

- (1) At the village level, it is easier to get community participation if you can work through an existing community institution. This may not be the "ideal" structure but it may be preferable to creating a new but possibly more suitable organization which lacks a constituency and bureaucratic know-how. The Iringa project relied on preexisting village health committees even though nutrition had not been their primary focus. It helps if the community group that is selected to begin planning and implementing a nutrition project has a history of working together. If there is not an obvious group with which to work, community participation may take longer. Areas where existing

groups do not exist, also tend to be areas where community participation is difficult. As a caveat, donors are often not willing to wait for the time needed to get community participation started in areas without a tradition of local level involvement.

- (2) NGO's seem to be better than governments in mobilizing the community. It is not atypical to find programs with a strong community component to also be ones with a strong tie to an NGO. It is therefore not surprising that in each of the in-depth studies, there was this strong NGO link. There is a concern that although the NGO's seem to get the job done that their activities are not ones that are self-sustaining in the long run without government involvement. Much can be learned from NGO's about the process of mobilizing the community. Linking NGO's activities with a government counterpart would provide one mechanism for transferring this information to ministries. This could be done in a variety of ways including seconding government staff to NGO's and/or involving government and NGO staff jointly in project design and implementation.
- (3) Successfully implemented nutrition programs have developed ways to uncover and respond to the felt needs of intended program recipients. The project in Kintampo District Ghana added a credit component as a result of input from the community. The training in Imo State of health workers is revised continually based on feedback from the workers themselves.
- (4) Effective community participation generally results in pooling of public, private and foreign aid resources for the project and the communities assuming responsibility for the project. For example, the village health workers in Iringa are paid with funds generated from the village. The Kinshasa project pays recurrent costs out of funds from the commercial sale of weaning food.

There seems to be a renewed interest in community participation. Because community participation is in vogue, many donors are encouraging this as a component of new health and nutrition projects. However, respondents in this exercise felt that the term community participation is often misused and misunderstood. Donors often use community participation to mean cost sharing. Governments use community participation as a synonym for local level government involvement. Community participation is defined by many of those interviewed as active participation (fiscal responsibility, program design, selection of personnel and/or local level evaluation by the intended program recipients) in the planning and implementation of programs. This type of community participation is much harder to develop but is the type that is more typically associated with program success. Technical assistance from donors and sponsors may be needed in many areas before community participation becomes effective.

Program Flexibility

Effective nutrition programs appear to be ones that have the ability to change over time in response to changing needs and/or community feedback. All the programs listed in Table 1 (with the exception of the Mali Credit program which is new) have revamped their programs. Probably the most dramatic example of this is the Togo Infant Feeding Program. A 1986 evaluation of the program reported that many of the clinic based activities were having little impact on the nutritional status of children. As one official indicated, " the growth monitoring in the clinics was awful."

Clinic staff were overburdened. As a result mothers had to wait a long time to have their children weighed; little feedback was given to the mother once the child was weighted. The average education encounter with the mother was 50 seconds (Government of Togo,1990). Most mothers had no idea how the child was doing.

There was poor supervision of the clinic staff. The initial training of the health workers was insufficient for the tasks they were asked to do.

If this program were evaluated in 1986 it would hardly have been called a success story. What changed?

Because of a commitment at all levels to deal with malnutrition in children, there was an interest in correcting the deficiencies in the program. As a first step in finding out what was wrong, mothers were involved. Changes were put into place to make the program more responsive to the articulated needs of mothers and children. As part of this process, selected mothers have been trained as home visitors.

Ghana has had a similar experience with its applied nutrition program. Because the government was interested in making the program more effective, they were receptive to issues raised by the community. One common concern raised by the mothers was that income in addition to information was needed in order to improve infant weaning practices. Thus the credit component was added in Kintampo District. The government is already expanding the program to other parts of the District.

The Imo State Child Survival Project has had three overhauls of the project. Initially the project was intended to be a home visitation program. However because of long distances, the health workers were reaching few households. Based on feedback from participants, the orientation changed from a home based program to one where activities are delivered during community meetings. The addition of an income generating component as part of this project is now being explored.

The Macina Project has had the opposite experience. The focus of the program changed from a community based, clinic structure to a home based approach. The main premise of the program is to empower the household so that the gains that have been made in nutrition

and health improvement can be sustained. The community organizers indicated that, "even if the program stops, the mothers have learned what they can do." (CARE, 1989).

The Imo State/Macina comparison points out the danger of transplanting a project without understanding the context in which it needs to operate. Imo changed from a home based to a community based approach, while the opposite happened in Macina.

Many of the people contacted as part of this exercise voiced a concern about delivering MCH programs in the 1990's using traditional models. Health budgets will continue to be insufficient to meet the needs of the population and thus governments and donors need to think beyond the classical MCH clinic based model. The Macina and Imo State projects are just two examples of activities that are attempting to push services beyond the clinic and thus also beyond current operating budgets. There are many more successful examples in the Health Sector.

Most nutrition activities that have gone on in Africa are clinic based, relying on technical aspects of nutrition with little or no community participation. This model of nutrition services has not been successful. However the decentralization that is being encouraged by many governments in Africa may also now allow a decentralization in design of nutrition programs.

The basic message from this new review is that new approaches for delivering health/nutrition services, particularly in rural Africa, need to be tested. Some will work, others will not. Programs and projects have to respond to failures by changing the approaches used. Donors could be helpful in this self-examination process if they would commit themselves to the program for a long enough period of time so that major modifications could be made where needed. Over and over again, interviewees said three to five years in many projects is just not enough time to go through the type of metamorphosis that is needed. One wonders whether the process that has taken place in Tanzania over the past twenty years is

what is needed in order to have more projects like Iringa. None of the projects outlined in Table 1 were in existence prior to 1980, and most not prior to 1985.

INSTITUTIONAL STRUCTURE: GOVERNMENT VERSUS PRIVATE INSTITUTIONS

Donors are interested in ways to build technical capacity so that national institutions have the capability of implementing health and nutrition activities. It is then of concern that so many of the 66 projects that were nominated as successes have such a strong NGO link. All of the projects in the in-depth studies have a strong tie to an NGO.

NGO's are attractive in that they often are less bureaucratic than governments and as already mentioned, have a track record in being able to work at the grass roots level. A legitimate concern is whether an NGO project is sustainable without formal ties to government.

Although at first glance, the NGO links in projects in Table 1 are very strong, a number of the projects also have a government link though weaker. Four of the six in-depth case studies shown in Table 1 are referred to as joint government/NGO projects.

The primary sponsor of projects in Mali, Ghana and Imo State, Nigeria is an NGO. However in each of these cases the government has funded project staff. In Macina, the health promoters responsible for most of the health/nutrition services are seconded from government. Similarly in Ghana, the field project coordinator based at the Freedom From Hunger Foundation, is a Ministry of Health employee seconded to the program. In Nigeria, the director of the project is an employee of the District Government based at Africare in Imo State.

Many of the other projects nominated have similar types of secondment arrangements. In some, the salary of the person placed in the NGO is still paid by government. It is more

than a financial incentive that entices governments to enter into these arrangements. Most government officials indicated that it is the flexibility of working with an NGO that is the key feature of this type of arrangement. The term "less bureaucratic" kept coming up in response to the question, "what is the advantage of working with an NGO?"

Most NGO staff indicated that their long term goal is to phase themselves out of service delivery. Helen Keller International (HKI) has done just that. HKI started out in Africa very heavily involved in program operations. The organization has evolved into a technical assistance and capacity building institution in countries such as Burkina Faso and Niger.

Freedom From Hunger Foundation was involved with the Embu Project in Kenya mentioned earlier. Their role was taken over by a local NGO which may be one step in the progression of having a stronger link to government.

NGO's have a particular role to play; they seem to be better skilled at generating community participation. NGO's can also play an essential role in training in community participation techniques. However NGO projects tend to be small and limited to a discrete geographic area. If the ultimate goal is to have new approaches to nutrition interventions adopted nationally, NGO activities have to be linked to structures that will reach poor people on a widespread basis. These are generally government structures -- agricultural extension, public health care facilities, public education institutions.

The Government/NGO arrangements seen in projects like the Ghana Credit/ANP program or the IMO State project are a step in this direction. Much more of this, including more creative arrangements, are needed while more effective public sector delivery systems are developed. Indeed this type of government/NGO link can help facilitate this process.

Recurrent Cost Recovery

This was one of the most contentious issues in the dialogue on successful nutrition programs. Several respondents said that if you include in your definition of "success" a mechanism for local/national groups to cover recurrent costs, then there are no nutrition success stories in Africa. This is a very bleak message.

In reviewing the 66 nominated case studies, the projects tended to fall into one of two categories:

- (1) Projects where the recurrent costs are totally donor funded. Often this is true even where projects had originally proposed that the recurrent costs would be taken over by local funding after a certain period of time.
- (2) Projects where the cost sharing has been in operation from the very beginning.

Everyone who was interviewed was asked whether they could think of a project which started out externally funded and eventually reverted to either total local support or a cost sharing arrangement. The response was overwhelmingly negative. The general rule seemed to be that either a cost sharing arrangement is there from the beginning or it never materializes.

The Iringa project for example had the recurrent staff costs paid for with local funds from the very beginning. Macina, on the other hand, which has been considered very successful on many dimensions, has not yet found a way of financing the recurrent staff cost.

There are two problems with recurrent costs. First, most local and national level health/nutrition budgets are inadequate for the tasks needed. Above and beyond this, there is a credibility gap. Once a donor finances the full cost of a program, many policy makers believe that they will continue to do so despite the public rhetoric to the contrary. And indeed, the track record seems to suggest this is often what happens.

Most program staff do not believe that the donors will terminate funding and in many cases they are correct.

One donor equated this situation to tough love; if donors believe that the issue of recurrent costs is critical, they have to be willing to withhold funding until a mechanism is put in place for local program funds to be generated.

The issue of recurrent costs is linked to community participation. A number of examples of systems for financing recurrent costs were identified - Iringa, Togo, Zaire, Mali credit program. For example, profits from the sale of the commercial weaning food in Zaire were used to cross subsidize other parts of the program. In Mali, interest from the loans were used to fund the educational component. In all cases these were also areas with strong community participation.

The Togo program falls into neither category. The Togo project started out as an AID funded project carried out in conjunction with CRS and the Government of Togo. The program has phased out CRS support including PL 480 food aid. Currently the major share of recurrent costs is being picked up by the government. Program staff feel that it is the strong commitment at all levels of government that have made this possible.

Operating budgets for health/nutrition activities will continue to be insufficient over the next ten years in most African countries. If donors expect some cost recovery in projects, there has to be a demonstrated level of commitment from the beginning. If a cost sharing arrangement is not there from the beginning, it is unlikely it will be developed later.

There are limits to the most creative cost sharing arrangements. Africa is very poor. Even with an "optimal" mix of national/local government and community funds, external financing will continue to be needed over the next ten years.

Multi-Faceted Program Activities

The nutrition problems in Africa are complex; therefore many respondents indicated that there is a critical need to link nutrition activities to other components, in particular, food security.

Each of the six in depth case studies outlined in Table 1 has a strong MCH focus yet in five of the six case studies this is a multi-faceted project. For example, in Ghana, a credit scheme for women has been integrated into a traditional, long standing applied nutrition program. The staff involved in the Macina project in Mali felt that the child survival activities were effective because they were linked to other broad health/sanitation activities such as the construction of wells.

Even people with a strong public health orientation felt that a narrowly focused maternal/child nutrition project would not work in Africa. Part of this relates to accessibility problems. A common comment given was that women will not come long distances for growth monitoring alone. There has to be something else that is offered.

When the word "integrated" is used one can almost see some donors cringe. The integrated rural development projects which were common and popular in the 1970's turned out not be very effective, in part, because of the major coordination problems especially among Ministries. Yet we seem to be getting a different message out of the current exercise.

One difference is the type of integration that is being suggested. In a number of these cases, the components are a fairly low cost, low technology mix of activities. For example, the credit scheme in Ghana involves an average loan of \$125.00. In the Mali project, the loans are even smaller averaging about \$50.00.

There needs to be a rethinking of the appropriate mix of activities as part of a nutrition intervention. The message from this exercise was that many of the more effective programs

and projects have nutrition activities linked to broader food security and income generating activities.

Training and Staff Qualifications

Training/staff and supervision are always suggested as essential components of successful programs - of any type. In analyzing the implementation process in these projects the report tries to get to a greater level of specificity than simply saying training is important.

Only two of the six projects that are shown in Table 1 have highly trained staff - nurses or university trained individuals. One comment that was repeated over and over again was that if a project does not have highly trained staff, there needs to be more training initially and more frequent update of training. This seems so obvious that it hardly worth stating except that in a number of projects training for workers with little formal education was done on a one time basis only.

Two very similar programs might have different training needs dictated by the level of staff involved in the program. The Mali/Ghana credit schemes illustrate this. Both projects are affiliated with the Freedom from Hunger Foundation and involve credit schemes for women in combination with nutrition activities. Despite the similarities in what was done, the training in the two areas differed. The Mali project required less initial training because the local level counterparts were in most cases University graduates. The Ghana effort required a longer training period for the village workers.

Respondents indicated that canned training packages don't work. In addition, a common sense, but sometimes ignored issue, is that the exact tasks that the workers will be required to do should be decided upon before the training and curriculum are developed. These staff functions should also be limited in number and tasks prioritized.

The most effective training in the projects nominated seem to be where:

-- the training has been kept simple

-- there are regularly scheduled follow-up sessions to reinforce earlier training. The information from projects that talk about successful training suggested that training updates need to be held at least quarterly. A project in Burkina Faso felt monthly training sessions were needed.

-- If possible, it is more effective to provide training and technical assistance to staff that are already in some structure. For example, village health workers who already were part of primary health care were easier to train in new functions than were staff who were totally new. This finding however might not be universally true. In Asia, some experience from the World Bank funded Tamil Nadu project suggests that new workers were easier to train presumably because there were fewer entrenched values and attitudes. This may not be true for other parts of Asia and from the survey information we received does not appear to be true for Africa.

-- Certain types of skills seem to be important in any type of program. Specifically, communication skills that will assist workers in interacting more effectively with the community.

The issue of paid versus volunteer staff came up frequently as an issue. It is tempting to use volunteers to carry out a lot of the activities particularly if operating budgets are limited - as they almost always are. However the general consensus among people who operated programs was that unpaid volunteers tend not to endure. The Imo State Child Survival project has been using volunteers since 1987 to conduct most of the growth monitoring/nutrition activities. The director of that program said although the volunteers have been relatively stable on the job, after this long a period it is becoming difficult to keep them. The program is trying to locate funds to revert volunteers to paid status.

Health workers may be willing to be paid in-kind - e.g. agricultural commodities? Labor on their fields? This type of system has worked effectively in Ghana. But as we heard over and over again from program implementors, "nobody works for nothing." Some type of payment - cash or in-kind also sends a signal to the person that the community values the work. While it is tempting to think the idea of volunteerism is a solution for lack of funds for salaries, this approach does not appear feasible in the long term.

One other element which appears critical in the implementation of successful nutrition programs is the "charismatic personality factor." In so many of the programs which have been effective, there often are one or two enthusiastic people who manage the programs. These are people who one senses would make anything work. Projects probably cannot create these people but bad programs can stifle them. Where good managers have been identified appropriate support services should be provided to allow them to carry out program operations.

Infrastructure

Programs and projects are more likely to "work" in areas where there is physical infrastructure and a service delivery structure. It was not an accident that the Iringa Region in Tanzania was chosen as the site for the JNSP project in that country. Iringa was chosen as the first location for the program specifically because of the existence of a good institutional infrastructure (Yambi and Mtalo, 1990).

When programs of a similar type are expanded to new areas with less developed infrastructure one cannot expect the same results.

The dilemma for policy makers is. "Which comes first, the program or the infrastructure?" The more dire health and nutritional needs are typically found in areas with

little or no infrastructure. However in many parts of rural Africa it may be years before even a minimal type of physical/service delivery infrastructure is in place.

Respondents to the present exercise indicated that the development of infrastructure needs to be viewed as a long term goal. In the short and medium term, programs and projects have to be creatively designed so that they can fit in where infrastructure is poor. Here again, many mentioned that this is where NGO's can be helpful. NGO's seem to be better able to get services out to the rural areas in places where infrastructure is weak. In the longer term, NGO-type activities should be channeled through government structures.

It helps if the particular project works through existing groups. Again, the message was to build on the infrastructure, however imperfect, that is there. A longer term goal should be to improve the existing infrastructure.

In working through existing groups, it also helps if the project picks a "winning" institution. For example, in Swaziland and Cameroon projects listed in attachment two, nutrition success resulted from working within the agricultural extension system. In other countries other institutions were more important in getting services out to the communities. The type of institution chosen will be very country specific; however these "winning" institutions seem to have certain characteristics in common. First, effective institutions have a lot of political clout. This does not imply that these need to be government institutions; in some countries private voluntary organizations (PVO's) have the potential to get things done. Second, the institutions seem to have a multi-disciplinary or multi-issue focus. In many places for example, nutrition is tied to food security in a Ministry of Planning or in the Office of the President in a particular country.

Ministries of Health tended not to generally be seen as a "winning" institution. For some reason, Ministries of Health tend to have a poor track record of getting nutrition prominently placed on the national agenda and an even poorer record in implementing nutrition activities.

There are, of course, exceptions. The Ghana example in Table 1 is a program started by the Ministry of Health. However it is unusual to have a MOH project tied to an income generating type of activity. The flexibility of the MOH in Ghana in trying new approaches to the nutrition problem was seen as one key reason for success.

DISCUSSION AND CONCLUSIONS

Much of the nutrition literature of the 1960's to mid-1980's was dominated by technical and economic aspects of programs. For example, the growth monitoring/growth promotion focus was seen as a low cost, low technology means of dealing with preschooler malnutrition. However the third perspective, that of the implementation process was left out of the assessment of effective programs (Pyle, 1987).

This paper was an attempt to provide information on some of the factors that appear to be associated with implementation of successful nutrition programs. Two caveats should be clearly stated. This review was not based on a random survey of nutrition activities in Africa. Rather it is an attempt to solicit information from key informants on factors associated with successful programs.

Thus the sample of respondents both in the questionnaires and in the telephone and in-person interviews is not necessarily representative of the universe of people involved in nutrition programs. It is important to bear this in mind when reviewing the general conclusions. However, there is so little information provided in reports on how programs are implemented that a good starting point was to solicit information on operational issues from people actually working in the field.

Secondly corresponding with and/or talking to people by phone is not a substitute for observing what is actually happening in the field. For both of these reasons it would be useful to validate the information provided in this report on a larger number of more systematically identified projects in Africa. It is not surprising that there were not more wholly government sponsored nutrition programs that were nominated. Government staff are so over extended in many cases that government programs are not formally written up or

described. Therefore, a short questionnaire outlining the factors identified as crucial for successful implementation should be developed and mailed to policy makers in a variety of ministries and other institutions in Africa. This will help identify government affiliated nutrition programs that might have been missed in this first round. Secondly it would provide some insight in whether these factors are seen as essential for effective implementation. This is a low cost, but potentially high-payoff addition to the current exercise.

It would also be useful to look at final reports and trip reports from the staff of the World Bank to see whether some of these implementation issues are also discussed in these documents. A lot might be hidden in these past reports that would be useful for the current task.

Seven issues surfaced as important in the present review: Community participation, program flexibility, institutional structure, recurrent costs recovery, multi-facet program activities, training and supervision and infrastructure. These seven factors were present in each of these six case studies to a varying degree.

These factors are not hard and fast rules but should be used as guidelines when implementing a program. It would be unwise to simply copy a particular program and implement it in a new area. The ability of an area to implement a program depends on local infrastructure which can vary tremendously even within a given country. Health care systems are weak and infrastructure often inadequate in Africa. While governments are examining ways to strengthen the public health care systems, interim vehicles for delivering nutrition activities have to be identified. A key to this process is effective implementation.

There is a plea in the introduction to this paper for a greater level of specificity in describing the process of implementation for nutrition interventions. This paper has only partially succeeded. Although some new insights have been gained about factors found in projects nominated as successful, there still is much to be learned about the generic issues of

successful implementation. In order to improve our knowledge of the process of implementation, programs and projects must be encouraged to provide this information in final reports. In addition evaluations - including external evaluations - should focus on process as well as outcomes. Until this is done we will continue to miss key elements for successful nutrition programming.

APPENDIX A

CASE STUDY DESCRIPTIONS

Imo State Child Survival Activities³

The Imo State Child Survival Project was started in 1987. The original focus was to extend preventive health activities such as growth monitoring/growth promotion, health education into the community by having trained volunteers visit the homes. This approach was quickly revised; because of the large area involved in the project the volunteer health workers were reaching very few women.

The mode of delivery changed from the home to community meetings. Women who came to the village meetings were encouraged to bring their children and a part of the meeting was devoted to nutrition activities. However there were also problems with this mode of delivery. Because there was so much business to conduct at these meetings, the village women felt the nutrition issues should be dealt with at a separate time and place.

A third revision in the mode of delivery was made. Specific dates for nutrition meetings have been worked out with the mothers. The village health workers and mothers identify meeting places for the monthly meetings at which their children are weighed. This relieves one constraint that was articulated by the health worker which was carrying very heavy equipment from place to place.

The weighings are tied in with immunizations. The point was made by the director that the women should be given something more than just weighing.

³ The information contained in this description was provided by the project director, Mrs. Chibuzo Oriuwa via telephone.

The village health workers interact with the mothers to find out what is causing the nutrition problem. The advice that the mothers are given is based on the information given by the mothers. One example given was mothers were taught to add ground peanuts to the preschoolers pap to increase the energy density of the food. This was based on information mothers gave. As a result of the community assessment part of this project, workers found out that some mothers with very malnourished children could not get to a local hospital because of long distances. So, a community nutrition rehabilitation center has also been established to take care of these children. The food for the center comes from locally produced foods. If malnourished children drop out of this program, workers visit the home to find out why.

Mothers in the program have asked that an income generating component be added to the program.

There are a 180 village health workers thus far based in three local government areas. The village health worker usually has 6 years of primary education. Some of the workers are retired teachers.

The health workers have been unpaid since 1987 but villages are now looking for ways to pay the volunteers. Local governments have been unable to locate funds to date to pay the health workers.

The village health workers were initially trained and are retrained quarterly. They identify areas where they feel there are deficiencies in their own training and suggest topics for future training.

Administrators of the program feel that the village health workers are very committed.

The Director of the program is a state government employee seconded to the Africare corporation which initiated the program. The salary of the program director is paid out of

the state health budget. The government sees this as an example of a successful community based program.

The government is now discussing expanding the program to other areas in Imo State.

Macina Child Health Project⁴

The Macina Child Health Project (MCHP) was a three year project implemented by CARE in conjunction with the government of Mali in 1986. Financial support was provided by an AID Child Survival Grant. The major goal of the project was to reduce infant and child mortality and morbidity in Macina Circle in rural Mali. MCHP works with the Ministry of Public Health in the government to deliver immunizations to children, and women of child bearing age in the area (144,000 population) while additional more intensive child survival interventions are implemented in 65 villages in two areas - Sarro and Macina Central (population 37,000).

The original 55 villages targeted for the intensive MCHP were expanded to 65 villages. The intensive child survival interventions carried out in the 65 villages have focused on changing health behaviors of the caretakers of small children. All of the program activities - control of diarrheal disease, nutrition promotion, hygiene/sanitation, and maternal health education - are new in the project area.

MCHP is one of three complementary CARE projects in Macina Circle. One component - the Agricultural Development in Drought Zones - works in 44 villages developing family gardens and village level agro-forestry. The Macina Wells project has constructed wide diameter cement wells for drinking water in 57 villages .

⁴ The information contained in this description was provided by CARE, New York in the final evaluation report, Final Evaluation Report of the Macina Child Health Project, CARE, New York, December 1989. Additional information was provided by individuals involved with the project.

Many of the community level nutrition activities are conducted by health promoters. These women are highly trained and many are nurses. Project administrators refer to them as "the backbone of the program". Health promoters organize group discussions with village women, carry out home visits and follow-up visits and conduct meeting with village leaders. The health promoters work closely with the village leaders to carry out activities. Health promoters live in the villages and thus become part of the community.

As pointed out in a final evaluation carried out by CARE (1989), there appears to be total acceptance and integration of the health promoters into their respective communities and they are constantly changing and adapting project activities to fit in with the rhythms and requirements of everyday village life.

The project has worked with the rural population and the government in assisting each village to determine which parts of the program to continue and how to go about it. This reassessment has been very village specific. Again, as point out in the final CARE (1989) evaluation, perhaps the biggest change in the strategy to promote sustainability of the activities was the change in emphasis from building village level infrastructure to encouraging household level behavior change. The strategy of MCHP has been to influence as much as possible individual families and households to take the responsibility for changing their own behavior.

Training at all levels is emphasized.

MCHP has demonstrated that a few simple techniques can help prevent health and nutrition problems.

Credit/Applied Nutrition Program, Ghana⁵

In 1989, the Government of Ghana made a significant change in the Applied Nutrition Program (ANP) operated by the Ministry of Health(MOH). The MOH in conjunction with the Freedom from Hunger Foundation added a credit component to the ANP operating in the Kintampo District of Ghana. This change was based on a nutrition survey conducted in 1987 which indicated that the major causes of malnutrition in Kintampo were:

- (1) Lack of food due to lack of income, at least seasonally
- (2) Lack of knowledge about feeding practices especially during pregnancy and weaning.
- (3) Illness particularly diarrhea and communicable diseases.

The program organizers worked closely with the District Health Management Team (DHMT) to develop in 12 pilot communities a model for community outreach by the Ministry of Health for growth monitoring and promotion, immunizations, and improved health care delivery. DHMT provides most of the staff for the nutrition and health components of the program. The national and regional officials of the MOH are interested in this program as a model for other parts of the country.

The program organizers believe that the ANP addresses causes 2 and 3 outlined above. The newest credit component addresses the income constraint.

The cash credit system requires that the person taking the loan use the money to engage in productive activities that earn enough income to repay the loans (with interest at commercial rates) in cash.

⁵ Much of the information contained in this description was obtained from the draft design document for the credit/ANP project prepared by the Freedom from Hunger Foundation in conjunction with the government of Ghana. Additional information was provided by staff at the Freedom from Hunger Foundation, Davis, California, staff and consultants at the World Bank involved in nutrition activities in Ghana.

The credit that is given is not intended to be used for food but rather for income generating activities that will result in improved nutrition.

Togo Infant Feeding Program⁶

Since 1982, Catholic Relief Services/Togo and the Ministry of Health, Government of Togo (GOT) have operated an Infant Nutrition Program in 83 GOT Infant Nutrition Centers throughout the country. The program serves 40,000 mothers with children less than 5 years of age. Participants attend monthly weighing sessions during which health education supposedly is given. Food demonstrations and/or PL 480 food aide has also been part of the program in the past.

An evaluation conducted in 1986 showed that there was little improvement in the nutritional status of children participating in the program. Some major changes were made in the program as a result of this evaluation.

The poor results were due in part to the inappropriateness of messages. Also the evaluation suggested that the greater involvement of the mothers in growth monitoring/promotion would help improve the program's effectiveness.

The changes that were made in the program included:

- weighing and counseling sessions were reorganized to allow more time
- mother visitors were trained to reinforce the health/nutrition education messages
- supervision of center staff was improved

⁶ Most of the information contained here was obtained from the final project report, Government of Togo, Catholic Relief Services/Togo, Logical Technical Services, April, 1990. Improving Mothers' Participation in Growth Monitoring and Promotion. Pricore, Washington, D.C. mimeo. Additional information was provided by Charlotte Welch Johnson and AID, Africa Bureau, Washington.

-- home visits to mothers of birth to 18 month old children were initiated as part of the program. Food distribution was de-emphasized and more attention given to educational activities.

Maternal and Child Health Program, Kinshasa, Zaire⁷

Malnutrition is a serious problem in Kinshasa. A survey conducted in 1986 indicated that 30% of the children in Kinshasa were stunted (Drosin, 1989).

The Organization for Rehabilitation through Training (ORT) a private, voluntary organization, began a multi-faceted program in Kinshasa to combat these problems. The project aims to increase the consumption of corn meal as an alternative to the nutritionally inadequate manioc which dominates the local diet. The primary target is children under five years of age.

The program is operated through 50 health centers throughout the city serving a target population of 50,000 preschoolers. The health centers offer primary health care including growth monitoring, counseling, and immunizations.

Mothers have also been trained as volunteers to expand the services of the health centers further into the community. These mother visitors attempt to reach mothers of malnourished children who do not attend the clinics.

A weaning food commercially sold was developed as part of this project. The weaning food revenues generate funds to be used to cover program operation. Although the commercial weaning food is low cost, it is still beyond the purchasing power of the lowest income household; these poor households are given food free.

⁷ Information contained here was obtained primarily from a report by Jay Drosin, *Combatting Malnutrition in Urban Kinshasa, 1989*, mimeo.

Credit/Nutrition Program, Mali⁸

Similar to the Project described in Ghana, the Freedom from Hunger Foundation is involved in a credit/nutrition program in rural Mali. However, the Mali program, unlike the Ghana case, started with the credit scheme and the nutrition component was the secondary focus.

The program interventions are a combination of credit (primarily to women) and education. The program promotes what is described as "minimalist" credit or small loans (less than \$200) for short-term income generating types of activities that poor people already know how to do and therefore require little or no technical assistance or training.

The premise of this project is that credit and nutrition education will have reinforcing effects. Education will promote more effective use of credit for food production and income generation as well as promote the appropriate use of food once it comes into the home. Credit on the other hand can provide the vehicle for bringing people together to receive the education component and the additional resources to buy extra food. The Freedom from Hunger Foundation has found that providing only nutrition information has not been enough to attract regular, active program participation by people who may need the information the most.

The program is carried out in conjunction with a local PVO - Les Jeunes. The first loans were disbursed in December 1988. During the short time the program has been in existence the repayment rate for the loans is close to 100%.

⁸ This information was provided by staff at the Freedom from Hunger Foundation, Davis, California.

Attachment One

December 18, 1989

Dear

The World Bank is developing a major policy paper on African Health, for which we are preparing the background paper on nutrition. I have drafted an issues paper (attached) which focuses the nutrition strategy on institutional capacity.

The widespread perception is that "nothing works in Africa". I am not so pessimistic. I believe there are successful policies, programs and institutions working for nutrition in Africa, but we have not documented them adequately or distilled from them lessons for future work.

I am writing to you today to see if you know of any nutrition policies or programs or institutions that "work" in Sub-Saharan Africa. Success could be construed as an impact on growth and nutritional status, as delivering basic nutritional services or as affecting nutritional policies or budgets. However we define success, these nutrition efforts should be sustainable. Feeding programs, micronutrient supplements, growth promotion, targeted food subsidies, maternal feeding, and nutrition education are obvious candidates but there may also be successes in less traditional approaches. I am also looking for successful national strategies (Botswana and Zimbabwe spring to mind). Some have already been contacted by Rae Galloway for suggestions. We are contacting you again now in case you have any further suggestions.

If you know a successful project, policy, or institution in Africa, please fill in the attached form and send it back. We will be commissioning case studies on the most promising activities using a standard case outline. We hope to have the cases written by June, 1990 and the Background Paper finished by January, 1991. If you would like to commission a study using the case outline, we can send you the outline.

Many thanks for your cooperation. I will keep you abreast of our progress.

Sincerely,

Judith McGuire
Nutritionist
Population, Health and Nutrition Division
Population and Human Resources Department

Attachment: Improving Women's and Children's Nutrition in Africa
Nomination Form

Attachment Two: List of Nominated Case Studies

1. **Gayaza Farm Diet Scheme, Uganda**
2. **National Nutrition Surveillance System, Botswana**
3. **Master Course in Tropical Pediatrics, Liverpool School of Tropical Medicine**
4. **Multi-mix Baby Food, Benin**
5. **Rural Reconstruction Movement, Ghana**
6. **Dual Purpose Goat, Kenya**
7. **Child Nutrition and Agriculture Project, Nigeria**
8. **Rural Nutrition Program, Benin**
9. **Food Security and Nutrition Program, Congo**
10. **Carter Center, Atlanta, Georgia**
11. **National Nutrition Surveillance Program, Gambia**
12. **Food and Nutrition Association, Gambia**
13. **Family Life Training Program, Kenya**
14. **Cornell Nutrition Surveillance Program, Ithaca, New York**
15. **Community Health Care/Weaning Practices Project, Cameroon**
16. **Infant Feeding Program, Togo**
17. **Imo State Child Survival Program, Nigeria**
18. **Field Nutrition Center, South Africa**
19. **Food Security and Nutrition Unit, Office of the President, Malawi**
20. **Dietary Management of Diarrhea, Nigeria**
21. **Famine Early Warning System, Sudan, Niger, Mauritania, Ethiopia, Burkina Faso, Chad, Mali.**

22. Consumption Effects of Agricultural Policies and Programs, AID/Washington, D.C.
with various collaborators
23. Health and Nutrition Education for Primary Schools, Mauritania
24. Maternal and Child Health Program, Ghana
25. Food Technology Institute, Senegal
26. Child Nutrition and Household Food Security Project, Lesotho
27. Control of Diarrhea in Children Project, Cameroon
28. Child Health Promotion, Cameroon
29. Kenya Medical Research Institute, Kenya
30. Child Survival Program, Segou Region, Mali
31. Department of Home Economics, Ministry of Agriculture, Kenya
32. Research Organization of Food and Nutrition, Senegal
33. Food and Nutrition Center, Tanzania
34. Ethiopian Nutrition Institute, Ethiopia
35. Helen Keller International, Niger and Burkina Faso
36. Nutrition Education, Liberia
37. Nutrition Field Worker Program, Ethiopia
38. Macina Child Health Project, Mali
39. Child Nutrition Program, Kinshasa, Zaire
40. Credit/Applied Nutrition Program, Ghana
41. Credit/Applied Nutrition Program, Mali
42. Adaptive Crop Research Program, Sierre Leone
43. Ameya and Goro Rural Water Resource Development and Community Based Health
Care Program, Ethiopia

44. Department of Nutrition, University of Ibadan, Nigeria
45. Vitamin A Deficiency Intervention, Mauritania
46. Nutrition Management Project, Centre for Development and Population Activities, Washington, D.C.
47. The Nutrition Society of Sierre Leone, Sierre Leone
48. North Kordofan Child Health Project, Sudan
49. The Valley Trust Socio-Medical Project, South Africa
50. Eastern, Central and Southern Africa Region (ECSA) Food and Nutrition Cooperation, Provisional Coordinator Botswana
51. Ai Rama Nutrition Education Program, South Africa
52. Africa Fruit Tree Partnership Program, Tree People, California
53. Center for Social Research, University of Malawi, Malawi
54. Applied Nutrition Program, Togo
55. Dunn Nutrition Unit, Keneba, Gambia
56. Integrated Rural Development Project, Mozambique
57. National Breastfeeding Campaign, Ministry of Health, Kenya
58. National Nutrition Dept, Ministry of Health, Zimbabwe
59. Support for the development of education and school self-reliance, Lesotho
60. Joint Nutrition Support Program, Ministry of Health, Niger
61. Home Garden Nutrition Program, Lesotho
62. Local Weaning Food Production, Mozambique
63. Living Wall Garden Growing System, Rochester, New York
64. Supplementation Program for Pregnant and Lactating Women, Gambia
65. Pilot Health Project, Benin
66. Embu Growth Monitoring Project, Kenya

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