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MASS NUTRITION PROGRAMMING  
DEVELOPMENT STRATEGIES FOR CARE

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FINAL REPORT IN FULFILLMENT  
USAID GRANT NO AID/CSD 2898  
BY CARE, INC.  
660 FIRST AVENUE, N.Y. N.Y. 10016

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**AID NUTRITION INCENTIVE GRANT**

**No. AID/csd 2898**

**MASS NUTRITION PROGRAMMING:**

**Development Strategies for CARE**

**by**

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**New York**

MASS NUTRITION PROGRAMMING  
Development Strategies for CARE

The following report was prepared by Saul Helfenbein, Nutrition Program and Evaluation Specialist, with the assistance and advice of Margot Higgins, CARE Nutritionist; and Ralph Montee, Director, Program Department, CARE, New York. Special appreciation must be given to all the overseas CARE personnel, officials of various host-country private and governmental agencies, representatives of international organization and officers of AID in all the countries visited for their cooperation in gathering information about current nutrition programs, the problems which affect these programs, and the plans for making these programs more effective in combatting the problems of malnutrition.

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AID NUTRITION INCENTIVE GRANT:  
FINAL REPORT OF THE CARE NUTRITION  
PROGRAM AND EVALUATION SPECIALIST

CHAPTER ONE      INTRODUCTION

The following report contains a summary of the activities of the Nutrition Program and Evaluation Specialist for the period November 20, 1971, to February 29, 1972. This period represents the duration of a grant made by the Office of Nutrition, Technical Assistance Bureau, Agency for International Development, to assist CARE, Inc. in the development, implementation and evaluation of programs and activities in applied nutrition. The overall purpose of the grant was to assist CARE in upgrading and expanding its nutrition programming, particularly in nutrition education, and to strengthen the organizational capability for the future planning and implementation of programs found effective in improving food habits and nutrition. The report also contains an analysis of the basic features of CARE's nutrition program operations and a broad set of recommendations designed to achieve the objectives of the grant.

SCOPE OF ACTIVITIES

For several years CARE has emphasized the importance of nutrition as a critical factor in socio-economic development. In recent years, CARE has intensified its efforts to improve the nutrition component of its programs,

especially nutrition education, in number, in capacity, and in effectiveness. At present, CARE is undertaking a review of these programs, with a view to determining their implications for long-range planning. The Nutrition Program and Evaluation Specialist was requested to assist in this by first-hand observation of operational, reporting and evaluation procedures used by CARE in overseas nutrition programs. The duties of the Specialist also entailed work in assisting CARE missions with AID Nutrition Incentive Grant programs. By observing the programs from the perspective of daily operations and by working closely with CARE counterpart organizations, the Specialist was able to study them from the following perspectives:

- 1) The strengths and weaknesses of the program in relation to their original concept and design;
- 2) The areas needing reinforcement in order to ensure the successful achievement of program objectives;
- 3) The most effective methods to carry out thorough and objective assessment of the programs' impact on the intended beneficiaries;
- 4) The impact of Nutrition Incentive Grant projects upon current programs, and possible influence upon long-range planning of nutrition programs;
- 5) Other potential areas for CARE involvement in strengthening the nutrition programs of host countries.

OBJECTIVES

The final objective of this grant was to assist CARE in defining new program directions on the basis of a comprehensive review of current applied nutrition programs and the investigation of new concepts and approaches to problems of both serious malnutrition and debilitating chronic undernourishment as factors in social and economic development. New program approaches are emerging in CARE/New York headquarters, in overseas missions and in our counterpart organizations which, while they respond to various long and short-term considerations, reflect greater awareness of malnutrition's complex interaction with social and cultural as well as pathological influences and the consequent necessity for programs which will be able not only to ameliorate malnutrition but also, and perhaps more importantly, to deal directly with the casual factors of malnutrition. These programs aim at more effective intervention in the cycles of underdevelopment through the delivery of interrelated services in nutrition, family planning and child care, as well as appropriate information and education.

CARE overseas missions are working on more effective systems for reaching the vulnerable groups of pre-school children and pregnant and lactating women. These activities include broadening the traditional supplementary feeding bases to include more recipients in this category, helping

develop special infant and weaning foods, and introducing community-based and mass communications nutrition education programs for rural and urban areas. Programs such as the latter are presently being pursued in Chile, Colombia and Costa Rica. Through assistance from AID, CARE/Korea has already implemented a nationwide mass communications program for nutrition awareness. Following this, CARE in conjunction with the Government of Korea has planned and designed an integrated nutrition and family planning service/education program. At the same time, CARE/India is testing a new methodology and developing a more effective program model for rural communications programs of this kind.

Many CARE missions are beginning to undertake in-depth evaluations of their nutrition programs in regard to such things as the impact on beneficiaries, the cultural, social and economic variables that influence community acceptance of the nutrition programs and the beneficiary's acceptance of the commodities, the potential for expanding the scope of activities of the institutions which support the feeding programs to meet more of the basic family development needs, and, lastly, the logistics and administrative systems that support these programs.

This body of first-hand information on the activities and ideas of our missions, counterparts, and national and international organizations with whom CARE has direct and

indirect contact will be collated and presented in a unified and systematic manner. It will have significant value to the organization as background for general program development and as guideline material for those missions which are contemplating increased activity in the area of applied nutrition and nutrition education. On the basis of the Specialist's direct involvement with existing nutrition projects overseas, CARE believes that it will be able to define more precisely its objectives in long-range planning for applied nutrition and nutrition education programs, identify potential avenues for new and improved programming, and to select the most effective methodologies for implementation.



CHAPTER TWO      RESUME OF SCHEDULE OF ACTIVITIES AND COUNTRY  
ACTIVITIES OF THE SPECIALIST

SCHEDULE OF ACTIVITIES

The Specialist was assigned on a temporary basis to nine countries; these countries included in order of assignment: Kenya, Uganda, Turkey, Afghanistan, India, Chile, Colombia, Panama and Costa Rica. The assignments were made as extensive as possible within the limited time frame of the grant in order to expose the Specialist to a broad spectrum of program activities and ideas in differing social and cultural contexts.

Before his departure, background materials on programs in these countries was studied intensively, and detailed briefings were conducted by the Program Director, the Nutrition Advisor and other members of the New York staff on the nature and needs of the programs, particularly the Nutrition Incentive Grant projects, to which the attention of the Specialist was directed and in which he was to become very involved. Bi-weekly reports were submitted to New York during the overseas portion of the grant. After the first overseas tour an analysis of the Kenya Nutrition Incentive Grant project was written and submitted to the Program Director and Nutrition Advisor. Upon return from the second tour, the Specialist devoted the majority of the time to the completion of the final report.

The following is the complete itinerary. The summary of the country activities treats more than one visit made to a country as a single unit:

<u>Country</u>	<u>Dates</u>
Kenya	January 11 - February 20
Uganda	February 16 - February 19
Turkey	February 21 - March 15
Afghanistan	March 16 - April 15
India	April 15 - June 5
Afghanistan	June 5 - June 14
Turkey	June 15 - July 31'
New York	August 1 - September 30
Chile	October 1 - October 21
Colombia	October 22 - November 8
Panama	November 9 - November 14
Costa Rica	November 15 - November 21
Chile	November 22 - December 8
New York	December 9 - February 29

COUNTRY FIELD TRAVEL:

1) Kenya

The Ministry of Cooperatives and Social Welfare, CARE's counterpart in implementing the Nutrition Incentive Grant program, had made a brief study of the nursery center program and an evaluation of the nursery school instructors who were the immediate beneficiaries of the training program in nutrition awareness. This was originally designed to

be used as a benchmark for later evaluation of the program's achievements. However, in the six months since the training program had gotten underway, no further evaluations were carried out. Inasmuch as practically 3,000 women had been trained in this period, marking almost three-quarters of the target number, it was essential for both organizations to collect preliminary data about the impact the trained instructors were making on their nursery schools and communities. Since these women were also to compose the administrative staff of the planned pre-school feeding program, it was important to know how effective they would be in the capacity of local administrators. Owing to a shortage of funds and of available manpower it had not been possible, prior to the arrival of the Specialist, for the Government of Kenya to follow up the early benchmark study with a more searching and comprehensive evaluation. The Specialist organized a team of evaluators, consisting of himself, a CARE Field Officer in charge of feeding programs and a Social Welfare Officer seconded to this project from the Ministry. In each province appropriate personnel accompanied the CARE team on visits to nursery centers and community development training centers at which the nutrition awareness training programs were held. At the conclusion of six weeks of these follow-up visits, sufficient data was collected to give a solid impression of how successful the training program had been, how

qualified the trained instructors were in supporting and running a pre-school feeding program at their centers, what kinds of reinforcement, particularly in the way of other influential village personnel, would be needed, and what improvements were desirable in the administration of the training courses in order to make the program more effective.

As a result of this preliminary follow-up, the Specialist, in cooperation with Ministry officials, prepared a series of suggestions for an ongoing evaluation and reinforcement program that would indicate the achievements of the nursery instructors at their centers, and would also show Ministry and provincial officials how they could most effectively be supported either through their own efforts or by sending village influentials to the training program. Secondly, in order to measure the impact of the nursery center and village nutrition awareness programs that the instructors were asked to start on completing the training course, recommendations were made to enlist other personnel concerned with nutrition and health to carry out a long-term evaluation of the nutritional status of pre-school children living in the communities where there were trained nursery school instructors.

During this follow-up program, and after its conclusion, consideration was given to the continuation of the training program. The preliminary evaluation indicated

that in many areas the nursery school instructors could not carry out any innovative programs affecting the health of the community without the support and understanding of influential persons, especially men. Secondly, the survey discovered that men who had taken the nutrition awareness course were very effective in promoting the pre-school feeding program in their localities. Third, it was found that nursery school instructors who had structured work situations were more likely to promote nutrition awareness programs than those in situations which were more vaguely defined. As a result of these findings, future training programs were suggested for more men, especially village influentials; and for those nursery school instructors whose centers would definitely be included in the pre-school feeding program.

Other results of this evaluation included setting up a more efficient record-keeping system for both the Ministry and CARE, as well as specific suggestions directed towards helping community development training centers to improve the nutrition awareness courses.

2) Uganda

A brief visit to Uganda gave the Specialist an opportunity to discuss various aspects of nutrition programs as well as examine potential for expanding the CARE program there with government, volunteer and United Nations agencies actively engaged in this area of development.

3) Turkey

The second Nutrition Education Incentive Grant project funded by AID and sponsored by CARE in Turkey calls for a series of seminars for Primary School Inspectors and Nutrition Officers employed by the Ministry of Education. The purpose of the seminars is to increase a knowledge and understanding of basic nutrition among these officials, and to improve their level of competence in the administration of the school feeding program.

The syllabus planned by the Ministry of Education for the first seminar left much to be desired in the way of content, and no opportunity was given to any member of CARE staff, either in Turkey or in New York, to make it more relevant or coherent. However the Specialist was able to attend several sessions of the first seminar and to assist in evaluating its effectiveness. On the basis of this first-hand observation and information he was able to engage in a number of discussions with officials from the Ministry and to submit a series of recommendations designed to improve the usefulness of subsequent seminars.

A field trip to observe various stages of the operation of the school feeding program in the Iskenderun port areas was undertaken. Port, provincial district and school levels were visited, discussions were held with responsible officials regarding problems in logistics, record keeping, acceptability, community support, nutrition,

nutrition education, etc. The visit confirmed the need for a better trained staff to administer the program and a strong and regular program of nutrition education in the schools to transform the program from basically a feeding program into an expanded nutrition program.

4) Afghanistan

The arrival of the Specialist coincided with AID's approval of a second phase Nutrition Incentive Grant which CARE had applied for in order to realize some of the possibilities for nutrition programs explored during a previous grant. The exploratory survey had stimulated interest in the RGA in developing a Department of Nutrition to coordinate the formulation of a national nutrition policy and the establishment of an applied nutrition program. During the year in which the second grant was drawn up and submitted to AID for consideration and approval, CARE/Afghanistan sustained the government's interest but did not undertake any definite commitment because it could not assure supportive funds. The second grant allowed CARE and the RGA to proceed with the program. The primary activity of the Specialist was, therefore, the definition of a nutrition program which would be in keeping with the objectives and program plans of the Nutrition Incentive Grant, and would also be satisfactory to the Ministry of Health and to CARE. In the two-year program which was eventually worked out CARE undertook to give support to the Department of Nutrition:

- A) In carrying out a nationwide nutrition survey, and
- B) In developing an education program for all health officials that would emphasize the importance of nutrition and make a contribution towards the adoption of a national nutrition policy, and initiate programs to improve the nutritional status of vulnerable groups in the country.

When program goals had been accepted and the areas of CARE support defined, the Specialist in cooperation with mission personnel prepared a program plan in the form of a Memorandum of Understanding which was acknowledged by the Ministry of Health. The MOH acknowledgement officially inaugurated the CARE nutrition development program. The Specialist also investigated ways of linking the nutrition program more closely to family planning and MCH related activities. Government interest in strengthening preventive medicine programs has created a favorable atmosphere for early coordination of these three complementary fields of endeavor.

5) India

CARE operates its largest overseas program in India. The Specialist attempted in the short time he was there to do as broad and detailed a study of program operations as possible, with special emphasis on pre-school feeding, nutrition education, and projects in direct support of

nutrition programs such as the construction of balwadis (nursery centers), warehouses, etc. This involved visits to six states to observe urban and rural feeding programs. Of particular relevance to future long-range overseas planning in nutrition were:

- A) The significant contribution made to the development of nutrition programs by host country experts who serve as advisors and consultants;
- B) The emphasis on utilization of locally produced or processed foods as components in mass feeding programs;
- C) Improvement of personnel performance through training and orientation, and the development of managerial skills at the logistics level of program implementation.

Among current programs studied were the urban feeding programs in Bombay and Madras; processed food program plans for Hyderabad and Delhi; the central kitchen feeding program in Tamil Nadu; pre-school feeding programs in Tamil Nadu and Orissa; warehouse construction and vehicle maintenance direct support programs; nutrition education/mass communication programs; expansion of the nutrition comic book program; development of nutrition education for school curriculums; relief and scarcity programs; and food-for-work and agricultural development programs.

6) Chile

The Specialist arrived in Chile at the time the CARE mission was beginning to explore further possibilities of expanding and improving pre-school nutrition programs. One of the first activities of the Specialist was in regard to the Curico project (AID Nutrition Incentive Grant) which had originally been designed to test the acceptability of a locally blended weaning/infant food of reasonable cost. An additional objective was to develop a food to eliminate diversion and misuse that had impaired the operation of the past pre-school nutrition programs of the National Health Service. (CARE is neither involved in the administration of this program nor in the supply of commodities. CARE, however, will begin to assist the National Council of Nursery Centers in the operation of the latter's pre-school feeding program.) In the past year the National Health Service had provided whole milk and consumption rates had improved; but the program was unsound economically. Prohibitive costs made it imperative to develop an inexpensive alternative that would be accepted by the socio-economic group covered in the National Health Service nutrition programs. Past experience indicated that commodities regarded as poverty or charity foods were extremely vulnerable to improper utilization.

Our counterpart agency, the Pediatrics Research

Laboratories, felt that the Curico project was an appropriate opportunity to test the social and cultural acceptability of the product as well as its organic and organoleptic acceptability for the pre-school child. AID/Chile agreed with the expanded objectives and the Specialist and mission and counterpart personnel decided that the most practical way of broadening the objectives, while staying within the time and cost limits of the grant, was to introduce the product initially as a prestige commercial food. This necessitated changing the original plans for packaging and labelling but it was deemed that increased expenses at this point would result in an overall savings to the national nutrition program later if the name and image of the product could significantly reduce the factors that result in misuse and diversion. It was therefore decided to contract the Nestle Company in Santiago to package the food and design the label.

The Specialist also had the opportunity to assist the mission in developing project ideas for nutrition education programs. Preliminary talks with the National Council of Nursery Centers, CARE's counterpart in the new pre-school feeding program, indicated interest in establishing a community based nutrition education program that would extend the services of the nursery centers to lower income members of the community which still do not benefit from the official day care programs. As the

Council's Department of Social Welfare did not have a specific plan for such a program, the Specialist was requested to design a model for their consideration and a working draft for the mission's use. The objective of the model was to suggest channels for community based education programs that would include family planning and child care as well as nutrition awareness as components for the various institutions serving the communities.

It was also possible at this time to discuss the feasibility of integrating a mass communications nutrition awareness program with the community based effort. Both the National Council of Nursery Centers and the National Health Service, which is planning to initiate the mass media program this year, were favourable to such coordination. Moreover, as the National Health Service will require assistance in implementing its programs, the Specialist felt that this presented another opportunity to strengthen involvement in nutrition education, and decided it was worthwhile to pursue the matter further, particularly because of the experience CARE has already accumulated in this field in Korea, India, Indonesia, etc. The National Health Service Project Coordinator, accordingly, was placed in contact with appropriate CARE personnel in India, Korea and in New York by the Specialist to facilitate the exchange of ideas in regard to the use of the mass media for nutrition education, as well as to maintain

useful and relevant contacts until a CARE role in this program could be defined.

7) Colombia

As in Chile, CARE/Colombia is also investigating feasible ways of broadening the scope and strengthening the impact of nutrition education in its various supplementary feeding programs. Preliminary evaluations of the school and maternal child nutrition programs indicate that it is necessary to upgrade the quality of administrative performance of all personnel working in the food service centers (usually known as comedors) which CARE promoted as support institutions for nutrition programs, and which our counterpart, Colombian Institute of Family Welfare (ICBF), is now continuing to construct as part of its national program. Secondly, it was observed that insufficient attention is given to nutrition education in general supplementary feeding programs. The PINA program (Integrated Applied Nutrition Program) in most local or regional departments of nutrition concentrates education primarily in the rehabilitation programs run through the various health facilities.

Two Departmental programs were studied closely; one considered superior because of the extensive deployment of qualified personnel at all levels of administration; the other more typical in exemplifying the operational problems CARE usually encounters. A comparison of the two

confirmed the need for training programs for administrative personnel and a general improvement in operational procedures at all levels. Through discussions with local government nutrition officials, the Specialist together with CARE personnel, was able to discuss possible approaches to setting up local or regional training programs as well as ways in which education efforts in the supplementary programs could be developed and supported more extensively.

The possibility of establishing a national nutrition education program was encouraging because in many respects Colombia has already developed the machinery for implementing these programs on local, community and national levels. Various private, religious and governmental organization already carry out, singly or in cooperation with one another, community development education programs which stress nutrition as an essential factor in local development. Unfortunately, the national supplementary feeding programs are not now in the mainstream of such educational activity. However, in talks which the Specialist held with various officials in the Directorate of Nutrition and Department of Nutrition Education, especially the Division of Mass Communication, there was great interest in expanding their activities to include the comedors. Further discussion with officials of Radio Sutetenza which administers a local community development program through a combination of local education training

programs and mass communication media support/reinforcement programs indicated that it would be feasible to set up a similar kind of program using the comedors as a base of operations. As a result of the visitations and discussion, the Specialist drafted a model project which the mission will use as the basis for continuing to explore the potential for developing a nutrition education program in the near future.

8) Panama

Through financial assistance from an AID Nutrition Incentive Grant, CARE and the Department of Nutrition (MOH) are undertaking a feasibility study of two approaches to nutritional rehabilitation. The first phase of the program is institutional rehabilitation. It was nearing completion after running for nearly one year. The second phase, which began in July, was to examine the potential of rehabilitation programs based in the home with periodic supervision by nutritionists and health personnel.

The Specialist and a CARE Field Representative spent one week in evaluating the project in order to gather some preliminary data about which approach held more promise for broad-based implementation. Prior to this, lack of sufficient transportation, personnel and other factors prevented the Department of Nutrition from evaluating the program other than on the basis of height/weight data. The present on-site evaluation confirmed many of the

suspicious suggested by the above-mentioned data.

It was found that the center had been poorly located, there was not enough cooperation from the local health station, particularly in selecting beneficiaries, and there were frequent changes in personnel that affected operation of the center. Nutrition education planned for the mothers of the children had not proved feasible and there was a general feeling that the pre-school beneficiaries would undergo a traumatic regression as soon as they returned to their home environments. It was therefore suggested that if reasonable assurances could not be secured for greater cooperation from the health authorities or if the center could not be relocated in a more favourable area this phase of the project should be dropped and considered non-viable under present conditions.

The home rehabilitation phase also had to run with a minimum of cooperation forthcoming from health officials. However, the extremely severe socio-economic conditions of the pilot area and the practice of the mothers to divide the rations intended for the malnourished beneficiary among other family members presented complication that had to be more fully evaluated. Although, it was considered unrealistic to implement rehabilitation programs in areas that required major relief operations, the children showed an average weight gain equivalent to those in the institution rehabilitation phase. It appeared that the

home environment despite the economic deprivation and the redistribution of rations affected the overall rehabilitation process if there were some increase in the available food supply even if used by the whole family.

In order to determine the relation between family feeding and rehabilitation more closely, it was recommended that, if sufficient funds remain and AID/Panama approves, the number of beneficiaries in this phase of the program should be increased and a family ration should be added to the present ration for the beneficiary. The Specialist also suggested ways of improving the evaluation procedures.

9) Costa Rica

The nutrition program in Costa Rica was of particular interest to the Specialist from its rehabilitational standpoint. The program is institutionally based but at the same time allows pre-school siblings of the beneficiary to receive meals at the center. In practically all cases, doctors in nearby health centers select the beneficiary and wherever possible supervise the operation of the center and the progress of the beneficiary.

Of great importance also are the plans to utilize more extensively the nutrition centers, which are community based. The mission, for example, is considering the introduction of a family planning education program at the centers, and the MOE is planning to initiate special kindergarten nutrition cum headstart programs on an

experimental basis in a few centers. It is hoped that the nutrition center will eventually be the institutional nucleus of national day care as well as of larger family service oriented programs.

CARE/Costa Rica is also experimenting with the use of an edible variety of soy bean in the nutrition center program. Nutritionists of the MOH have already begun to devise menus and to teach cooks and other personnel how to prepare the soya beans. So far the beans have been very well accepted but more extensive use will await results from the laboratory tests on absorption and protein utilization.

CHAPTER THREE      ANALYSIS OF MAJOR COMPONENTS OF CARE  
NUTRITION PROGRAMS - EFFICIENCY IN  
LOGISTICS AND UTILIZATION

PART I.      INTRODUCTION

In this section an analysis of the major components of CARE overseas nutrition programs will be presented. It is not intended to be exhaustive or to deal with the individual programs in all their complexities and problems. This would not be possible in the space of a short report nor is it necessary for our purposes here because we are interested primarily in the general features and generic problems of the programs and in the principles underlying the various solutions to improving nutrition programming. Therefore, we have limited our attention to activities or facets of all activities which seem genuinely common to all programs and which appear to hold promise for major breakthroughs in attaining our objectives.

This analysis considers CARE nutrition programs from two perspectives: efficiency and effectiveness. These words have become so much of a ritual incantation that we often use them interchangeably and assume that if the project is one it is also the other. Although the meanings are logically related, the differences are sufficiently distinct. By efficiency we denote productivity without waste and therefore apply the term to that part of programming which concerns operations--delivery systems

and commodity utilization. By effectiveness we mean "to produce the desired result," and this relates to the impact the food makes on the nutritional status of the beneficiary, and perhaps for our purposes, the impact the beneficiaries will make on their environment through their improved nutritional status. Whether nutrition programs deliver food or information, experience reveals that effectiveness is not a necessary result of efficiency.

The underlying thesis of this section is that so long as there are limited resources at our disposal they will be effective only when they are deployed where they will be most consequential. This seems to be the most logical approach to the long-term problems of nutrition programming. Hopefully this analysis will indicate those emerging ideas that will result in the design and development of nutrition programs of major consequence to the countries in which CARE is working.

## PART II. OPERATIONS - FOOD DELIVERY SYSTEMS

### Operational Objectives

CARE's primary concern in food programming has tended to be operational. CARE has concentrated on service, that is, the provision and movement of commodities. Movement implies supervision and this necessitates control of all steps involved in the delivery of food to pre-determined distribution points and, as far as possible, with its effective utilization by intended recipients. Our

operational concerns can be divided into two phases: delivery and utilization. The dual objectives are therefore (1) to minimize the factors that interrupt the continuous flow in the delivery pipeline and the consequent losses due to damage and diversion, and (2) to enable administrators at the end-use distribution sites to ensure that the commodities are apportioned, prepared and consumed as prescribed. Because CARE is operationally oriented in food programming we define program efficiency in terms of logistics and measure or quantify the degree of efficiency from the data provided by the accounting records and the in-use visitations that track the commodities from origin to end use. This has required continual effort to improve accounting systems so that they will accurately reflect the inventories and issuances situation at all trans-shipment stages whereby informed and rational decisions can be made regarding movement and rectification of any problem at any point.

#### Efficient Logistics

We can define an efficient logistic system for CARE operations as one in which: (a) commodities move through a set of interlocking transit stations which store and issue from origin to end-use in the requisite quantity and according to fixed schedule from each preceding station; and (b) an appropriate set of forms corresponding to each movement permits us to locate each unit of commodity

at any given time.

The degree of efficiency in a logistical system is usually inversely proportional to the number of transit stations because each step poses problems in unloading, storage, reloading and transportation that multiply the opportunities for damage, diversion and delay, not to mention the errors in the paper substrata of reports that follow the movement. The more steps there are, the more vulnerable the movement is to interruption and the more subject the commodities are to damage and infestation. These problems are, of course, compounded in the developing countries by basic inadequacies in facilities for storage and transportation and generally by the lack of qualified administrative personnel at all levels of operation (worsening, however, as the pipeline begins to increasingly branch out to end-use points) to keep the commodities moving and moving in the right direction.

One way in which CARE has attempted to overcome logistical problems is by improving individual operational stages and the traffic facilities between them. Despite the fact that the latter has often proved beyond effective CARE control, particularly between penultimate and end-use points, CARE has assisted host countries in constructing strategically located warehouses, training and motivating administrative personnel and increasing CARE supervisory jurisdiction over commodity movement so that commodities

can be withheld from high diversion or poor performance areas.

For example, special conditions in India make warehouse construction a major undertaking. At the same time, CARE/India is engaging in a comprehensive analysis of rail traffic which carries a large proportion of the CARE supplied commodities. In Turkey there remains a pressing need for support activities at all levels of operation. So far an AID Nutrition Incentive Grant has financed a training seminar for administrative and supervisory personnel and there are possibilities of extending the seminar into a long-term regionally based program to upgrade the knowledge of all personnel connected with the school feeding program as well as to educate those who might be involved with a pre-school feeding program. This program at present is being directed at personnel at the penultimate and end-use levels, though future training seminars will include officials at higher stages. It is hoped that better performance at this stage and the resulting improvements in reporting and accounting procedures will have a salutary effect upon other areas of the logistic system. This recognizes the important fact that if you scratch a logistical system you find personnel upon whom the mechanism depends, who don't understand the reasons behind the program, oppose it for various cultural or political reasons, and fail to

comprehend the need for ways of compiling accurate accounting data.

Even a logistic system with poor storage and transportation facilities can be smoothly run if qualified and motivated personnel are available, and they are essential if we are to have feeding programs at the end-use level worth the logistical effort. In this regard, the question then arises: Which comes first, providing the material inputs to strengthen each link in the logistic network as well as the means of connecting the links, or providing the training and motivational programs to deal with the human element which can otherwise operate to the detriment of all steps, particularly end-use? This is hard to answer except to say that neither is a sufficient condition, and that both are necessary. The problem is not often in choice but in balancing the relative needs for each against the potential net gains of one.

#### Levels of Programming and Operational Involvement

This perhaps is also a question of balancing liability with responsibility, or accountability for delivery and the obligation to see that the feeding program is being run effectively. In many cases it is difficult to locate the dividing line precisely, for although liability for commodity accountability may terminate at a certain point in the pipeline, support activities such

as the aforementioned training programs, construction programs to build nutrition or feeding centers, implementation of nutrition education programs at end-use sites demonstrate a tacit underlying responsibility for all phases of program operations.

Obviously this level of involvement is neither feasible nor appropriate in all countries. In countries where the level of administrative capability is low or infrastructure is insufficient C<sup>A</sup> E involvement in multiple phases of operations is demanded if programs are to function at all. There may be intermediate cases where the scale of operations and type of program necessitates management responsibility for end-use operations as in Colombia where CARE has promoted the construction of food service centers, and where it now largely exercises most of the administrative control over those which are functioning and those which will be built in the future.

In India, on the other hand, where one has to deal with a hundred thousand institutions, the only rational way of approaching an already incredibly complex logistical burden of delivering the food on time and in sufficient quantities is to draw the line at the Block Level and hand over responsibility for end-use operations to the local administration. There are, however, supportive programs in India where activities such as indirect

information/motivation projects are being carried out such as the Orissa pre-school feeding program, or balwadi construction in Tamil Nadu, or in the development and testing of more effective control mechanisms over dry ration home consumption as Project Poshak in Madhya Pradesh. However, the overall program problem in India remains commodity movement and delivery, and this must be taken into consideration before CARE/India can divert resources for the purpose of upgrading the performance of end-use operational personnel. It also means that an alternative approach to the one of upgrading each station on the existing logistic network has to be found. Although this is especially true for India, it holds for some other countries as well.

#### Central Food Processing/Delivery Systems

There are several interesting developments that taken together may offer feasible alternatives. With varying degrees of sophistication and magnitude, a number of projects, mainly urban, have begun to employ a logistical system that eliminates all but essential service steps. In other words, all unnecessary storage and handling stages are eliminated, and the burden of the system is placed on transportation. This is the logistical system being used in the central food processing systems where the food moves from port directly to processor (or to central warehouse and then to processor) and from processor directly to recipient or recipient institution.

Under such systems transportation facilities are part of the processing complex, whether it is a small bakery or huge plant, whether the baker is under contractual obligation to deliver, or the plant has been designed with a delivery maintenance system. Such systems are not new to CARE; variations of them have been employed in school feeding programs in Egypt and Mexico as early as 1962. What is new is their greater variety and the growing role they are playing in CARE food programs.

These systems permit inventory and allocation to be directly related to processing and transportation capacity and this allows for a maximum of rational decisions to respond to contingencies such as, interruptions in supply from commodity source or difficulties in communications during certain seasons or in certain areas of the program's purview of which the processing complex is the center. Central processing has certain other advantages: It permits standardization of per-beneficiary ration and control of nutritive value (though certain preparation techniques may adversely affect the nutritional value and it may be expensive to alter them) and it frees end-use personnel from the chore of preparing food and keeping records. Therefore, it may allow them to spend more time and energy on other facets of the program.

There are four major CARE programs involving central food processing systems in India, which exemplify the strength and weaknesses of this concept of food programming.

They are the Bombay Municipal school milk program, the Tamil Nadu central kitchens, the Madras Modern Bread Bakeries pre-school nutrition program, and the Delhi and Hyderabad SEV extruder/fryer programs.

Bottled Milk Processing

The Bombay Municipal Corporation/CARE School Feeding Program originated as the result of a UNICEF project which called for a matching contribution in the form of free or subsidized milk to school children or low-income families in return for assistance to expand Bombay dairies. The Aarey and Worli Dairies were to reconstitute 300,000 litres of milk from CARE supplied NFDM for delivery to 1,047 schools. However, a number of problems have plagued the program from the start so that the target has fallen to a daily average of 119,000 bottles and 114,000 delivered. The problems are:

- 1) The dairy plants are commercial operations that use liquid milk collected from municipal cattle colonies that has to be processed within twenty-four hours. This milk is given priority over bottling of CARE/BMC milk.
- 2) Trucks, often used in insufficient numbers (although 18 additional vans were supplied to facilitate deliveries), are not always loaded to capacity and are frequently too bulky to negotiate narrow streets on which schools are located.

- 3) Truck drivers are unreliable, reaching schools after sessions have ended and raising personnel costs because they have to be paid for overtime.
- 4) Schools do not supply people to carry up the milk crates to second stories and the truck drivers claim that this job is not their responsibility.
- 5) Traffic conditions often prevent deliveries to the schools and so priority is given to delivering milk to booths catering to low-income families.

The combination of insufficient processing equipment, commercial and subsidized programs competing for the same facilities, and inadequate management practices have hampered the program from meeting its targets.

Basically all of the above logistical problems are solvable in terms of the nuclear storage, processing and transportation unit provided in the dairy complex, if solutions are sought in accordance with sound management principles. These are constantly being explored. The competition for bottling facilities could be avoided by using a combination of bottles, milk dispensers and tank trucks or the establishment of one food factory for all subsidized milk programs. By analyzing transportation, traffic and personnel variables it should be possible to plan workable schedules, load factors, vehicle specifications.

### Food Preparation in Central Kitchens

In the Tamil Nadu central kitchen program a central warehouse services a number of decentralized food processing centers which in turn supply between 3,000 and 7,000 students in schools located in a carefully routed cluster pattern around the central kitchen. The whole operation is extremely efficient, consuming a relatively small amount of manpower, time and fuel and facilities. Each unit is capable of being expanded. As the prepared food has a very short shelf life, it must be consumed within a few hours after it has been prepared, requiring a major logistical investment in transportation as well as an effective maintenance support system. Although the transport requirements for the program are high in relation to each processing unit and the number of children served by each kitchen, the central kitchens are an efficient logistical enterprise with a minimum of control problems. They have been able to bring a manageable and well-organized feeding program into rural areas.

### Enriched Bread Processing

The Madras Modern Bread Bakeries pre-school program is being carried out in urban and peri-urban Madras with possibilities of extension to other urban areas in Tamil Nadu. This too is a daily distribution program of a processed food which has a very short shelf life, thus requiring as a result a considerable investment in transport

facilities. Bread is transported to various selected sites in the urban slum and low-income areas directly from the bakery complex by fleets of company trucks. Each distribution site is administered by volunteers from the Madras Prosperity Brigade, so there are no end-use personnel problems and costs are also at a minimum. Traffic problems have also been obviated by using a network of non-institutional distribution sites; any available site conveniently located for the recipients and accessible to the delivery trucks, such as empty store fronts, temple, school and corner kiosks can be employed. The facilities needed to permit systematic distribution of the bread are minimal. Modern Bread furthermore donates all its processing facilities to the special pre-school nutrition program so the problems of the BMC/ CARE milk scheme do not arise. The only cost problem is that the program must compensate Modern Bread for a full year of activity although it only runs for 260 days.

#### Processed Extruded Foods

The SEV project being developed for Delhi and Hyderabad will not encounter any of the processing or transportation difficulties of the other projects. A dry, fully cooked, traditional food will be processed in specially designed plants for a maximum capacity of 155,000 recipients. The long shelf life (believed to be longer than that of unprocessed commodities) of the SEV

necessitates only periodic issuances. This will increase both the area that can be covered and the number of beneficiaries that can be served by the vehicles that have been designed as integral components of the plant. In Hyderabad, for example, fifteen trucks will cover 155,000 children in 2,500 schools in five districts, compared to the sixty trucks that are needed by the thirty odd central kitchens to reach 120,000 children. The SEV factories will be the first modern non-commercial food processing complexes built entirely for government sponsored nutritional supplementation programs and managed and administered by an autonomous agency especially established for this purpose. In this regard, by allowing the application of sound management principles appropriate to a subsidized operation and a modern food processing and delivery system, the SEV program stands as a technological response to the problems of nationwide food programming that may rationalize its logistics by converting a fluctuating supply of raw commodities into a steady outflow of processed convenience foods directly to end-use sites.

PART III. OPERATIONS - UTILIZATION OF COMMODITIES

On-Site Feeding Programs

The second phase of CARE's concern is utilization-- the process of distribution at end-use sites that will ensure that commodities are consumed by the intended

beneficiaries. The experience of CARE as well as other international and voluntary agencies have shown that maximum utilization can best be achieved in an on-site consumption program since it offers the most reasonable method of supervising preparation, distribution and consumption. Most countries do not have the resources, facilities or personnel to carry out significant medical control of dry distribution supplementary feeding programs, whereby utilization could be measured against established parameters of physiological improvements, nor to undertake regular home inspection and/or market surveillance to guard against diversion and misuse.

One immediate advantage that makes on-site consumption such an attractive alternative is that utilization control can be established with relative accuracy by inventory and issuance figures. One accounting system can thereby keep control of every step in the delivery as well as the utilization phase. The major disadvantage of on-site consumption programs is that the delivery system has to be integrated as far as possible into ongoing institutional infrastructure and administrations which may not be the ideal ones to reach the target population. Control of daily consumption may be offset by lack of continuity and stability in the target population as well as the lack of sufficient focus on the sector in the pre-school generation whose supplementary requirements are greatest.

Secondly, there are usually not enough institutions, singly or in combination, capable of supporting on-site feeding programs so that what is gained in overall control of commodity utilization is sacrificed in the numbers of potential beneficiaries. Moreover, the costs of setting up each individual site may be excessive in proportion to the number of beneficiaries one site can reach, and the efforts to justify the initial costs by further expanding the beneficiary base may in turn require other expensive inputs that may still result in unfavourable cost/beneficiary ratios though greater cost/benefit ratios. Also, the necessity of using more than one available institutional base may involve dealing with poorly and weakly organized organizations or having to face difficulties in coordinating various organizations and government agencies.

The above are briefly the main problems that an on-site feeding program might face. But in comparison to home consumption programs without adequate control or guarantees they have definite advantages.

#### Institutions Used in Pre-school and PNM Feeding Programs

First a few definitions. By institution we mean a network of operational sites that perform a service or set of services. Ideally, they are designed for nationwide extension, their services are standardized, and they are centrally administered. The institutions that CARE uses can be divided into three groups:

- 1) Those that can be converted to support on-site feeding programs;
- 2) Those that can distribute processed or dry ration food for home consumption; and
- 3) Those that are designed specifically for feeding programs and can prepare food for on-site or for home consumption programs.

In terms of control we can classify the institutions according to the following criteria: direct supervision of consumption, indirect supervision, and no supervision.

A support structure for an institutional on-site feeding program contains: a storage and/or preparation area, a counter to permit controlled and systematic distribution, and a supervision area for direct or indirect control of consumption.

The available institutions in developing countries which can support on-site feeding or dry distribution programs 1) and 2) are the schools, the day care or nursery centers, MCH and basic health centers, and the institutions such as mother or community centers which are run by volunteers. These are the basic social welfare and educational institutions of almost all countries. In the past twenty-five years they have become accepted as part of the necessary social development infrastructure. We will, therefore, refer to them in this context as traditional. The first three are generally used for

on-site feeding programs, while the latter, despite occasional programs for distribution of liquid milk or other prepared food, generally distribute dry food for home consumption. In most cases, the former are village contact institutions. Health centers, on the other hand, usually serve a number of villages. They are radial institutions. With the exceptions of the schools, the functions of most village contact institutions are flexible enough to include activities that involve considerable expenditure of time and energy without the addition of auxiliary personnel. Schools and health centers have more rigorous, specific and demanding services and schedules that do not generally permit incorporation of additional programs without corresponding staff support.

Category 3) includes the "food service centers" that CARE has helped to develop predominantly in Latin America (Colombia and Costa Rica), and which have also been introduced in Africa (Liberia). Food service centers are modern community (serving urban neighborhoods or rural townships) installations which can carry out mass feeding programs. At maximum or near maximum capacity, as for example in Colombia (Barrio Cuba), a center can feed upwards of 700 children a full and balanced meal, and reconstitute and bottle milk and distribute bread buns for more than 600 people daily. Essentially this is a kind of deployment of the central kitchen concept on the

micro-scale--the individual community. An outgrowth of the food service center has been the special maternal/child milk/bread stations which reconstitute and bottle milk and distribute bread buns.

There are also non-institutional networks that can be employed for feeding programs. These are variously selected sites that do not have a common service function or are under the jurisdiction of one administrative body. The two best examples are the heterogeneous sites used in the Madras urban special pre-school nutrition program, and the private homes which comprise about 30 percent of the program sites in the Orissa pre-school feeding program. The former is a processed food distribution semi-on-site consumption program; the latter is an on-site consumption program.

#### Reaching the Nutritionally Most Vulnerable Target Populations

Because children in the critical age between six months and three years have been designated the most vulnerable to malnutrition, institutions are needed which provide effective contact (regularity and frequency) with them. The MCH centers reach this group because of the health services they offer; however, contact is at best spasmodic since they are usually turned to only in time of acute need. Most MCH centers are located too far from the villages they serve to guarantee daily attendance, except from those who live in immediate proximity to the

center. Thus the basis for an efficient on-site consumption program is a village contact institution. Day care centers, nursery centers, women's welfare or community centers, or the like, and schools are generally the village contact institutions most available. Except for women's welfare or community centers, they are structured around daily activities. However, they are limited in number and they do not appear to have established this contact with the critical target groups in the pre-school age population. In these institutions we can always find a small percentage of the under-three year olds. Where there are feeding programs, the percentage increases but not significantly enough to reflect a trend. Their main constituency is the group of four to six year olds. These institutions largely service the ambulatory child who is no longer completely dependent on the mother, children who can either walk to the institution themselves or be entrusted to the care of an older sibling. The institutions provide either custodial or educational services to the child about to enter school. In Kenya, for example, most nursery centers are substitute primary schools and very often children attend them until well into their seventh and eighth year. In Tamil Nadu, the balwadi is essentially an institution set up to socialize children before they enter primary school.

Women's welfare institutions do not have a traditional

foothold among women who are in their child-bearing years and therefore likely to have young children or frequent pregnancies. The service they offer tends to exclude family concerns: Women attend to sew, or to learn skills that will make them economically more independent, or just a place to get away from the family for a short time during the day or week.

The same failure to make significant inroads into the under-three age group is apparent, even in the non-institutional based programs in Madras and Orissa, as well as in the special community feeding institutions developed for Colombia. In the latter, particularly in the maternal/child milk/bread program, some preliminary studies undertaken by CARE show that the majority of women who participate in the maternal/child milk program have large families with one pre-school child at the lower end of the age scale. The younger mothers usually have one pre-school child. The latter may well become permanent participants and they may have more children who will be able to take advantage of the commodity distribution, but at present the program does not seem to be reaching families with more than one or two children within the pre-school age period. Moreover, these programs are all voluntary. Other than need there is no visible compulsion for either the mother or the child to attend any of the above centers daily. Thus stability and continuity are

difficult to achieve.

Magnitude of the Beneficiary Base

The larger the area served by a single mother/child feeding center the more variables and the more inconveniences the beneficiaries will encounter in proportion to their distance from the center. Thus to achieve maximum attendance at any one center it is necessary to locate it in an area of greatest population density. On the other hand, the number of children any center can hope to serve is limited by the physical capacity of both the center and the food preparation facilities installed to support the feeding program. In a low density area or in an equally distributed density area, the best solution would be the radial institution serving a number of rural villages or urban communities. Beneficiary capacity would be limited only by the storage capacity of the center and the frequency of commodity delivery. In a radial situation programs would have to be in the form of take-home distribution of not less than weekly or more than monthly intervals.

In an on-site feeding program there would have to be at least one center per community, village based in rural areas for village and peri-village inhabitants, and neighborhood based in urban areas. The fact remains that except in a very few countries there is no single institution or combination of institutions that provides adequate coverage of the pre-school population or pregnant

or lactating mothers.

Chile - MCH and Nursery Centers

Exceptions can be found in Chile and in Kenya. The pattern of institutional proliferation in Chile has been expedited because the country is so heavily urbanized. The emphasis of the Government of Chile has been on the radial MCH and basic health institution which at present reaches 75 to 80 percent of the population, which itself is close to 80 percent urban. The approach to supplementary feeding programs has therefore been dry ration distribution. With such broad-based institutional coverage already achieved, efforts have been directed to finding the means to reduce the extent of commodity diversion and misuse. Alternative institutions exist in Chile for on-site feeding, but their coverage is considerably less extensive. For example, 400 functioning day care centers have been built and staffed within the last few years, largely by private industries, and to a lesser degree by various ministries, for their employees. These centers reach approximately 40,000 pre-school children, in this instance between two and five years of age. Recent child care legislation calls for one center per fifty families, but it is unlikely that the goal of expanding the network of day care centers will be realized because of the expense involved, the lack of sufficiently qualified staff, and the more immediate problem of centralizing all existing day care

centers under the jurisdiction of the newly created National Council of Nursery Centers. A third possibility, equally non-feasible for the immediate future, lies in the welfare and community development institutions planned as a nuclear complex for all urban and rural communities.

#### Kenya - Day Care Centers

Kenya has an impressive network of day care centers, while its health infrastructure is confined to district capitals. There are about 6,000 nursery centers reaching approximately 300,000 children, mostly between four and six years of age, remarkable for a country with a population of 11 million. The rapid multiplication of the nursery centers stems from the community spirit that is responsible for most of locally based rural development. In one province the ratio of investment between local communities and the government in community development is nine to one in favor of the communities. However, one result of leaving the expansion of this institution to the initiative of the community is a lack of central control over activities, personnel and standards. The day care centers remain for the most part unsupervised and unsupervisable because appropriate control mechanisms have not evolved at a corresponding pace.

#### India - A Multiplicity of Pre-School Institutions

A combination of Welfare institutions (many of them the homes of welfare volunteers), schools, nursery centers,

and non-institutional sites comprise the operational base of the Indian pre-school nutrition program and it still reaches only a small percentage of the target population. The only other indigenous village contact institution is the primary school. In India, as indicated above, it is a major distribution site, in eight out of fourteen states, and other countries regard it as an underutilized institution which could be feasibly exploited for pre-school programs. The feasibility of fully utilizing the schools would depend on whether a single school could manageably increase its beneficiary load without corresponding reinforcement staff and whether the addition of a non-educational program activity would significantly interrupt the daily routine. If it were difficult to monitor the school feeding program a second program would undoubtedly complicate program control and administration even more, especially if more than one ministry were responsible for the doubled program levels. Whether or not the welfare potential of the school is being fully tapped may also depend on which side of the delivery system one stands. In most underdeveloped countries school teachers are already overburdened because they are required to assist in so many non-academic activities in the schools. Politics may be more decisive than nutrition in setting up pre-school feeding program in the schools.

Colombia - The Food Service Center (Comedor)

On the one hand, there is a scarcity of institutions serving the pre-school sector or suitable for supporting an on-site supplementary feeding program. On the other hand, the limited facilities of these institutions place a constraint on the number of beneficiaries each site can handle. One solution to this dilemma has been the development of the food service center in Colombia designed to serve the entire community by providing a modern facility through which to carry out a mass feeding program. They are adequately equipped installations capable of processing food for home consumption as well as preparing a variety of complete balanced meals for on-site consumption. As developed in Colombia, they are versatile food service institutions separately administered and distinct from other community health and welfare institutions, though under the jurisdiction of the same parent organization, the Colombian Institute of Family Welfare. Basically, their only purpose is to prepare, process and serve food commodities; as such they have no inherent constraints as more traditional institutions do in reaching particular beneficiaries. The operation of food service centers are more diversified than that of central kitchens because they not only prepare food for large numbers but also serve recipients on premises. This requires additional appropriately designed maintenance systems. As a result,

considerable effort has gone into improving the design of equipment and the structure, and in engineering the routine so that all operations can proceed as efficiently as possible.

The comedor operates most economically when it runs at full capacity. Therefore it is logical to situate these centers in areas of high population density. Unfortunately many of the centers presently operate well below maximum capacity because they have been inappropriately located, while smaller maternal/child milk/bread units strategically located can have double or triple beneficiary loads or can run at small recipient loads. When the centers were originally built the density factor was partially obviated by locating the centers adjacent to the primary schools and using them to expedite and facilitate the school feeding programs, although in a number of instances even the schools do not provide sufficient recipients to justify the presence of this kind of institutional service. There is no comparable institutional paring for the pre-schooler.

Many of the operational difficulties might be improved by providing better trained staff capable of working in this relatively sophisticated environment. Carefully planned promotional activities in the community may produce better results in terms of reaching more deeply into the vulnerable sectors of the community, and the

introduction of complementary educational services might strengthen the overall effectiveness of the institution. Still, the basic rationale for it is in the numbers of people it can serve, and accordingly it must be located in areas where the density of the population will create conditions for full capacity operations. In certain areas, a food service center can conceivably direct all its efforts to pre-school feeding and absorb in one site all potential beneficiaries that might otherwise have to be reached through various separate institutions. In other areas, a large food service center may not be appropriate-- there the pre-school supplementation programs will have to continue to rely on smaller institutions, either indigenous or drastically simplified maternal/child milk/bread stations.

#### Alternative Approaches to On-Site Feeding

CARE's concern with the problem of controlled or supervised utilization through on-site feeding poses another problem, that of insufficient numbers of traditional institutions that do not effectively reach the target group of pre-school children. Moreover, new institutional bases, while they extend feeding programs into new areas of the country, may also have only limited applicability in reaching the targetted beneficiaries. The efforts we have made so far in dealing with utilization reflect a response to the problem as one that has to be treated

on a local and piecemeal basis. The formula for this solution to the problem of on-site feeding has been the proliferation of community-based institutions. This has been exemplified by the following efforts to promote better possibilities of monitoring utilization at the same time as extending the coverage of the target group.

- 1) Food service centers have been built, usually wherever community interest has existed and satisfactory participation could be obtained. As a result, construction has not been able to proceed according to a specified plan (Colombia).
- 2) Nutrition centers have been constructed on the same basis (Costa Rica).
- 3) Nursery centers have been built to provide better support structures for pre-school feeding programs (Tamil Nadu, India).
- 4) Kitchen equipment has been provided to various kinds of centers (India, Colombia, Philippines).
- 5) Host government agencies, usually the MOE and MOH, have been encouraged to operate pre-school feeding programs through the schools (India).
- 6) Nursery center teachers have been trained to establish community pre-school feeding programs (Kenya).

These efforts have enabled us to use the existing systems more efficiently and to broaden the beneficiary base, but

have not provided a comprehensive solution to the problem of implementing a nationwide pre-school feeding program.

There are, however, a number of recent development that may make it possible to deal with the problem in ways that go beyond merely arithmetically increasing the operational base, which at best progresses slowly, and at worst proceeds randomly, according to the whims and economic capacity of local communities or private agencies. A potential solution may lie in a combination of the hypotheses that are being tested in the Curico milk substitute acceptability project in Chile and the Madhya Pradesh Project Poshak take-home distribution feasibility pilot study (jointly funded by AID, GOI, GOMP and UNICEF, and administered and designed by CARE/India). The hypotheses are respectively:

- 1) Supplementary food provided to recipients in national nutrition programs will be better utilized if the recipients are regarded as consumers rather than beneficiaries; and
- 2) Utilization may be ascertained and monitored by measuring height and weight increments according to established parameters of physiological improvement based on calculation of the optimal benefits that can be derived from the food provided in the program.

If the pilot projects demonstrate that these hypotheses

are valid, radial distribution for home consumption may represent a feasible method of getting out of the cul-de-sac of the on-site feeding approach. This in effect means a return to the previously high-risk dry ration distribution programs but under conditions which are more carefully attuned to the special problems of the maternal/child audience and which provide for appropriate controls.

#### Curico Project

The Curico project was devised by the Pediatrics research Laboratories of the Faculty of Medicine of the University of Chile in an attempt to develop an inexpensive, locally produced, acceptable milk substitute to replace the whole fat milk that is presently being distributed in the National Health Service nutritional supplementation program. In addition to designing a product that will have optimal nutritive content, desirable organoleptic properties and high solubility in order to obtain maximum protein from minimal bulk, the laboratories feel that the food must also be amenable to integration into the consumption patterns and consumer behavioral characteristics of the intended recipients. This has been deemed the only way to significantly reduce the kind of diversion and misuse that has affected other commodities distributed in the Chile pre-school national supplementation programs where the Laboratory contends inefficiency in utilization has been as high as 70 percent. This mainly occurs because

mothers naturally tend to distribute the increased food supply to all members of the family to the disadvantage of the targeted pre-schooler. More importantly, misuse results from the social and cultural factors that appear to outweigh the food needs of the family. Therefore, acceptability must be considered not only from the standpoint of the pre-school beneficiary who will consume the food, but also from the view of the mother and other adults who will ultimately decide if, and determine how, the food is to be used, and if it is to be brought into the home in the first place.

A product, therefore, not only has to be introduced; it also has to be promoted and identified from the start as a special food for pre-school age children, and imbued with an image, status and prestige, that will make it desirable. The acceptability of special program foods directed to the lower income sectors of the population must be studied from the perspective of their commercial possibilities, for if they do not have commercial market potential and therefore some appeal to upper socio-economic sectors, they may be immediately recognized as poverty foods that will provoke an irrational disinclination to use them and will prejudice any perception of the need for and the value of these foods. In the Curico project, the milk substitute (75% expanded WSB, 20% NFDM, and 5% chocolate) has been introduced under the name Fortesan,

as a new product for pre-schoolers, packaged in 1 kg. cans with specially designed labels by Nestle subsidiary, the largest commercial food producer in the country. By integrating the project with Nestle, the Laboratories hope to establish a prestige image for the new product which will carry over to less elaborate packaging and labelling. As soon as the initial acceptability test is completed and evaluated, it is hoped that Nestle will market Fortesan commercially so that the image will be further enhanced for mass distribution in the National Health Service program.

#### Project Poshak

The objective of Project Poshak is to identify an effective methodology and determine its feasibility for monitoring utilization of commodities in a take-home food distribution program. Briefly the project will be implemented along the following lines. A pre-cooked form of CSM will be distributed to approximately 20,000 children between six months and three years of age, and to their mothers through various MCH and sub-health stations in Madhya Pradesh. Each child will receive a ration of 100 grams per day, and each woman 200 grams per day. There will be three phases in the project. The first two will each last six months and will run concurrently. The third will run for one year beginning about three months after the conclusion of the first two. The first run is

intended to test operational procedures for distributing the food to 3,600 mothers of 14,500 children, and taking the latter's height/weight measurements. In the second run of 400 mothers and 1,000 children, anthropometric measurements will be taken and compared with a matched control group. The health status of the recipients will also be evaluated as to their nutritional status, hemoglobin levels and type and frequency of illness. Before the third run of 600 children and mothers with a matched control group, a baseline study will be made to determine relevant socio-economic factors and the results of the first two runs will be evaluated and compared with the baseline study. A representative sample will be selected from the third run to consume their rations at the centers under supervision in order to establish the optimal benefits that can be derived from the food. On the basis of the data secured from these matched groups, it is hoped that we will be able to quantify the relationship between growth and various conditions of supplementary feeding, in the form of an anthropometric scale.

Such a scale will determine the increments under supplementary feeding conditions. This will provide an instrument with which to measure how well the food is being utilized, and will permit the comparison of benefits under two levels of controlled conditions, including nutrition education and health surveillance,

with benefits under general operational conditions. The results of this comparison will indicate how closely field benefits approximate laboratory benefits, whether the former benefits are significant or marginal, and how much intervention in the way of nutrition education and health surveillance is required to bring field benefits up to a level which will make a home distribution program worthwhile. Thus, it might be possible to establish acceptable increment figures, applicable to a cross section of the beneficiary population, that will provide an accurate yardstick with which to measure food utilization. We will also have quantifiable data on the relationship of support activities to food utilization in general supplementation programs rather than open and vulnerable assumptions.

Although the mobilization of resources and personnel-- the project team includes seventy members, together with 200 to 300 health personnel who have received special training and the entire project will cost \$250,000-- might belie the stated goals of finding a "feasible" way of implementing a take-home program, the results may mean that investments now being made in supporting on-site feeding programs might better be directed toward setting up supervisory systems for home consumption programs of the type being tested in this pilot project.

### Growing Role of Food Technology

The growing role that technology can be expected to play in food programming, both in the area of processing and logistics, will undoubtedly lead food programming strategies back to home consumption. Convenience foods, ready to eat out of the can or plastic bag, or after mixing with water, are going to eliminate the necessity for institutional intervention to prepare or apportion these foods. The more control that processing technology can exercise centrally, the less need will there be for operational activity at the consumption levels of programming. In a subsidized program, some form of supervision will always be required. On the one hand, it can be expedited by distributing a product that will be inherently less susceptible and vulnerable to diversion and misuse; on the other hand, it can be carried out by simple and periodic anthropometric measurements that will accurately reflect consumption. It seems obvious that the technological intervention will result in the convergence of what should be mutual reinforcing techniques.

It should be stressed, however, that food technology alone will not solve nutritional problems. Careful attention must be given to the sociological and cultural factors shaping food preferences. The development and testing of new food products should draw on the experience of individuals and agencies engaged in mass nutrition

supplementation programs. New foods acceptable for subsidized nutrition supplementation programs may lead to the establishment of strong consumer patterns which may gradually facilitate their commercial distribution, especially among a large percentage of those who initially receive them through institutional channels.



CHAPTER FOUR      DETERMINING THE EFFECTIVENESS OF NUTRITION PROGRAMS

INTRODUCTION

The discussions in the previous chapter were aimed at defining and describing the framework of CARE food programs and the operational criteria used to evaluate them. The criteria are those of efficiency. Support activities have been chiefly directed toward improving movement and utilization because operational problems have tended to magnify the infrastructural inadequacies that cause delays, diversions and misuse along the pipeline. This has, as a result, focused attention on the basic institutional requirements for programming. In spotlighting the inter-dependencies of delivery systems and thereby calling attention to the need for long-range comprehensive solutions, CARE has supplied stimulus toward the development of indigenous food technological systems, and the provision of better administrative systems and more qualified personnel. We also have in many cases provided the impetus for encouraging the active participation of local communities and municipal and regional governments in building the requisite support infrastructure. In a sense, then, program operations have had a catalytic effect on at least one area of national development. The infrastructure materializes slowly, but perhaps, not so slowly as it would without the pressure of commodities that have to be moved on schedule to their end-use sites.

THE CONSTRAINTS ON PROGRAMMING

Within this operational framework, feeding programs have generally only had to contend with programmatic constraints or manageable variables: that is, problems that are amenable to some sort of solution. These variables are the combinations and permutations of logistical, administrative and infrastructural requirements that prevent efficient commodity movement and utilization. There are also external constraints related to the source of food commodities, the absence of national nutrition development plans and the commitments of resources to school feeding programs which presently have high priority with host governments.

Despite efforts to develop indigenous sources of food for feeding programs, most major undertakings in nutritional supplementation can be expected to be dependent on foreign food sources subject to donor regulations and contingencies, which will determine what kind of commodities will be available for programming, and also when, where, and in what quantity they will be provided for some time to come. Long-range planning, therefore, will be difficult even under the best of host country circumstances. Conversion to domestic foods, moreover, is unlikely to happen until agricultural and nutrition policies are integrated and commodities from the regular production, marketing and distribution systems are channelled into food programming. More importantly, policy makers and planners have only recently begun to recognize the developmental

implications of malnutrition and as yet few have applied modern planning techniques to this problem or have viewed nutrition in relation to broader national objectives. Until this occurs, it must be assumed that supplementary feeding programs will be at the least, ad hoc efforts (regardless of magnitude) and at the most, one of a number of activities of health, welfare, or education agencies aimed broadly at the general medical and humanitarian objectives of eradicating malnutrition or improving the quality of life or less ambitiously at providing relief to the needy. So long as we find ourselves operating within unclear priorities, targets, goals and objectives, limited resources and inadequate infrastructure, actual programming possibilities will remain relatively restricted for the most part to school feeding programs, an illustration of the entrenched belief that academic education is the secret of national development. Although the contention that the critical groups are pre-schoolers and PNM's has met with increasing acceptance over the past five years, and CARE has restated its programming goals to fit more precisely the new concern for priority groups, actual programming levels have remained about the same during this period. There have been no dramatic shifts in resource allocations. Efforts have instead been made to increase the overall commodity supply to include the new beneficiary categories.

With the operational framework and programmatic limitations in mind, we can begin to look at the nature of

the supplementary feeding programs CARE supports and their role in national development.

#### TYPES OF NUTRITION PROGRAMS

There are basically two kinds of nutrition programs; supportive and rehabilitational. Each is distinct according to the principle which governs the selection of beneficiaries, and the function and purpose of control and evaluation that proceeds from the principle. First, rehabilitational programs will be discussed because they are not generally included under the category of broad-based nutritional supplementation and because prior examination of rehabilitation programs will help clarify some of the questions we will bring up in regard to supportive supplementation.

#### Nutrition Rehabilitation

CARE is involved in two major national rehabilitation programs in Colombia and Costa Rica and is financing at present, through an AID Nutrition Incentive Grant, a feasibility study in Panama to determine the relative merits and costs of institutional and home-based rehabilitation. Other countries have rehabilitation programs but none is broad-based to the extent that it can be called national. They reach only a very small percentage of the pre-school population, usually that section which is acutely malnourished, offering intensive short-term treatment for the child based on a special diet of locally available foods, and educating the mother to enable her to prepare the special diets at home. Highly qualified

staff and sophisticated and elaborate facilities have either confined the rehabilitation centers to major cities or a few selected rural areas without much chance of being widely duplicated.

The Costa Rican and, to a lesser degree, the Colombian programs have overcome the restraints intensive care programming imposes on possibilities of expanding rehabilitation units by (1) orienting the programs to less acutely malnourished children who don't have to be institutionalized (though provision is made for children who require institutional care); (2) limiting rehabilitation to minimally supervised supplementary feeding and nutrition education while extending the period of the rehabilitational process - in the case of Costa Rica, to whatever period is necessary - and (3) relying on auxiliary staff to carry out daily operational routines with only periodic inspection and supervision by professionals. These are the characteristics common to the two programs (as well as to the pilot studies in Panama). They apply to supportive supplementation as well. The distinguishing feature that characterizes them as rehabilitational is that doctors in urban or rural health stations select each individual beneficiary on the basis of the child's nutritional status and provide, in varying degrees, the necessary supervision of the child's progress while auxiliaries and nutritionists provide the administrative and educational inputs. Under ideal conditions, the beneficiary base should be composed of

clinically identified cases of malnutrition. In actual practice, the programs are implemented differently.

The programs can be best compared by examining various aspects of their operation.

1) Infrastructure

The Costa Rican program is carried out through special nutrition centers (CARE has supported their construction under a series of self-help partnership programs involving local communities and the MOH) which function as a special service arm of the health stations for nutrition rehabilitation. Approximately 12,000 children now participate in 172 centers around the country. There are also about 35,000 recipients in the home consumption program.

Colombia, on the other hand, works within the regular institutions of the National Health Service (health centers and polyclinics of urban and rural hospitals) for its programming operations. The Nutrition Division of the Colombian Institute of Family Welfare estimates that 127,000 children have been reached since the establishment of the program.

2) Supplementation and Education

Costa Rican programs aim primarily at the child - provision of at least one balanced prepared meal daily. Incentives are often given to the mother to bring the child to the centers by allowing her to bring other pre-school siblings to the center for a meal (Women also receive dry milk for home consumption. The amount varies according to

the child's nutritional status.), but only marginal consideration is given to the mother's role in the process of rehabilitation. Periodic nutrition education courses are held at the centers but they are directed to a general audience. The need for a structured educational component has not been emphasized because the children can continue indefinitely even though their nutritional status may have improved.

In Colombia, mothers receive a monthly ration of milk for the children who have been selected by local health station personnel. Education plays a more prominent role. The women receive nutrition education lectures over a six-month period while they and their children remain under close surveillance by nutritionists and auxiliary staff of the hospital and health centers. During a second six-month phase, regular height and weight measurements are taken. At the end of this period, the child is dropped from the formal supplementation program and the responsibility of continued rehabilitation is left to the mother. If any marked regression in nutritional status occurs, the health centers accept the children back into the program for another full year.

### 3) Goals of the Rehabilitation Program

The goal of the Costa Rican program is to enroll as many beneficiaries as possible and to maintain regular attendance among this recipient population. It is not often feasible to follow the progress of the child after he enters the nutrition center program because of the lack of sufficiently

qualified staff. Costa Rican officials and medical authorities believe that the absence of intensive evaluation of the rehabilitational progress will be compensated by the long period the child can remain in the program. Moreover, the practice of providing full meals to siblings of the selected children indirectly contributes to improved diets at home as the amount of available food for all family members increases.

The goals of the Colombian program are more definite. They are: a) to initiate the process of rehabilitation; b) improve the nutritional status of the participant by at least one grade; and c) to enable the mother to continue the recovery process at home on the basis of the education she has received during the first phase of the program. The program has so far been evaluated from the standpoint of the second goal. A number of Departments will carry out follow-up evaluations this year on participants who have completed both phases.

Both these programs are essentially medical in orientation: Identify sick children and cure them. This is just one response to an extremely high incidence of malnutrition and associated infant morbidity and mortality. What has been lost in the way of intensive treatment has been gained in the numbers of children reached in the program which should continue to expand as the operational bases proliferate. Nonetheless, the focus of the program is still on the individual child who provides his own benchmark for evaluation on the

basis of the degree of malnutrition when he is selected. The success of the program as a whole is not evaluated. Evaluation pertains only to the progress each participant makes during his stay in the program.

The strategy of this kind of mass approach is best exemplified by Colombia , though it is implicit in the Costa Rican one as well: Bring the nutritional status of the participant up to the point where he will no longer require any specialized or institutional service, and provide through nutrition education preventive action to keep him from regressing to the point of again requiring special supplementary nutritional services.

#### Supportive Nutrition Programs

With the exception of the programs described above, most of the CARE programs are supportive. The objective of a supportive supplementation program is to increase uniformly the dietary intake of all recipients who are selected on the basis of their socio-economic status rather than their nutritional status. The rationale for this kind of approach is that given the high incidence of malnutrition among the lower income groups, partially attributable to the low per capita intake of nutritious foods, malnutrition can be ameliorated by providing daily supplementation of high nutritional value. The standard criterion for evaluation of such a program has been an efficiency index - utilization. The amount of food that is consumed is quantified rather than

the impact of the food on the consumer. We have assumed that because pre-schoolers are the most vulnerable to malnutrition and its consequences, improvement in their diets will have an overall impact that is much greater than on older school-age children.

The Difficulties of Assessing Supportive Programs

What does the desired impact signify? It is not very clear what is meant by amelioration or raising and maintaining improved nutritional status. Are we talking about comparative or absolute improvement? Are the goals of the supplementary feeding program to improve nutritional status over what it was initially when the child entered the program, or are they to raise the nutritional status to accepted normal standards? If the participants are not selected individually, if a benchmark against which to measure improvement is not provided, how can impact be determined? National health statistics do not aid us in this instance because the percentage of children in the programs is too small to make an appreciable difference in the overall incidence of malnutrition, morbidity and mortality. Furthermore, because the programs as described below largely reach older pre-schoolers, often children above five who have passed out of the critical period of vulnerability, there is also less likelihood of any significant differentials emerging.

All that can possibly be said on the basis of the assumption that supplementation will ameliorate the symptoms

of malnutrition is that some children will benefit significantly and that others will benefit marginally, depending on their nutritional status when they enter the program. In certain instances, qualitative and quantitative improvement of the diet may mean the difference between undernutrition and adequate nutrition. If the gap between these two nutritional states can be bridged through supplementary feeding, the net value of the additional food will be proportionate to the anticipated benefits that can reasonably be expected from the adequately nourished child in terms of his learning capacity during his school years and in earning ability as an adult. On the other hand, where there is a broad socio-economic spectrum from which to draw recipients, there will also be children who require considerably more than the specified rations to raise their nutritional status to satisfactory levels. Under such conditions, the returns on the supplemental input may only be negligible if it does not significantly alter the potential for improving learning and earning capacities.

Supportive supplementation basically aims at being developmental as its goal is to upgrade the total economic potential and capacity of the beneficiary. The evidence linking early malnutrition to both physical and mental underdevelopment and the bearing of this relationship on social and economic development have been responsible for the shift in focus from school children to pre-school children and PNM's as priority beneficiaries. Research in this area has begun

to demonstrate and substantiate the causal link between the two aspects of underdevelopment. As a result, there has been a growing demand for effective intervention in the cycles of underdevelopment which turn on malnutrition. The proximate cause of malnutrition is inadequate dietary intake, therefore supplementary feeding is believed to be the most effective intervention.

#### Needs Versus Effectiveness

This kind of reasoning, however, has led to the projection of assumptions regarding need onto effectiveness: If the program is necessary it is, therefore, effective. However, while few would question the first assumption, the other side of the equation is still in doubt. There is still not sufficient evidence as to how beneficiaries fare under supportive feeding. Ascertaining what proportion of them benefit significantly, and if there is, indeed, any way to measure or determine the returns on the early investment in supportive supplementation is difficult. The relationship between supplementation and other essential health, education and welfare services, must be assessed in order to establish relative values of each contributory element. Lastly, recognizing that there are sectors within the broader category of low-income groups that benefit more than others, we have to identify and design programs to reach more of them.

Without this kind of data, assumptions, regardless of how much goodwill and common sense stands behind them, will

continue to remain only assumptions. While the objective may be development, the actual result may be only relief and the assumptions will be vulnerable and open to refutation.

#### Possibilities of Measuring Effectiveness

Although not directed primarily to this end, much of the information that will be amassed from Project Poshak will be useful in providing some indications not only of utilization but also of effectiveness. The correlation between anthropometric measurements with nutritional status and socio-economic environments should, in particular, enable us to establish preliminary guidelines with which to compare relative need against relative improvements in terms of all the basic characteristics of the beneficiary. This will go a long way toward determining whether resources can and should be focused on socio-economic sectors where they will have optimal impact and where they will have the highest proportional value in the complex of available or provided services.

#### Focusing in Mass Nutrition Programs

Focus has been an element in food programming that has generally been neglected. Given the narrow road between programmatic and external constraints, it is doubtful if focusing is realistic beyond redefining in rather broad terms priority beneficiaries. Yet, it would seem an essential element in deploying resources. Certainly it is there in its negative aspect as "discrimination". It emerges most obviously in the institutions which have no under-three year olds as

possible beneficiaries. In India it is a result of the caste system that determines which of the various needy groups in some areas or which of the various socio-economic groups in others can use a rural center. In its cruder shape, it is responsible for excluding some indigenous groups in a number of Colombian Departments from using the food service centers. Subscription fees, daily charges, etc., also screen out beneficiaries, and there are doubtlessly other examples of ways in which potential beneficiaries are fortuitously eliminated from supplementary feeding programs.

The most common form of programmed focus is found in rehabilitation programs which deliberately screen beneficiaries for the purpose of selecting recipients on the basis of nutritional criteria. The Pediatrics Research Laboratories of the University of Chile suggests that this process can be controlled in supportive programs as well, if the program is designed from the outset with a specific group in mind. On the basis of extensive research on the relationship of malnutrition to physical and mental retardation, the Laboratories believe that the lower urban working classes show the strongest correlation between the need for supplemental feeding and optimal benefits that can be derived from it. Pre-schoolers in this socio-economic sub-sector do not usually manifest physical syndromes of malnutrition. However, their diets are sufficiently inadequate for the cumulative debilitating effect of chronic undernourishment to damage their development.

The Laboratories have no conclusions as to how this group can be reached and certainly no decisions have been made as to whether this group should be reached to the exclusion of other needy recipients. Research only suggests that maximum dividends from a supportive supplementation program will come from this particular lower urban working class. A partial solution to focusing has been offered in the day care centers in Chile which aim specifically at children of this socio-economic group. Day care in the variety of services it offers and for the extended period of time that it withdraws the children from the home environment, represents an expensive but massive intervention in causal factors that make the home environment detrimental to the normal development of the child.

Another feasible solution may emerge from the Curico project in the design and marketing of low-cost, partially subsidized weaning and pre school foods that will blend in with the consumption patterns and consumer habits of this class. The urban working class has a number of advantages over marginal socio-economic groups in rural areas and they may be more susceptible to techniques of this kind. A recent seminar of the Latin American Council of Deans of Schools of Administration (representing Universities in fourteen countries) recommended a study of ways in which marketing and administrative principles could be applied to the problems of introducing new foods and encouraging better consumption practices, and also to determining the specific groups, within the broader range of

the deprived, can most effectively benefit from this kind of programming.

Focus in Mass Communication/Nutrition Education Programs

This concept of focus is also being investigated in the mass communications/nutrition education projects in India. The Protein Foods Association of India (a consortium of commercial food industries), conducting a one-year pilot study in Maharashtra as a first step in implementing a nationwide nutrition campaign spread over a considerable period of time, has defined as the target groups for this campaign, the sector of towns with populations over 20,000 earning an average monthly income of Rs.250 (\$33). These are the people who are in the middle and lower middle income groups, who have a certain amount of surplus income that can be utilized for nutritionally better food choices if they are properly motivated, and the people who are reachable by the mass media. By specifically designating a target group, the campaign distinguishes between those upon whom this type of programming effort can have an effect and those for whom only government relief or support programs are the only solution -- people below the poverty line. In distinguishing between those most vulnerable and those most reachable, the Protein Foods Association recognizes that the only way to rationally deploy limited resources is to deploy them where they will have their maximum impact.

Focus is even more clearly demonstrated in the concept and design of the rural mass communications project CARE/India

is undertaking with AID 204 funding assistance. The overall objective of this project is to develop a number of informational campaigns in selected areas to establish or increase nutrition awareness among the selected segments of the population that can best utilize this information. Utilize means the ability to understand and act upon information. It assumes that certain sectors although severely affected by malnutrition cannot be reached through informational campaigns because of their lack of contact with the media, their lack of education and their economic and dietary inflexibility. There are also groups which can utilize the information but who do not need it because their nutritional status is satisfactory. Between these two extremes, it is necessary to determine which socio-economic group requires nutrition education, and at the same time, is receptive to the media and capable of taking steps to improve its nutritional status.

The project further refines its focus onto three other areas:

- 1) The nutritional deficiencies which can be ameliorated easily through dietary alteration;
- 2) The beneficiary within this socio-economic segment who will benefit the most from the improved diet as defined under (1), and
- 3) The audience within the socio-economic segment which can best receive and utilize the information for the benefit of the selected beneficiary described under (2).

Possibly such precision may only be warranted in countries with huge populations where there is considerable stratification within the socio-economic groups. However, the results of the Korean mass communications nutrition education project, which CARE assisted through an AID Nutrition Incentive Grant, suggest that focus plays an important role whether or not deliberately planned. The primary concern of this campaign was in the preparation of a suitable message which set the identified nutritional needs of the country as a whole within a comprehensible semantic and cultural framework. Although the campaign was generally directed to the lower income groups, the message was not matched with a particular receptive segment manifesting a specific nutritional deprivation. Various printed materials specifically designed for women, children, and family units were distributed through rural development offices and health centers, while radio spots, broadcast for a period of nine months throughout Korea, reiterated the messages of the printed materials. A two-month evaluation measured recognition and retention of the message among both recipients and non-recipients of the printed materials. Unfortunately, it did not make a separate evaluation of the impact of the radio messages. The conclusions were that the most receptive audience was young, educated and middle class and that urban dwellers were more receptive than rural people. It showed a correlation between the media presentation, education, class and receptivity of the message (in this particular instance, the benefits of improved

weaning practices.)

The evaluation did not correlate the above with need. Given the characteristics of the prime receptive class, it is possible to conclude that the message may have landed on ears and eyes which least require this kind of nutrition educational effort. However, the fact that the media campaign was more effective (recognition and retention) in one socio-economic group than in another and that there seems to be some relationship between the type of media used and the receptive class, suggests that a more precise definition of goals might have made the impact more meaningful. Commendable as the program was operationally, the results of the evaluation point to a greater need for focus and selectivity in determining target groups.

#### Focusing-Nutrition Education

Nutrition education might be more appropriate for focused programming than supportive supplementation because it is relatively free of the aforementioned constraints. Considerably greater flexibility is permissible in deploying even limited resources. To date, we have supported five categories of nutrition education programs:

- 1) Development of materials for introducing nutrition education in school curriculums,
- 2) Nutrition oriented training seminars for administrative personnel;

- 3) Training of teachers or volunteers to conduct nutrition awareness courses for various audiences in community institutions.
- 4) Mass communications programs aimed at the general public (in a non-institutional setting); and
- 5) Integrated family education or family service programs where nutrition supplementation and education is combined with family planning and child care instruction.

The first three are obviously limited by programmatic constraints similar to those which affect food programming operations. Mass communications projects on the other hand, allow for a more extensive outreach and for less intermediary operational activity between nutrition programmer and audience.

There is enough evidence that nutrition education under intensive conditions of individual instruction by professional educators will pay off far more impressively via the improvement of the nutritional status of the pre-school child than supportive supplementation alone. These results have come from evaluations of special pilot projects or elaborate rehabilitation facilities. In Kenya, CARE has helped implement (through an AID Nutrition Incentive Grant) a broad-based community nutrition awareness campaign. Although the program has not been fully evaluated there are indications that implementation at least is feasible under circumstances where there are semi-structured learning situations available

and where there is considerable follow-up from counterpart officials and support by community influentials for such activity. The impact on community consumption habits is still uncertain.

In Colombia, there is a joint community/mass communications (radio, periodicals, books) program directed to rural communities (though the urban base is gradually growing) in six central provinces. The program which reaches approximately 80,000 people in 500 to 700 municipalities, combines local community development educational classes given by specifically trained volunteers with a daily radio program run in conjunction with the classroom activities. Nutrition education is an essential element. UNICEF and University of Michigan evaluations have been favorable; the latter has indicated a one to twenty multiplier ratio in the dissemination of information.

In Chile, mass communications are also being turned to. The National Health Service is carrying out a mass media public health campaign in concert with the milk program to encourage and inculcate habits that will lead to more frequent attendance at MCH and basic health centers, which it is hoped will lead to a decline in infant morbidity and mortality and malnutrition as well. This year the National Health Service will also inaugurate a nationwide nutrition education program through the mass media. The National Council of Day Care Centers is studying the possibilities of initiating a community-based nutrition/education program through existing day care and also

other available community institutions that will run concurrently with the mass communications program. The goal will be to coordinate both programs so that they will be mutually reinforcing.

The possibilities of educational programs have only just begun to be explored. (CARE has helped design and develop programs in India, Korea and Kenya, and elsewhere, and is working closely with officials in Chile on the development of programs there.) It is the beginning of a new response to the problem of malnutrition and to nutrition programs as tools in development. Nutrition education is not a complete answer but its broader scope should at the least offer some alternative to supportive supplementation alone. Ultimately, changing attitudes about food and providing attitudinal change-oriented information to mass audiences may be more consequential than other forms of programming.

Nutrition education is becoming increasingly important in all its aspects as a method of working on the problems related to malnutrition. When used in conjunction with other intervention activities such as supplementation, it can serve to suggest specific solutions motivating the community and its individual members to improve its well-being within the limits of its power. More importantly, nutrition education will supply the element of focus in national nutrition programs that has, until recently, been neglected and which is a necessary principle of sound developmental programming.

CHAPTER FIVE      RECOMMENDATIONS FOR EXPANDING THE ROLE OF  
NUTRITION EDUCATION IN CARE NUTRITION PROGRAMS

PART I      SUMMARY OF RECOMMENDATIONS

General Recommendations

- 1) Efforts should be undertaken in all CARE missions to expand the number and scope of nutrition education programs.
- 2) Information on CARE nutrition and nutrition education programs should be disseminated as widely as possible.
- 3) CARE missions should study the possibilities of developing processed foods for supportive supplementation programs.

Recommendations for New York Headquarters

- 1) New York Headquarters, in conjunction with missions, should undertake to continue the in-depth evaluation of the CARE nutrition programs.
- 2) An officer responsible for nutrition programming and nutrition education program development should be appointed in each CARE mission.
- 3) The role of the Nutrition Advisor should be strengthened to include more active participation in the design, implementation and evaluation of nutrition and nutrition education programs.

Recommendations for CARE overseas missions

- 1) CARE missions should be prepared to undertake long-term nutrition education programs.
- 2) A number of field research projects should be undertaken to establish the most effective techniques for realizing nutrition education goals.
- 3) The follow-up and evaluation content of nutrition education programs should be strengthened.

PART II REVIEW OF GENERAL RECOMMENDATIONS

1) Expansion of Nutrition Education Programs

Nutrition Education should be introduced into all supportive supplementation programs and regarded as an essential component in achieving the nutritional goals of feeding programs. CARE missions should explore the possibilities of developing or encouraging host governments to initiate mass communications and community based nutrition education programs. Where possible, CARE missions should explore the feasibility of integrating family planning and child care service and information programs into the institutional framework now used to support the pre-school and PNM feeding programs.

2) Information on CARE nutrition and nutrition education programs should be widely disseminated

The development of nutrition education programs could be substantially aided by providing each CARE mission with detailed analysis of the activities in this field undertaken

by other missions. The Information Services Division of the Program Department, in coordination with the New York Headquarters Nutrition Advisor, should regularly keep all of the CARE missions informed about nutrition education activities and should bring missions with related programs into contact, so that they might benefit from each other's experience and advice in the planning, design, implementation and evaluation of their respective programs. The CARE missions, for their part, should provide counterpart and other host government organizations with information about CARE nutrition programs, both in supportive supplementation for pre-school children and in education programs (community based and mass communications), as a means of stimulating program development in this area. CARE studies, reports, evaluations, and program analysis and position papers on nutrition and nutrition-related programs should be regularly distributed to those private, governmental, and international agencies and organizations concerned with overseas development generally and with the role of nutrition in national development in particular, in order to encourage the exchange of ideas and information on nutrition programming and to stimulate cooperation wherever possible in the implementation of nutrition programs.

3) Development and Introduction of Processed Foods in Supportive Supplementation or Special Subsidized Feeding Programs

CARE missions should study the possibilities of expanding their involvement in modern food technology for the production

of weaning and infant foods of high nutritional value. In addition to developing foods that will be acceptable by the intended beneficiaries and compatible with the cultural, dietary and consumer patterns of the socio-economic groups of the participants, the following factors related to their introduction should be considered:

- A) They should be promoted through the use of modern techniques of marketing and consumer motivation. If freely distributed through institutions, the food products should also be available in commercial markets in order to establish prestige for the product and to give it wide visibility as a means of enhancing its commercial viability through normal distribution channels.
- B) Simple but effective information about correct usage and preparation should be readily apparent on appropriately designed packages, that will identify the product as one produced especially for infants and pre-school children.
- C) These products should be introduced via and in conjunction with intensive educational campaigns both through the institutions through which they are distributed and through the mass media. These campaigns should stress the general concepts of nutrition along with other basic public health information directed toward improving the nutritional and health status of the pre-school child.

PART III      REVIEW OF RECOMMENDATIONS FOR NEW YORK  
HEADQUARTERS

1)      Continuation of Worldwide In-Depth Evaluation of  
Nutrition Programming

Although many CARE missions have begun to review their nutrition programs from the perspective of efficiency as well as effectiveness, asking questions similar to those raised in this report, the assignment of the Nutrition Program and Evaluation Specialist represents the first attempt to uniformly and comprehensively evaluate these programs. This report should, therefore, be regarded as the first step in the long-term assessment of the entire range of CARE programming in nutrition supplementation and nutrition education/communications. (These efforts should be viewed not as a research or academic exercise but as a means of identifying problem areas.) In the next few years, CARE will undoubtedly witness increasing concern on the part of policy makers and economic planners over the role of nutrition in national development and the place of nutrition programs in development planning. Evaluation should consequently constitute an essential component of CARE's nutrition programming activities as a means of developing a more effective methodology for planning and implementing programs of significance to goals basic to the achievement of economic and social development. The purpose of evaluation should be to enable CARE to determine in what way it can deploy programs to maximum and optimal effectiveness.

Evaluation should be used to define precisely the benefits that can be anticipated from the programs and to establish guidelines for support and ancillary services to realize them.

The initial goals of a worldwide evaluation should be to establish country profiles of beneficiary groups and to assess the institutional infrastructure required for more efficient and effective nutrition programming.

#### Profiles of Beneficiary Groups

Sufficient data is not available on the basic characteristics of beneficiaries of the various supportive supplementation programs. Project Poshak will be the first organized study to collect and collate relevant information relating programming benefits to socio-economic and other pertinent factors. To a lesser extent, data from the Curico project in Chile and the rehabilitation project in Panama will supply information, and a CARE-Colombia study of the beneficiaries in the comedor program will provide additional information from which we will be able to extrapolate general traits of the families who participate in the programs, and the factors in their immediate environment which motivate them to enroll or take advantage of a supplementary feeding program. A second, and equally important, area of study must be the identification of the socio-economic composition of the participants in the supportive feeding programs and the determination of the relative value of the programs for each group, in order to

assess the role nutrition supplementation and auxiliary programs such as nutrition education or child care play in the normalization of the beneficiary's nutritional and health status.

Appropriate systems for evaluation should be devised by each mission with the assistance of CARE staff with previous experience in this field. Where feasible, CARE missions should carry out evaluation in cooperation with counterpart agencies. If neither has adequately qualified personnel, consideration should be given to undertaking such studies through private, governmental or university organizations or consultants with the appropriate background. From the data obtained in this worldwide study and evaluation of nutrition programs, it should be possible to formulate and present strong recommendations to host countries and international development agencies, regarding the resources that must be mobilized and the way in which they must be programmed, if nutrition programs are to make the maximum impact on economic and social development.

#### Institutional Infrastructure

A detailed assessment of all institutions now used, potentially employable, or that must be created for pre-school feeding programs should be carried out to determine which are most viable to reach the largest number of targeted recipients and to maintain regular participation in the program. The institutions must be analyzed in terms of their ability to monitor the distribution and consumption of commodities so that benefits reach the intended recipients and programs

operate according to prescribed guidelines.

Where CARE assists the host government and local communities in creating or extending institutional infrastructure, efforts should be made to evaluate these institutions from the point of view of their effectiveness and not solely in terms of the need for broader networks of institutions of this kind.

More information about the attitudes of the community toward the institutions and the supplementary feeding programs should also be compiled. This will be used to indicate the ways in which nutrition programs affect and interact with other services, and whether it will be feasible to include family planning and child care services and instruction programs within the framework of the institution thus providing more comprehensive coverage of family needs.

2) Appointment of A Nutrition Program and Nutrition Education Program Development Officer in Each Mission

In a number of countries with great potential for significant nutrition education, family planning or child care education programs, CARE does not have the requisite manpower to investigate and identify the national or regional role it could play in the development, or initiation and support of programs of this kind. Where CARE missions have not been able to assign full-time personnel to supervise the implementation of nutrition education programs, the critical phases of follow-up and evaluation have not received adequate attention, and the program as a whole has reflected the absence of a responsible

program coordinator. It is, therefore, necessary to strengthen the administrative organization of CARE missions by including a staff member responsible for all aspects of nutrition education and related service and information programs who will actively explore programming possibilities and take charge of all phases of program implementation and follow-up and evaluation. In missions where budgets permit and where there appear to be immediate possibilities for the development or expansion of nutrition education and related programs, a full-time staff member should be assigned to handle these responsibilities. In other missions where the possibilities are still relatively unclear, present personnel should begin to familiarize themselves with relevant activities of host countries' agencies in nutrition education and public health information services. It must be recognized, however, that a full-time nutrition program officer will in most cases be required if the full potential for the development of mission nutrition education programming is to be realized.

3) Strengthening the Role of the Nutrition Advisor in the Implementation and Evaluation of Nutrition and Nutrition Education Programs

Under this AID Nutrition Incentive Grant, CARE was able to strengthen its nutrition programming services, employing a Nutrition Program and Evaluation Specialist to work in cooperation with the Nutrition Advisor and other Program Department staff in the New York Headquarters. In his overseas

assignments, the Specialist provided support to the missions in carrying out the evaluation of and establishment of follow-up programs for many of the Nutrition Incentive Grant projects, and in exploring other potential areas for CARE involvement in nutrition education. However, on the basis of the Specialist's experience overseas and in New York Headquarters, it is suggested that the overseas nutrition education program could be substantially augmented both in quality and in quantity by strengthening the New York Nutrition section, particularly in the areas of implementation and evaluation. This would facilitate the improvement of the content and scope of assistance provided by New York Headquarters to CARE missions in the design and development of nutrition programs.

PART IV      RECOMMENDATIONS FOR OVERSEAS MISSIONS FOR IMPROVING NUTRITION EDUCATION PROGRAMS

1)      Commitment to Long-Term Programming in Nutrition Education

CARE missions should be prepared to undertake long-term nutrition education programs and training, in order to develop and demonstrate their full potential for improving food habits as one means of reducing the incidence and severity of malnutrition. CARE and its counterparts should more clearly plan programs of this kind in accordance with realistic assessments of the time required to inculcate new food practices, or modify old ones, among the specified target groups of the population, or to improve the field performance of administrative and

program personnel engaged in the implementation of nutrition programs.

Until now, nutrition education or training programs have generally been short-term either in concept or in terms of CARE support, on the assumption that CARE counterpart agencies would continue to implement, develop or expand the programs after the initial assistance provided through CARE was terminated. In Turkey, it is doubtful for example, if one short seminar for field supervisory personnel of the Ministry of Education will be sufficient to upgrade their field performance. Following the evaluation of the first two series of seminars, it became evident that a longer training program lasting three to four years - each seminar consisting of no more than two to three days in duration - and led by Ministry and Department of Nutrition officials familiar with and responsible to the problems of the school feeding program, was required to achieve the desired goals. Equally important was the necessity of including a system of evaluation to measure the performance of field staff after training and their impact on the operation of the program, in order to provide program organizers with information that would clearly indicate the kind of reinforcement needed and which would form the basis of successive seminars.

The nutrition awareness program in Kenya also demonstrated the necessity for continuous implementation, especially in the vital area of follow-up and reinforcement.

This became evident as soon as the participants returned to their community sites. Although the training program itself met with no significant difficulties, there remained a wide disparity between the organizational and administrative effort under which the training program was carried out and the ability of the trainees to achieve the goal of establishing community nutrition awareness programs in their communities through the day care centers. Another example of the need for long-term programming can be seen in the Korean nutrition education mass communications project. In this instance, the evaluation pointed out that the target audience was able to recognize and retain the programmed messages. However, there was no indication that the program had been able to influence attitudes toward food or consumer practices, which was the goal of the program. Although the mass communications project showed that the media were efficient channels for the broad dissemination of information regarding improved nutrition practices, the project stopped short of demonstrating that these channels had the educative capacity to motivate people to improve their diets and their nutritional status.

2) Field Research in the Design and Development of Nutrition Education Programs

A number of field research pilot projects should be undertaken to establish the most effective techniques for realizing nutrition education goals. As a preliminary step

to expanding the number and scope of nutrition education programs, CARE in cooperation with its counterpart agencies and, wherever possible, with the assistance of international organizations, should develop sound nutrition education program models that can be used as the basis for both specific country and worldwide programs. The purpose of the pilot projects should be to define the most productive relationships among the basic components of education programs. These components are: 1) the education media; 2) the audiences most receptive to the programs carried over the media, 3) the vulnerable groups which can receive optimal benefits through the education programs, and 4) the kind of information which will be most easily understood and most readily assimilated.

There has been considerable refinement in nutrition education techniques, as witnessed for example, in the CARE-India Rural Mass Communications Program. Similarly, CARE has made advances in the implementation of community and institutional based nutrition education programs, particularly through the day care center. The first program of this kind, in Kenya, was over-simplified, perhaps, in the belief that a cadre of trained day care center teachers working out of their community institutions could carry out a national education campaign. Evaluation proved that many social and cultural complexities had to be taken into account such as, the necessity for special structured learning situations and the full backing of community influentials and government officials. More

attention will be paid to the selective training of field supervisory and operation personnel in the new nutrition education program to be implemented in Korea by CARE and the Government of Korea, In addition, nutrition education will be offered in a more comprehensive context of family services including family planning and child care. In the Chile nutrition education program model, reinforcement and follow-up activities have been made an essential part of implementation and the educational possibilities of other community institutions have been incorporated. However, in order to permit CARE missions and New York Headquarters to design programs of maximum impact, considerable research has to be done regarding the common assumptions that mold programming plans for mass communications and community education projects. Considerable doubt still exists about the efficacy and effectiveness of many of the techniques and materials that are currently resorted to.

3) Strengthening the Follow-Up and Evaluation Content of Programs

In addition to the emphasis that must be placed on pre-programming research and planning, the follow-up and evaluation content of the nutrition education programs must be strengthened. Follow-up is especially important in community-based programs where operational responsibilities are left to persons whose initiative, interest and understanding

may soon be weakened by the complex interplay of social, cultural and local political factors. If there is a precise formulation of the educational goals and the activities of field personnel, a continuous follow--up program could accomplish the following:

- 1) Clarification of any misconceptions regarding the responsibilities of the field personnel;
- 2) Refreshment and updating of their knowledge;
- 3) Renewal of their interest in the program, and
- 4) Raising their morale, which is often the key to continuity and perserverance, particularly if field personnel are volunteers or inadequately paid ministry or community workers.

A follow-up program could be modelled on the system of visitations now used to monitor school and pre-school feeding programs, or it could be carried out through a mass communications program which would integrate its programs with that of local community institutions.

Evaluation is another facet of program which has not received sufficient attention though it is extremely important. The requirements for an effective system of evaluation are often underestimated and precise areas in which the results are expected are often unclearly articulated. As a result, the basic material and manpower requirements for evaluation often exceeds the project funding capacity, so that at the conclusion of the project, it is necessary to restrict the

evaluation to value judgement or to the compilation of inconclusive data on the achievement of the relevant program goals.

An effective methodology for evaluation should be devised at the outset of each project that will conform to the desired operational and education goals of the program. It must ascertain the impact of the educational media, the extent to which awareness of better nutritional practices has been disseminated, and the degree to which food habits have been altered or improved through the nutrition education program, and most importantly, the effectiveness of the program on normalizing the nutritional status of the intended beneficiaries. If an evaluation can supply satisfactory data with respect to the above, it will enable all concerned to make a rational assessment of the value of the program and whether or not it should be continued, and it will provide the kind of information that will have implications for future programs in the particular country or in other countries with CARE missions.