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521-0091

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AGENCY FOR INTERNATIONAL DEVELOPMENT <b>PROJECT DATA SHEET</b>		1. TRANSACTION CODE <input checked="" type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number <u>1</u>	DOCUMENT CODE 3 <b>1</b>
2. COUNTRY/ENTITY HAITI		3. PROJECT NUMBER <u>521-0091</u>		
4. BUREAU/OFFICE USAID/Haiti <u>05</u>		5. PROJECT TITLE (maximum 40 characters) <u>Rural Health Delivery System (RHDS)</u>		
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY <u>06 30 84</u>		7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4) A. Initial FY <u>79</u> B. Quarter <u>3</u> C. Final FY <u>84</u>		

8. COSTS (\$000 OR EQUIVALENT \$1 = 5)

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	( 2158 )	( 1469 )	( 3627 )	( 7347 )	( 10,153 )	( 17,500 )
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S.						
1.						
2.						
Host Country		500	500		18,427	18,427
Other Donor(s)						
<b>TOTALS</b>	<b>2158</b>	<b>1969</b>	<b>4127</b>	<b>7347</b>	<b>28,580</b>	<b>35,927</b>

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) HE	534	510		4813		1500		17,500	
(2)									
(3)									
(4)									
<b>TOTALS</b>				<b>4813</b>		<b>1500</b>		<b>17,500</b>	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)  
300

11. SECONDARY PURPOSE CODE  
380

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BR	NUTR				
B. Amount						

13. PROJECT PURPOSE (maximum 480 characters).

To reach 70% of rural Haitians, now without modern medical services, with low-cost preventive and curative services, emphasizing the former.

14. SCHEDULED EVALUATIONS

Interim	MM YY	MM YY	Final	MM YY
	<u>11 81</u>			<u>13 84</u>

15. SOURCE/ORIGIN OF GOODS AND SERVICES  
 000  941  Local  Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a 52 page PP Amendment.)

This Amendment to RHDS Project Paper is to expand the scope of the RHDS Project to include a substantial nutrition component, in order to expand and refine the nutrition related services of the rural health system. It will also assure the uninterrupted operations of the Division of Nutrition as it is fully integrated into the GOH Department of Public Health (DSPP).

17. APPROVED BY	Signature <i>[Signature]</i>	Date Signed MM DD YY <u>05 13 84</u>	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY
	Title Director, a.i. USAID/Haiti		

HAITI

RURAL HEALTH DELIVERY SYSTEM

(Project No. 521-0091)

PROJECT PAPER AMENDMENT

Nutrition Component

## TABLE OF CONTENTS

	<u>Page</u>
I.	RATIONALE AND SUMMARY ..... 1
A.	Rationale . . . . . 1
B.	Summary Description of Nutrition Component . . . . . 3
II.	BACKGROUND . . . . . 9
A.	Nutrition Status in Haiti . . . . . 9
B.	Project Activities to date . . . . . 12
III.	DETAILED DESCRIPTION OF RHDS NUTRITION COMPONENT . . . . . 16
A.	Preventive Interventions . . . . . 16
1.	Nutrition Surveillance System . . . . . 16
2.	Nutrition Education & Training . . . . . 21
3.	DON Agricultural Extension Program . . . . . 26
B.	Curative Interventions . . . . . 31
1.	Diagnosis and Referral . . . . . 31
2.	Supplemental Feeding . . . . . 31
3.	Nutrition Recuperation . . . . . 32
4.	Growth Monitoring & Follow-up. . . . . 33
C.	Nutrition Research . . . . . 35
1.	Basic Research . . . . . 35
2.	Applied Research . . . . . 37
D.	National Nutrition Policy and Planning . . . . . 38
IV.	ANALYSES OF NUTRITION COMPONENT . . . . . 40
A.	Technical Analysis . . . . . 40
B.	Economic & Social Analyses . . . . . 45
C.	Financial Analysis & Plan . . . . . 48
D.	Institutional Analysis . . . . . 52
V.	ANNEXES
A.	Implementation Plan
B.	Letter of Request from GOH Department of Public Health
C.	Summary of Technical Assistance Requirements
D.	Summary: Haiti Nutrition Status Survey (1978)
E.	Evaluation Plan
F.	Letters of Support from GOH Ministry of Agriculture for DON Program

## I. RATIONALE AND SUMMARY

### A. RATIONALE

The purpose of this Amendment to the Rural Health Delivery System (RHDS) Project Paper is to expand the scope of the RHDS Project to include a substantial nutrition component. This Amendment will assure the uninterrupted operations of the Division of Nutrition (formerly the Bureau of Nutrition, or BON) as it is being administratively and financially integrated into the Government of Haiti's Department of Public Health and Population (DSPP). The Amendment will permit the DSPP to build on the extensive experience and research findings obtained by the Division of Nutrition during the course of the Nutrition Improvement Project (No. 521-0075), and incorporate this experience into the national rural health service being established under the RHDS Project. Through the Nutrition Improvement Project, financed by AID and the GOH since 1976, the Division of Nutrition has become a strong, professional organization, including 15 professionals in the central office in Port-au-Prince and a staff of 105 employees in rural areas. It currently operates thirty-six Nutrition Education and Rehabilitation Centers in rural areas, conducts agricultural extension program in cooperation with the Department of Agriculture (DARNDR), and carries out limited programs of nutrition research and training. However, under this Project the DON operated in a "vertical" fashion with regard to other GOH health programs, with 85% of its costs financed by AID and its operations administered independently of the DSPP. The DSPP is no longer satisfied with this institutional relationship, and wishes to integrate the DON and its operations into its own. The timing of this integration is crucial, as the systematic establishment of the DSPP's rural health delivery network has just begun. This Amendment is designed not only to assure the continuation of nutrition services during the process of integration, but to substantially expand and refine the nutrition-related services to be offered by the DSPP through the RHDS. This expansion and refinement are described in detail, in Section III of this Amendment.

The RHDS Project, signed on June 29, 1979 suffered delays at the outset, but has now begun to be implemented. The technical assistance and construction activities are underway, and procurement plans for drugs, vehicles and medical supplies are being prepared. The purpose of the Project is to reach 70% of rural Haitians, presently unserved or underserved by modern medicine, with low cost preventative and curative services. Additionally, the RHDS Project is designed to strengthen the operations of the DSPP at the central levels, and to integrate, over an appropriate period, the various semi-autonomous public health agencies, including the Division of Nutrition, the Division of Family Hygiene, and ultimately, the Service National des Endémies Majeures (SNEM), into the administrative and financial structure of the Department. The integration of the field operations (health care delivery) will be accomplished at the village level through the use of multi-function paraprofessional health workers (agents de santé and auxiliary nurses).

The RHDS Project, as originally designed, did not include a nutrition component. This was due primarily to the fact that several significant nutritional studies (including a National Nutrition Status Survey) were just under way through the auspices of the Nutrition Improvement Project, and USAID/Haiti's intent was to follow-up these studies with a separate, major nutrition project, Intersectoral Nutrition Development (No. 521-0099). This project was originally proposed in the FY 1979 Annual Budget Submission at a level of \$3.0 million. This project was expected to build upon the research findings of the major studies and the extensive experience gained in rural areas under the Nutrition Improvement Project, to expand the types and scope of existing nutrition interventions and to strengthen the technical and administrative capabilities of the Division of Nutrition. The PID for this project was approved (77 State 241706) for further development, and the points raised by the guidance cable are responded to in detail in the text of this Amendment (Detailed Description, and Analyses). After discussions with officials of the DON and the DSPP, USAID/Haiti determined that it would be preferable to add a significant nutrition component to the RHDS Project rather than go forward with Project 521-0099. This determination was based on the following considerations:

- (1) the desire of USAID and intention of the GOH to integrate the various "vertical" health programs and agencies into a unified Ministry, beginning with the Division of Nutrition.
- (2) the objectives, strategy and design of the RHDS Project made it the logical vehicle for future nutrition interventions in rural Haiti.
- (3) the importance of nutrition activities to the ultimate success of the RHDS Project.
- (4) the Mission's extensive project portfolio and its desire to limit the number of new projects.
- (5) the economies made available by combining the two projects.

The merger of the follow-on nutrition effort into the RHDS affords significant economies to AID. By utilizing existing programmed RHDS resources and integrating DON operations into those of the DSPP, a reduction of \$1.5 million of the original estimated cost of a new project appears feasible, without sacrificing any major project objectives. The cost savings will be realized primarily through shared services in administration, physical facilities, transportation personnel and technical assistance.

Therefore, the proposed Amendment to the RHDS Project Paper is submitted in lieu of a project paper for Intersectoral Nutrition Development,

which has been dropped from the Mission's planned portfolio. Additional A.I.D funds totaling \$1.5 million are estimated to be required to carry out the objectives of this Amendment, and are requested to be added to the incremental funding of the RHDS Project over fiscal years 1982-84. A.I.D life-of-project funding will thus total \$17,500,000, and the RHDS Project Authorization must be amended to reflect this new total.

B. SUMMARY DESCRIPTION OF RHDS NUTRITION COMPONENT

From the description of the nutrition status of Haiti provided in Section II it is evident that malnutrition is the single most important health problem in Haiti, both in terms of morbidity and as a major contributing factor to the extremely high infant and child mortality rates. Because A.I.D efforts to address this problem to date have met with only limited, localized success, and have been too costly on a per capita basis to replicate, a revised nutrition program has been developed in cooperation with the DCN and DSPP. It will be implemented principally in the context of the RHDS Project now just underway. In addition, this Amendment proposes A.I.D financing of two important nutrition-related activities which are complementary to the RHDS but do not constitute specific functions of the DSPP, i.e. the DCN Agricultural Extension Program and the nutrition planning group (DIFPAN) in the Department of Plan. The specific preventive and curative interventions to be undertaken as part of the nutrition component are shown graphically in Table I and are summarized below:

1. Preventive Interventions

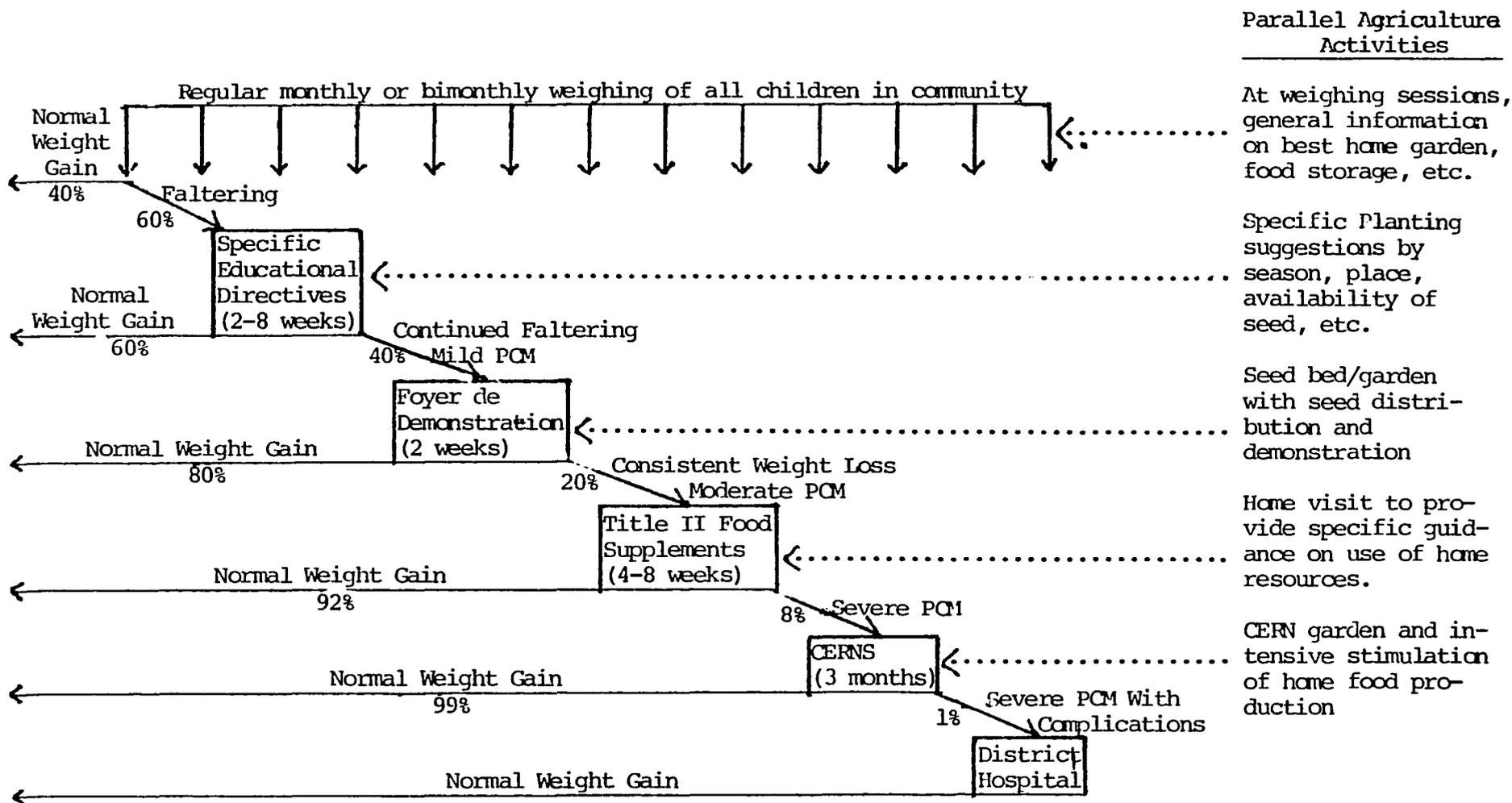
a. Nutrition Surveillance

The RHDS health agent will be responsible for initially screening all children in his/her area and locating malnourished children under five by using an arm circumference parameter (Shakir Strip), together with certain clinical and anthropometric measures of malnutrition. All children considered to be malnourished by the health agent will be referred to dispensaries for further classification. The auxiliary nurse at the dispensary level will initiate the growth chart for the child and will be responsible for determining whether initially, the child is mildly, moderately, or severely malnourished. The preventive nature of this surveillance activity occurs in the mildly/moderately malnourished group who are "caught" before the onset of severe malnutrition. This approach is expected to have a significant effect in lowering child mortality by preventing severe malnutrition.

The auxiliary will, after classification of the child, determine what intervention(s) for child and the child's family are required. The available interventions will range from routine follow up surveillance by an agent de santé, specific educational directives provided on an individual basis to the family by the agent de santé and auxiliary nurse, education for the mother in a nutrition foyer, agricultural extension for the child's family, supplementary feeding with P.L. 480 Title II foods, intensive rehabilitation in a nutrition center (CERN) and inpatient care at a hospital. These are described in Section 2, below, "Curative Interventions through RHDS Services". It is anticipated that the continuous measurement of children in this fashion will allow for the identification of marginal or at-risk families and communities so that increased attention may be given and resources placed in these areas by the DSPP.

TABLE I

NUTRITIONAL SURVEILLANCE, PROMOTION, AND REHABILITATIVE NETWORK



- Notes:
1. Regular monthly or bimonthly weighing will start initially with those children under three years old, but will then follow them to five years old.
  2. This chart shows the routine system as it will operate over time. At any point, especially in the early months, a child with moderate or severe malnutrition may be sent directly to a CERN or hospital.
  3. Percentages indicate estimated percent of children who may be found to be growing normally or faltering, in areas where the program has been functioning for 6 months or more. They differ from the percentages found in cross-sectional surveys which reflect attained nutritional status, i.e., weight for age or weight for height, rather than the dynamic process of growth or simple weight gain shown here.

Following this initial screening procedure, the Agent de Santé, in the course of his routine work in the village, will assure that growth of all young children will be routinely monitored by weighing and that early growth faltering will be managed by appropriate interventions. While the initial weighing and issue of growth cards will be done by the auxiliary nurse working at village gatherings organized by the Agents, overtime, the routine weighing will be taken over by the Agents, who will refer early problems to the auxiliary nurse during her regular supervisory visits to the field.

b. Nutrition Education and Training

Nutrition education will be undertaken, in the first instance by the health agent and auxiliary nurse at the time of regular growth surveillance. Specific directive messages will be provided as a direct response to growth performance or faltering, and progress since the previous weighing session will be reviewed. For those children demonstrating sub-optimal growth, a more intensive instructional method, the foyer de démonstration, will be offered. A foyer de démonstration is a 10-15 day nutrition education program for all women in a community, the objective of which is to promote simple, practical behaviors on the part of the mothers to improve the nutritional and health status of the family.

Through this component, short-term training in nutrition will also be provided to the health agents, the auxiliary nurses and employees of the DON and other DSPP Divisions (e.g. field statisticians, MCH personnel). Long-term training in nutrition will be provided to four nutritionists with the DON, as well as for other DON professionals in the areas of statistics, research design and epidemiology and health/nutrition education.

Finally, this component of the Project provides for technical assistance to the DON in curriculum design, to supplement and reorient the nutrition content of the training programs at the Medical School, the Nursing School's and DSPP Division of Training. Technical assistance and funding is also provided for the preparation of educational materials.

c. DON Agriculture Extension Program

The work that has been carried out by the thirty agricultural extension agents currently working for the Division of Nutrition has been highly regarded, and is probably the most important work being done in Haiti which directly relates food production to nutritional improvement. This program now focuses on increasing and modifying crop production of families with malnourished children, with respect to food produced for the family's own consumption. Since Haitian peasants are not traditionally "subsistence farmers" in the pure sense (i.e. they sell much of whatever they grow), the purpose of this program is to encourage greater production for home consumption, improve on-farm pest-proof storage techniques, and shift diets towards foods with greater nutritional content

(see Table II, p.9, below). Home visits to selected families and the use of demonstration gardens and small animal production experiments are the principal methods employed by the DCN Agriculture extension agents and the training-and-visit system which has been employed in the past will be continued. The DCN agricultural extension agents will work at a District level and will carry out their work according to priorities established through the nutrition surveillance system.

## 2. Curative Interventions through RHDS Services

The curative interventions will be part of the total system of nutritional surveillance, promotion and rehabilitation. It is based on regular weighing and growth monitoring of all children under three years old, with specific interventions being provided for those children demonstrating faltering growth and signs of malnutrition. Table I presents graphically the total nutritional surveillance, promotion and rehabilitative network, including the following interventions: (a) regular periodic growth surveillance, (b) targeted nutrition messages aimed at children with faltering growth, (c) foyer de démonstration for children with continued growth problems, (d) Title II food supplements for those with mild or moderate malnutrition (limited time of four to eight weeks) and with continued non-growth or weight loss, (e) enrollment in CERNs (three months) for those with severe malnutrition and (f) hospitalization for those with severe malnutrition and complications.

Table I also shows that agricultural inputs will operate in parallel with, and in fact, as an integral part of, the preventing and curative system. (a) During weighing sessions, information will be provided on home garden options; (b) as part of the educational program, specific planting and food production suggestions will be made; (c) the foyers will have seed beds, with seed distribution and demonstrations; (d) for those families receiving food supplements, home visits will be made to provide specific guidance on its use, the use of other available resources, and for the provision of seed, with guidance on specific garden and food production activities; and (e) the CERNs will have gardens to be worked by the participants and there will be home visits to stimulate the development of gardens for home food production.

The follow-up activities, such as growth monitoring through simple "Road-to-Health" cards (the use of which will be taught to mothers) and home visits by local health workers and the agronomist are considered to be key aspects of the nutritional surveillance and treatment services, without which rehabilitative feeding programs would have only temporary effect. The criteria for participation in various programs (foyers, supplementary feeding) and admission to various facilities (CERN's, hospitals) will be developed by the DCN in conjunction with the nutrition advisor, the DSPP training team, and the DSPP Office of Planning with additional technical assistance provided by the MSH Chief of Party and Training advisors.

### 3. Nutrition Research

The National Nutrition Survey of 1978 identified several areas of needed nutrition research in Haiti. Studies will be financed by this project in a number of areas including:

(i) Nutritional anemias - the reasons for widely varying but high anemia rates ~~delete~~ in mothers and children and the effect of these anemias on overall health status;

(ii) Food consumption - updating of quantitative data on the rural Haitian diet and testing of the relationship between socio-economic variables and nutritional status (as measured in the National Survey);

(iii) Morbidity and nutritional status - based on high child morbidity rates ("sickness", diarrhea, fever) reported in National Survey more research will be done to determine the relationship between such morbidity and nutritional status.

Research may also be carried out on: (a) the sensitivity of the arm circumference measure as a diagnostic tool, (b) the nutritional impact of the Title II dry food distribution programs carried out by the FVOs, and (c) and the impact of immunization program on nutrition status.

### 4. National Nutrition Policy and Planning

Although nutritional goals are mentioned in the five-year plans of the Departments of Health, Agriculture and Education, almost no intersectoral coordination exists, nor does such cooperation appear to be a high priority in any of these ministries. However, under the Department of Plan, a special office was established in 1976 to develop a coherent

national nutrition policy statement. This office, known as DIFPAN (Division de la Formation de la Politique Alimentaire et Nutritionnelle), is made up of one representative of each of the above ministries and a statistician. It has been funded by UNICEF, and has received high-quality technical assistance from United Nations experts. UNICEF assistance is expected to terminate or diminish substantially at the end of 1980. DIFPAN has recently published the first volume of its "Foundations and Proposals for a National Food and Nutrition Policy", and the Department of Plan has recently decided to continue this exercise. The Department of Plan will support most of the operating costs of DIFPAN, and has named personnel from each relevant ministry to the DIFPAN staff. Funds in the Amendment to the RHDS will provide additional short-term technical assistance to DIFPAN and short-term training for its staff.

5. Summary of AID-financed Inputs

The additional AID contribution to the RHDS Project which is required to support the nutrition component summarized above (and described in detail below) is \$1.5 million. These funds will be used to provide the following inputs (see financial plan for greater detail):

Personnel and Supervision	\$233,000
Training (Participant)	154,000
Commodities & Equipment	100,000
Educational Materials	140,000
Research	90,000
Nutrition Centers (local costs)	160,000
Technical Assistance (long/short)	450,000
Contingency	173,000
	<hr/>
Total	\$1,500,000
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II. BACKGROUND

A. NUTRITION STATUS IN HAITI

1. Incidence of Malnutrition

The most pressing public health problem in Haiti is protein/calorie malnutrition. Current estimates are that almost three-quarters of Haitian children under five years of age are malnourished, with almost 30% suffering moderate or severe malnutrition (2° or 3° Gomez classification). The National Nutrition Survey conducted in 1978 by the Division of Nutrition with the assistance of the Center for Disease Control demonstrates the magnitude and severity of the national problem. Based on data painstakingly collected through extensive random sampling in all parts of Haiti (urban and rural), the following results were obtained:

Table II

Distribution of Haitian Preschool Children (under 5)

Below Three Reference Norms (anthropometric indices)

	<u>Wasting</u> Acute Malnutrition (weight/height measure)	<u>Stunting</u> Chronic Malnutrition (height/age measure)	<u>Moderate-Severe (2° and 3°)</u> Malnutrition by Gomez Classification (weight/ age measure)
Rural Areas	16.8%	28.6%	29.5%
Port-au- Prince	10.0%	15.7%	14.6%
National	15.9%	26.6%	27.3%

Children who are "wasting" or acutely undernourished require <sup>the</sup> priority attention of the Health System including nutritional rehabilitation. The Nutrition Survey estimated that at least 127,000 children fell into this category in 1978

and were in critical need of nutritional support. Almost 200,000 preschool children in rural Haiti were estimated to be suffering chronic malnutrition or "stunting" (growth retardation) in 1978, and well over 200,000 were considered "moderately to severely malnourished" by the Gomez classification. (Note: These three classifications are overlapping, i.e. not mutually exclusive), These figures do not include the many schoolage children, pregnant and lactating mothers, and other high-risk persons who suffer from malnutrition. Malnutrition is more widespread in rural than in urban areas, with no significant differences noted among rural areas. Anemia is also a serious and widespread nutrition priority in Haiti, with the representative national sample showing over 30% of preschool children and 38% of their mothers to be anemic.

The survey also showed very high percentages of preschool children in rural areas suffering from general "illness" and/or diarrhea at a given point in time. 54% of rural preschool children were reported by their mothers as "sick" and 44% as having had diarrhea during the week prior to the survey; 32% were reported as having had a fever. Acute malnutrition is correlated with such illness and disease, although from the information available it is not possible to tell whether the children are sick because they are malnourished or if they are malnourished because they are sick. It is clear, however, that acute malnutrition exacerbates illness and diarrhea, and vice-versa. Reported deaths in this age group are most frequently attributed to diarrhea and respiratory infections. However, based on experience in other developing countries and on the severity of the malnutrition problem in Haiti as described above, it is probable that the underlying cause of death in a great proportion of cases is malnutrition.

## 2. Food Consumption Patterns

The FAO/WHO recommended level of calorie intake for the Caribbean Region is 2200/day. The average calorie consumption in Haiti is 1900/day nationwide and 1325/day in rural areas. This represents a shortfall in calorie intake of 14% and 40% respectively, a severe under-consumption. With respect to protein intake, the FAO/WHO recommendation is 60 grams/day, compared to the Haitian average of 41 grams/day nationwide and 30 grams/day in rural areas. The protein gap is also severe, with a 31.5% deficit on a national basis and a 50% deficit in rural areas.

A more useful measurement for agricultural programming purposes has been developed by the DON in 1978. Table III illustrates actual consumption against a recommended minimum intake level (minimum cost adequate diet).

Table III

Consumption Per Capita Comparison

Food Group	Recommended (Kgs/year)	Actual (Kgs/year)	Percent of DON Recomendation being met
Cereals	89.0	63.0	71
Roots Tubers & Plaintain	38.8	105.9	273
Sugar	16.5	26.3	159
Beans & Oilseeds	29.9	25.6	86
Vegetables	103.7	43.0	41
Fruits	69.6	109.1	157
Meats & Fish	10.8	9.8	91
Eggs	.9	.9	100
Milk	49.1	11.2	23
Oil & Greases	29.6	6.6	22
Others	--	1.3	--

This table makes clear that roots, tubers, plantains, sugar and fruits constitute the largest portion of the caloric intake in the Haitian diet, while cereals, beans, vegetables, milk and fats are seriously underconsumed. Meat and eggs are very costly and therefore not as highly "recommended" for the Haitian diet as other cheaper sources of protein. These figures are national in scope and the Table would undoubtedly show greater imbalances if limited to particular rural areas or particular target groups (eg. rural children under five years).

3. Population Pressure

One other factor affecting the nutritional status of Haiti is population pressure on the land. The current official estimate of the total population of Haiti is 6.0 million (Haitian Institute of Statistics). Approximately 80% of this number (4.8 million) live in rural areas. Haiti's total surface area is 27,700 square kilometers (about the size of Vermont), and the overall population density is 217 persons/sq. km. The World Bank estimates that only 28.6% of this area is suited for the cultivation of food crops, resulting in density of 757 persons/sq. km. of cultivable land (approx. 1/3 acre per person), one of the highest such ratios in the world.

This tremendous population pressure on the land is, of course, reflected in very small land holdings per farm family. While past censuses have estimated that two-thirds to three-quarters of rural Haitians "own" land, family plots in Haiti are usually in the form of "microfundia", or less than one carreau (3.16 acres) in size. According to the 1971 census, more than 70% of all Haitian farmers own farms of one carreau or less, and only 5 percent owned more than three carreaux. In fact, one reliable estimate of farm size states that the "average" Haitian peasant actually farms less than one half a carreau, or under 1½ acres. The pressure of population on the farm land and the widespread distribution of such land in small plots, severely limits the possibilities for Haiti to address its nutritional problems through increasing local production of food crops. As virtually no cultivable land is unexploited in Haiti, any increases in local production of food crops must come from higher yields per unit of land already in intensive cultivation.

## B. PROJECT ACTIVITIES TO DATE

### 1. Nutrition Improvement (No. 521-0075)

The original AID-financed nutrition project in Haiti was approved in early FY 1976 for a period of five years. The first Project Agreement was signed with the Government of Haiti (GOH) on May 31, 1976. The project had the following purposes: 1) to provide Haitian mothers with knowledge of the best choice of available foods and food preparation required for good health; 2) to protect mothers and children against serious infectious diseases; 3) to teach farm families to grow more nutritious food crops; and 4) to determine the most cost-effective alternatives for reducing the malnutrition of the poor in Haiti. The principal activities financed by the project to achieve these objectives were the funding of the operations of the DON, establishment of thirty nutrition centers (CERNS), refinement of the design of the CERNS and establishment of agricultural activities working in coordination with the CERNS.

The establishment and upgrading of nutrition centers proceeded as planned. By mid-1978, the DON was operating the intended 30 CERNS. These centers, theoretically, are moved from one location to another when the number of severely malnourished children in a given area is reduced to the point where no more than 30 children can be found in an area to attend the center. To date, more than 20 of the CERNS have moved from one location to another. In addition, in late 1978, the DON took over the operation of six additional mothercraft centers previously operated by the Haitian-American Community Help Organization (HACHO) raising the total number of centers under DON administration to 36.

In August 1977, after approximately one year of operations under the project, a decision was reached by the GOH and USAID to expand the scope of operations of the DON. This decision was reflected

in the addition of a number of activities to be undertaken by the DON in the areas of training and supervision, research and agricultural extension. The expanded level of effort undertaken was reflected in the following areas:

1. Staffing - DON professional staff was increased from two physicians to six, from one nurse to two, from one agronomist to three, and from thirty CERN directors to thirty-six. In addition, the DON hired 3 nutritionists and 27 auxiliary nutritionists who were not originally foreseen.
2. Facilities and Operations - The expanded staff and activities required the renovation of the central DON office space, and the support of six new CERNs in the Northwest Region. Eight new vehicles were obtained to increase field supervision and support, and to permit the undertaking of additional research. In addition the DON supplied all facilities in the North and South health regions with scales, measuring boards, growth charts, etc.
3. Training and Educational Materials - The DON implemented a nutrition training program (not included in the original project) for all physicians and nurses working in the public sector. In addition, though no funds were included in the original project for educational materials, the DON has prepared a nutrition manual for auxiliary nurses, and a number of flip-charts and pamphlets on a variety of nutritional subjects.
4. Research - In addition to the community nutrition status surveys provided for in the Project Paper (to justify the establishment of 2 CERNs), the DON undertook three additional national surveys, including the National Nutrition Status Survey of 1978 (carried out with CDC assistance).
5. Agricultural Extension - The 30 agronomists who were initially on a part-time basis with the DON were hired as full-time employees, in order to amplify the agricultural extension work being carried out to assist the families of children undergoing nutritional rehabilitation in the CERNs. Training materials on rabbit raising and cereal and vegetable production were developed for use by the DON agents and for dissemination to Department of Agriculture agronomists and extension agents.

This expanded level of activities under Project 521-0075 required additional AID financing of the DON beyond what was anticipated by the Project Paper. In July, 1979, the Project Authorization was amended and an additional \$481,000 provided to the Project. These funds permitted the continuation of DON operations at the expanded level through 1980, further preparation of nutrition training and educational materials, and the undertaking of additional applied nutrition research to assist in the design of a follow-on nutrition project.

In spite of the apparent successes of this Project in building and strengthening the DON and in exceeding planned levels of project outputs, project evaluations have resulted in significant modifications of the Mission's strategy for follow-on efforts in nutrition. In January, 1979, an in-depth evaluation by two outside consultants was carried out to determine the cost-effectiveness of the CERNs and the degree to which they were meeting their intended objectives. These reports\* indicated that the CERNs were not being effectively utilized, and that although they had been successful in recuperating many severely malnourished children, the per child cost was so high as to make a major expansion of the CERNs program impossible. In terms of children recuperated (or protected) and mothers educated, the mothercraft centers had achieved only 56% and 58%, respectively, of their projected capabilities. Therefore, in monetary terms, the cost per child was approximately \$42 as opposed to the projected \$24 under conditions of maximum utilization. At these cost levels, it was estimated that it would cost approximately \$20 million/yr. to achieve national coverage of the target population with an effective CERN program.

The evaluation reports contained a number of recommendations for the improvement of the performance of the CERNs, which include refinements in CERN norms concerning location of centers, admission and exit criteria, length of stay, age of children attending, and the level of supervision by central DON staff. The recommendations of the evaluation reports regarding current use of CERNs were largely carried out by the DON after the evaluations were completed and discussed. The norms for operation of the CERNs were completely revised, and the DON has attempted to increase CERN utilization under these more stringent norms. However, the Project evaluators indicated that more cost-effective approaches could and should be developed. These would focus less on recuperation (which had become almost the sole concern of the CERNs) and more on preventive interventions such as more comprehensive nutrition surveillance in rural areas, more varied and extensive educational interventions, and a larger agricultural

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\* Joyce M. King, "AID Role in Haiti's Mothercraft Network From 1976 Toward the Future: An Evaluation of BON-AID Centers for Education and Nutritional Rehabilitation", January 1979.

Catherine J. Fort, "Cost-Effectiveness of Mothercraft and Other Alternatives for Haiti", January 1979.

(home food production/consumption) program. Under such a "preventive" approach, the use of CERNs would be continued primarily for the rehabilitation of the most severely malnourished children in areas where a surveillance program had established the need for a recuperative intervention. However, due to the high cost per child, it was recommended that CERNs be used more selectively, kept more mobile and managed more effectively than under Project 521-0075. Finally, it was recommended that the rural health agents and auxiliary nurses being trained under the RHDS take primary responsibility for implementing the rural nutrition surveillance system, and carrying out village-level nutrition education measures.

The evaluation reports, then, concluded that, given available financial and human resources, a more cost-effective package of nutrition interventions would have to be developed and implemented by the DON, if there was to be any significant overall improvement in the nutritional status of the rural Haitian population. It is this "package" which is set forth in the "Description" Section below (pp 16 - 39).

## 2. Rural Health Delivery System (No. 521-0091)

The RHDS Project has as its purpose to reach 70 percent of rural Haitians (approximately 3.3 million people), most of whom do not have any access to modern medical services, with low-cost preventive and curative health care, emphasizing the former. The project is also intended to result in a significant strengthening of the DSPP at the central levels, while facilitating the integration of the semi-autonomous health agencies into a unified Department of Public Health. The Project focuses on the establishment of an extensive outreach system, consisting of 1500 trained, village-level health agents supported by 550 trained auxiliary nurses who operate from 275 rural dispensaries. The total cost of the Project was originally estimated at \$33.3 million for a five-year period, with A.I.D financing \$16.0 million (48%). The A.I.D financed components of the RHDS Project, prior to this Amendment, may be summarized as follows: Technical Assistance (\$2.42 million); Training (\$1.90 million) Construction/Renovation (\$5.26 million), Equipment/Supplies (\$1.41 million) Vehicles and Spare Parts (\$1.20 million), Personnel (\$1.63 million), Evaluation (\$100,000), and Contingency (\$1.15 million), for a total U.S. contribution of \$16 million. The GOH contribution totals \$17.32 million (\$11.5 million in personnel costs, \$2.2 million for drugs, \$307,000 in equipment and supplies, \$1.5 million for gasoline and spare parts, \$1.3 million for training, and \$56,000 contingency). Approximately half of the GOH contribution is expected to come from P.L. 480 counter-part funds.

### III. DETAILED DESCRIPTION OF RHDS NUTRITION COMPONENT

#### A. Preventive Interventions

##### 1. Nutrition Surveillance

###### a. Goals and Objectives of Nutrition Surveillance in Haiti

The goal of the nutrition surveillance system proposed by the DSPP and USAID is to provide ongoing information about the nutritional status of the rural Haitian population and, ultimately, the factors that most influence nutritional status in Haiti.

Objectives for the nutrition surveillance system in Haiti during the life of this project include:

- 1) to prevent the onset of severe malnutrition by locating mild and moderate cases and referring to appropriate treatment facilities or other nutrition programs.
- 2) to monitor, in a continuous fashion, the growth and nutritional status of Haitian children, endeavoring to promote continued nutritional health through early educational inputs, thereby avoiding the more difficult and expensive problem of clinical malnutrition.
- 3) to provide health sector decision makers, at the central and local levels, with information to assist in the appraisal and formulation of policies, interventions and further research in the area of nutrition.
- 4) to develop an information system that will establish linkages among sectors (health, agriculture, and education), thereby providing the basis for an analysis of causes of malnutrition, predictions of the probable evolution of nutrition problems, and the selection of preventive measures.
- 5) to monitor nutrition programs and to evaluate their impact.

###### b. Previous Experience with Nutrition Surveillance in Haiti

In 1977, with the assistance of PAHO, the DSPP undertook nutritional surveillance efforts in several areas of Haiti which had been severely affected by drought in order to determine the need and location for the distribution of supplies. Although this particular program was shortlived, the DSPP has just recently undertaken a similar effort in Les Cayes area (southern peninsula) in the wake of Hurricane Allen. The DON has carried out a training program of South Region DSPP personnel (especially health agents) in the detection of acute malnutrition, and this information is to be used to guide the disaster relief food distribution program.

A nutritional surveillance program was also a principal component of the "Integrated Rural Health Project" in the Petit Coëve area, described in some detail in the RHDS Project Paper (pp. 34-35 and Annex V, pp. 25-26). This project was carried out from 1975-78 by the DSPP, with the assistance of the Canadian Government and the Harvard School of Public Health. It has served as a pilot project for the RHDS Project, and many elements of the RHDS design are drawn from it. Nutrition Surveillance was carried out through quarterly health "rallies", organized by the community health agents and supervised by an auxiliary nutritionist and a physician. The system was designed to (1) locate and refer malnourished children to existing nutrition programs, (2) identify where treatment facilities should be introduced and (3) provide a monitoring and feedback system for health workers in the area. The rallies also included the distribution of "Road to Health" cards, with explanations to mothers on their meaning and use. In the Project test area where the surveillance program and rallies were the sole nutrition intervention introduced, a level of coverage of 80% was achieved and a beneficial impact on rates of child mortality (ages 1-4) in the areas was measured. This type of program has been specifically recommended as cost-effective, based on data from the Integrated Project area (C. Fort). Further, the intersectoral Division for Food and Nutrition Policy (DIFPAN) has recommended the establishment of a food and nutrition surveillance system as part of its recently published report on "Foundations of and Proposals for a National Policy".

The surveillance strategy formulated by the DSPP and A.I.D takes into consideration the strengths and weaknesses of past and present surveillance activities, and the following precepts have been established:

1) The nutrition surveillance system of DSPP will utilize the existing facilities and personnel, thereby minimizing the strain on the existing and planned infrastructure. No new types of facilities, personnel or organizations will be created to design, execute, or evaluate the surveillance activity.

2) The surveillance system will be decentralized in nature and supervised at the district (or in some cases regional) levels. This is consistent with other planned RHDS activities, and should insure better control and reporting of data collected and more meaningful data for the people collecting it, e.g. health agents.

#### c. Description of Proposed Nutrition Surveillance in Haiti

The proposed nutrition surveillance activity in Haiti will be initially developed in the South Region and, after evaluation, will be extended to the North Region, with a view toward subsequent replication throughout the country.

In FY 80-81 it is anticipated that the 360 existing health agents in the country will be "recycled" using the new curriculum formulated by the DSPP training team with the MSH training advisor. In addition, 150 new health agents will be selected and trained. Approximately 300-350 new health agents will be trained in each subsequent year of the RHDS project following both the construction and training schedules of the DSPP. Although the health agents in the South had been trained in the use of the arm

circumference tape as part of the disaster relief effort, their training in FY 80-81 as well as the training and recycling of other health personnel in this region (district administrators, statisticians, nutrition, and medical auxiliaries, etc.) will focus on surveillance as the critical preventive service to be offered for children under 5 years of age. The new and existing health agents in the South region will be assigned to existing DSPP facilities, those newly and to be completed facilities under the IDB/PAHO/DSPP regionalization program, and those private facilities participating in the RHDS.

All health agents will be trained in the use of arm circumference tape for initial screening of all children age one to five years in their service area (estimated to be 240 children per agent). Children identified as malnourished will be referred to the dispensary for further anthropometric evaluation, treatment of contributing or complicating illness, and inclusion in an appropriate nutrition activity (vide infra). The basic continuing surveillance activity, following the initial community screening, will be based on periodic weighing of all children to detect faltering growth and early stages of undernutrition. In order to achieve high coverage, yet not overburden the system, the weighing activity will enlist, initially, infants aged zero to three years (120 to 180 per agent), who will participate in periodic village based gatherings or rallies. By conducting one such rally per week, the agent, assisted by community members, can readily cover his entire area every two months (weighing 15 to 25 children per session). Initially, the agent will be assisted by the auxiliary, who will supervise the weighing and fill out the growth cards for each child, including the calendar portion which extends by month to the child's 60th month of age. Major emphasis will be placed on (a) enrolling the youngest children and assuring their continued growth; (b) regular growth (i.e., weight gain) as opposed to simply nutritional status. Thus, a normal child who is not gaining weight will be a target for intensive education, while a "grade 1" child who is gaining weight would be encouraged to continue present practices and not be labeled as "malnourished". This dynamic measure of nutritional assessment will provide a more sensitive index of the community nutritional state, expressed as the percent of children gaining weight this month, rather than the insensitive and static measure of "percent in a particular malnourished category".

For children exhibiting a faltering growth, the agent will provide the mother with a specific nutritional directive, a prescription of sorts, indicating what the mother should do over the coming month to regain growth. If, after following this programmatic advice, the next months growth is renewed the mother is complimented and surveillance continued. In the event of continued faltering growth during subsequent weighing sessions, interventions of increasing intensity (more timely and costly) will be instituted (vide infra and see Table I). In general, a child will be considered for a more intensive level of intervention only upon completion of earlier efforts in the rehabilitative scheme. The regular weighing is the key monitoring device, both for the individual child, as well as of the nutritional health of the community. The same data provides built-in evaluation of the impact of each level of the nutritional response system.

The information collected through the surveillance system will be reported to the supervising district or regional DSPP office, with copies forwarded to the Statistics and Epidemiology sections of the DSPP. The exact format of the reporting system and the frequency with which the reports will be made have not yet been determined, and will be developed through testing in the pilot surveillance area (South Region) under this Project. This will be an initial task of the technical adviser in nutrition to be provided through this Project Amendment.

d. Personnel Involved in Nutrition Surveillance

The success of the nutrition surveillance in providing information necessary to the DSPP and in channeling clients into the appropriate referral service depends, primarily, on the community level health workers (agents and auxiliaries) which form the base of the RHDS. As mentioned, these personnel will work in both active and passive ways to assure the greatest possible coverage of the system in any area. Health agents will routinely monitor all children under 5 in this area. The auxiliary nurses are responsible for initiating the growth chart of all children.

The auxiliary nurse will also be responsible for supervision of the health agents, visiting them regularly, checking on the quality of their measurement-taking performance, and helping solve logistical and technical problems. The auxiliary nurses and health agents will be supervised by the district training/supervision team which will include one auxiliary nutritionist. (Medical auxiliary with 9 months training in nutrition). There are currently 2 auxiliary nutritionists in each district.

Nutrition surveillance activities will be monitored in the pilot area by the DON's Regional Nutritionist, a fully trained professional. This person will be one of the principal counterparts for the long-term technical adviser to be provided through this Project Amendment. The Regional Nutritionist and the nutrition adviser will have primary responsibility for the development and testing of the surveillance system, although the DSPP's Regional Administrator will also be deeply involved, and is the final authority on design and implementation activities. The nutrition adviser is expected to be stationed at least 50% of the time in the Les Cayes DSPP Office for the South Region while the system is being developed and he will move as the surveillance system is replicated in other regions and districts. The scope of work for the Regional Nutritionist and the nutrition adviser regarding nutrition surveillance will include the following tasks:

- (1) to design and/or modify forms for data collection;
- (2) to assist field supervision by periodically visiting and coordinating the nutrition surveillance activities of the auxiliary nutritionist, auxiliary nurses and health agents;
- (3) to check on the quality of data collected before submitting forms to the regional statistician;
- (4) to assist the statistician with data analysis;
- (5) to design and execute a training program for the auxiliary nutritionist, auxiliary nurses and the health agents in the use of the arm circumference tape, measuring heights and weights, the detection of clinical signs of malnutrition and other measures required for routine surveillance and for an anthropometric evaluation survey.

(6) to assist the outside evaluation team and to coordinate with the Regional Administrator to ascertain progress, reestablish and modify goals, schedule future work, etc; and

(7) to write and submit periodic reports to the Regional Administrator.

The Regional Statistician in the DSPP South Region Office will compile, interpret and preserve the surveillance data obtained from the field. Copies of the raw data, as well as the Statistician's reports, will be submitted to the Epidemiology and Statistics sections of the DSPP, to DIFPAN and to the DON.

The DSPP Regional Administrator for the South Region will have ultimate responsibility for the design and operation of the nutrition surveillance system in the pilot area. Aided by the DON Regional Nutritionist and the proposed technical adviser, she will review the data collected and compiled by the Statistician, review the functioning of the system, make final decision with respect to modifications and prepare periodic reports for the DSPP.

At the end the first year of operation of the surveillance system, a limited anthropometric nutritional status survey and evaluation will be carried out in the South Region to test the sensitivity and reliability of the data being collected by the system. After this test has been made, the Regional administrator, the Regional Nutritionist and the nutrition adviser will prepare a final report on the pilot project, containing recommendations for future modifications and for replication in the other health regions and districts of Haiti.

e. Training Program for the Surveillance System

All training for the pilot activity will take place in the Les Cayes Office of the DSPP. Initial training sessions will be planned by the Division of Nutrition, the Regional Health Administrator, the Regional Nutritionist, the nutrition adviser and the Auxiliary Nutritionist. It is envisioned that two separate sessions will be held, with one in each of the two administrative districts of the Region.

Auxiliary nurses and health agents will be introduced to the objectives of the surveillance system and will be trained in the detection of clinical signs of malnutrition in the use of the arm circumference tape, and in the standardized taking of weight of height measurements. Health agents will be given training in the collection of mortality and birth information. The regional DSPP statistician will be trained in the compilation and analysis of anthropometric data.

All training will be carried out by the Regional Nutritionist, the nutrition adviser and the two auxiliary nutritionists. After the auxiliary nurses have been trained, they will assist in the training of the health agents.

f. Summary of A.I.D Inputs to Nutrition Surveillance Component

The principal A.I.D input for this component will be technical assistance through the services of a long-term nutrition adviser experienced in nutrition surveillance. The establishment of the surveillance system will be one of the primary functions of the nutrition adviser, though not his sole task. A scope of work for the nutrition adviser position is attached in Annex C. A.I.D will also finance per diem (during training) of trainees and supervisors, during the first year of implementation of the system in the South Region. A.I.D will finance the rental or purchase of the necessary transportation for nutrition surveillance workers (e.g. bicycles, horses) and for the Regional Nutritionist and the nutrition adviser. Two utility vehicles will be procured through this Project Amendment to assure adequate field supervision. It is anticipated that one of these will be moved to the North Region when the surveillance system is replicated there.

Finally, A.I.D will finance the cost of the evaluation surveys to be carried out after the surveillance system has been in operation for one year (in each region).

2. Nutrition Education and Training

Nutrition Education and Training activities will be supported partially through funds now in the RHDS budget and partially by the funds requested in this Amendment. The activities are: a) long-term training of DQN personnel; b) short-term training of DSPP/RHDS personnel (health agents, auxiliary nurses and physicians, regional/district administrators, central level and field statisticians; c) revision of existing curricula of training programs for doctors, nurses, auxiliary nurses and health agents; d) design and execution of village level nutrition education programs called foyers de demonstration; e) design of nutrition training modules for primary schools, home economics centers, community development agents, agricultural extension agents and FVO staffs; and f) the production of the educational materials needed to support RHDS and other nutrition education activities including material for the mass media.

a. Long-Term Training

Long-term training in nutrition, nutrition planning and related areas was not included in the training component of the RHDS project. However, under the revised design of the RHDS which includes a complete nutrition component, at least five professional nutritionists will be required to promote, supervise and coordinate nutrition activities in the health regions.

The Division of Nutrition currently has three professional nutritionists on its central staff, but only one of these is available to be assigned to field as a Regional Nutritionist in the RHDS. This nutritionist will be assigned to the South Region to assist in the establishment of the surveillance system, as described above. Four other nutritionists must be trained to meet the needs of the Division. The majority of funding requested for long-term training for this Project amendment is to train nutritionists. The four candidates will be selected by the Director of the DON and the Minister of Health in consultation with the Chief of Party and Training Adviser for the RHDS Project. Each candidate will be sent for a master's level program in public health and nutrition in the U.S., or to INCAP in Guatemala, or to an equivalent program in a third country. The Chief of the Research Office of the DON will be sent to a one-year MPH program in the United States for graduate-level training into statistics, research design and epidemiology. These skills are considered necessary for the DON to be capable of carrying out a comprehensive analysis of the data collected through the surveillance system and for the design of additional nutrition research projects proposed in this amendment (see Section on Nutrition Research, below). Finally, funds are provided for up to one-year of graduate level training in health and nutrition education for the Chief of the DON's Training Office and one member of the DSPP's Office of Nursing. This training will concentrate on the design and production of education/training materials in health and nutrition.

b. Short-term Training

During the last two years of Project 521-0075, the DON instituted short-term training sessions in nutrition for field personnel at existing DSPP fixed facilities. These sessions were carried out on a district-by-district basis, and concentrated to the diagnosis and treatment of malnutrition when encountered in DSPP facilities. These sessions were considered highly successful by the DSPP. Under the amended RHDS project, this training program will be significantly expanded, both in terms of the numbers of DSPP employees reached and the content of the training programs. Short-term training will be provided by the DON in surveillance techniques, the execution, supervision and evaluation of supplementary feeding programs, and the implementation of nutrition foyers de demonstration. Training will extend to field statisticians, RHDS supervisory teams, auxiliary nurses and health agents. Because this training is part of the overall RHDS training program, only limited additional funds are required, primarily for short-term technical assistance in course design production of materials and performance evaluation.

c. Curricula Design

Nutrition content relevant to the major public health problems of Haiti is virtually absent from the training programs of all levels of health personnel. Technical assistance will be funded under this amendment to assist the National Medical School, the Nursing and Auxiliary Schools and the DSPP's Division of Education and Training to modify the existing curricula and to develop new modules for medical, nursing and para-professional personnel. These modifications will include, *inter alia*, (1) the appropriate information on the clinical, biochemical and anthropometric parameters of protein and calorie malnutrition and nutritional anemia; (2) diagnosis, treatment and follow-up of cases of malnutrition of varying severity; (3) relationship of nutritional status to morbidity and treatment outcomes; (4) appropriate design for nutrition education messages for rural mothers on behaviors which effect the nutritional status of children (breastfeeding, frequently of feeding, weaning foods, etc.).

In order to improve the clinical training of physicians, nurses, and auxiliary nurses with respect to these areas, limited funding in this Amendment will be utilized for the establishment and operation of a nutritional rehabilitation/oral rehydration clinic in the pediatric ward of the National University Hospital in Port-au-Prince. A feasibility study for such a unit is currently underway under the auspices of the Rockefeller Foundation and USAID. The DSPP has expressed an interest in establishing such units in all health centers in Port-au-Prince and at District facilities as well, based on the results of the prototype to be developed at the University Hospital. Project funding of this unit will be utilized for the purchase of equipment and expendable supplies and a limited amount of pharmaceuticals (including oral rehydration salts) during the initial 2 years of operation of the unit. Food will be provided by the World Food Program/GOH Hospital Feeding Project. The salaries of the personnel (2 p/t pediatricians, 1 full time nurse, 3 nursing auxiliaries, cook, etc) and routine expendable supplies and pharmaceuticals will be provided by the GOH. The staff will be selected from existing pediatric staff, and will be trained and supervised by the Division of Nutrition and the Department of Pediatrics of the Medical School.

d. Community Nutrition Education: The Foyer de Démonstration Approach

As described in "Curative Interventions" (Section B, below), the role of the nutrition center under the amended project will be changed from its current (theoretical) dual function of intensively feeding the malnourished child and educating the child's mother. Due to the relatively high cost and low coverage of the centers, they will be used more selectively to rehabilitate severely malnourished children, based on the findings of the surveillance system. The nutrition education

function will become secondary to rehabilitation although some informal education of mothers by feeding center staff will continue. Under the amended RHDS Project, an attempt will be made to obtain much greater coverage with nutrition education, at a much lower cost per person reached, through a system of community based nutrition education programs known as foyers de démonstration. This preventive intervention was developed, utilized and tested in the Integrated Rural Health Project at Petit Goâve (discussed supra, p. 24 and 40 pp. 34-35 of RHDS Project Paper) to the extent possible this model will be followed in the RHDS

Briefly, a nutrition foyer is a series of lessons or "short-courses" given to 15-20 mothers at a time on a rotating basis in a rural community. Audio-visual aids and other demonstration techniques (not relying on literacy) are utilized. Active participation by the mothers is required by these techniques. In the Petit-Goâve Project, two week, intensive courses were used (12 daily sessions). Any woman expressing interest can participate. Those women with moderately or severely malnourished children will be actively recruited. Supplemental feeding of the children of participating mothers is provided during the foyer. The daily lessons in the foyer program focus on behaviors which have a direct positive influence on the child's nutritional well being, e.g. promotion of breast-feeding, preparation of weaning foods, preparation of oral rehydration solutions, frequency of feeding, nutritional value of certain foods and costs, interpretation of the growth charts, etc. The cost per child of the Petit-Goâve Project was estimated at \$6.80 per foyer and the cost per mother at \$16.80 (see C. Fort, p. 14). This compares very favorably with the per capita cost of the CERN program, and the 521-0075 evaluation reports concluded that the benefits derived were as favorable (see C. Fort, pp. 27-28). In terms of impact, unpublished data from the Petit-Goâve project demonstrates that education of mothers in foyers has as great an impact in reducing child mortality and sibling mortality as in nutrition centers. A comparison of the 2 programs based on impact on the nutritional status of the participating child was not made due to: (a) the duration of the foyer being too short to conclusively demonstrate improved nutritional status, (b) intervening variables influencing nutritional status i.e. episodous of illness, (c) seasonal variations, (d) the termination of the Petit-Goâve project before a follow-up study could be undertaken of the participants and their siblings in both programs (CERNs and foyers). However, the equivalent positive impact of CERNs and foyers in lowering the child mortality rate demonstrates the preventive benefits of nutrition education, with the foyer program considerably less costly than CERNs.

As with the Petit-Goâve Project, the use of the nutrition foyer will be coordinated with the nutrition surveillance system to maximize effectiveness. Children who are severely malnourished will be referred to the closest available supplementary feeding program, either at a dispensary, a CERN or a private voluntary organization's Title II feeding center. During or after this

supplementary feeding period, the mother of the referred child will be enrolled in a nutrition foyer. However, foyers will also be utilized for the mothers of normal and mildly malnourished children. RHDS health agents will follow-up in assisting mothers to monitor growth, as part of the nutrition surveillance program.

The foyers will be planned and organized by the DON's auxiliary nutritionists and RHDS auxiliary nurses, under the supervision of the DON's Regional Nutritionist. In order to carry out an active program of foyers with the limited staff, an attempt will also be made to train existing CFRN personnel, DON agricultural extension agents, and mothers who have successfully completed a foyer program to conduct community level foyers.

The principal inputs through this Project Amendment will be the provision of short-term technical assistance to the DON/DSPP to prepare the materials for use in the foyer and to assist the training of the personnel to carry them out.

e. Other Nutrition Education Activities

The DON has been requested on many occasions to design and produce appropriate nutrition training and education materials for use by the mass media and in training programs for community-based workers of other agencies, both private and public. These include adult literacy workers, community development agents, agricultural extensionists, school teachers and PVO staff. The ability of the DON to develop and provide these materials has been very limited in the past, and many requests have gone unanswered. Under this Project Amendment additional short-term technical assistance and supplies for the production of such special materials (in addition to foyer materials) will be provided. A special emphasis will be placed in expanding and improving the health and nutrition content of existing general education programs on the radio and in the school system.

f. Summary of AID Financed Inputs

Additional funding requested in this Amendment for education and training activities will be used primarily for long-term technical assistance in (a) the design, implementation and evaluation of in-service training programs for the DSPP personnel; (b) the production of educational materials for nutrition activities in health as well as other sectors; (c) the design and implementation of nutrition foyers, and (d) the revision of the curricula for the medical, nursing, auxiliary nursing and health agent training programs.

These additional short-term advisors for the RHDS nutrition component will be coordinated and managed by the RHDS long-term training advisor and the Chief of Party of the technical assistance team. Technical assistance for the nutrition foyers will, to the extent possible, be provided by the former Haitian Medical Director and Auxiliary Nutritionist of the Integrated Project of Petit Goave. It is anticipated that funding in the original RHDS technical assistance budget will be utilized for the in-service training programs of the DSPP personnel (item (a) above). Short-term advisors for the production of materials, the nutrition foyers and the nutrition curriculum design will be funded by this Amendment.

### 3. DON Agricultural Extension Program

#### a. Current Program in Bureau of Nutrition

As described in the Background Section above, it is apparent that improvements in the nutritional quality of rural diets depends, in part, on changes in the types of food produced by farm families for their own consumption (see Table II, p. 9). This means that nutrition education and agricultural extension must be closely related. A nutrition program cannot only focus on nutrition education, the treatment of nutritional diseases, or the periodic distribution of food. The agricultural component of a nutrition education program, if it is to have a lasting effect in the community, must encourage greater production for home consumption and orient the agriculture of the rural family to a greater satisfaction of its nutritional needs. This naturally requires coordinated improvements in food production, food preservation, and meal planning (especially child feeding practices).

The on-going activities of the Agricultural Extension Section of the Division of Nutrition aim not just at growing more food, but more importantly, food of higher nutritional value. The objective of the existing plan of operations is the improvement of the diet of the families participating in or living in the vicinity of nutrition centers (CERNs) by increasing the quantity and quality of their agricultural production.

The program currently employs one agricultural extension agent for each of the approximately thirty CERNs. Most of the agents employed are professional agricultural extensionists which have been seconded or hired from the Department of Agriculture. Upon joining the nutrition program, the extension agents are given an orientation course in nutrition and food production. The main topics include: rural sociology, practical nutrition education, demonstration techniques used in agricultural extension, agronomy, animal husbandry, horticulture, and soil and water conservation. The nutrition education course curriculum includes sections on food groups, composition of food and nutritional deficiencies in the diet of rural Haitians, and feeding practices for different age groups. Agricultural assistance at the CERNs currently includes both contact with the farmers in weekly group meetings and in individual home visits. Individual visits are used to give specific training and advice on various aspects of crop production, and the weekly meetings often include discussions on nutrition and the food needs of children and adults. Additionally, the extension agents are encouraged to maintain demonstration plots in the vicinity of the centers. Variety trials, plant spacing demonstrations, and model vegetable plots are common elements of these demonstration efforts. Coverage of the families using the services of the CERNs varies between 120-150 families per agent per year. In addition, each extension agent is encouraged to contact other families outside the program. This permits the agent to cover an additional 100-150 families outside the CERNs program, bringing the total yearly contacts to 220-300 a year.

Supervision of the agricultural extension agents is carried out by 3 Agronomists stationed in the central office of the Division of Nutrition. Each extensionist submits a detailed monthly report on a standardized form. One in-service training course (re-orientation), involving all of the DON's agricultural extension agents, is held yearly. The duration of the course is between four and six weeks and covers various aspects of food production (animal husbandry, horticulture, agronomy, etc) and nutrition. The AID-financed (January 1979) evaluation of the DON's agricultural unit indicated that the training and visit system employed by the Division's agricultural extension program has been effective in disseminating information and improving crop production and consumption patterns of the target CERN families. The extension agents in the existing program are dedicated and have worked hard under difficult conditions. However, their effectiveness has been limited by a number of factors, including the lack of adequate educational materials for use in motivating illiterate peasants, the lack of a manual on food production techniques which can be adopted effectively in rural Haiti, and the lack of means of transportation. These limitations have been addressed by the DON to a certain extent by the purchase of horses/mules for the agents requiring them, and the production of several manuals recommended by the evaluation report.

b. Proposed Activities

The focus of the Agriculture Extension Program of the DON will continue to be: a) the improvement of the crop yields of the nutritionally high-value foods in the food groups commonly grown in rural areas, and b) to turn domestic (home) consumption patterns toward those foods. Among the staple foods (cereals and starchy roots), emphasis will be placed on the yellow sweet potato (higher in vitamin A), improved corn varieties, and sorghum and cowpeas with short growing cycles. As to techniques, the agronomists will emphasize improved farming practices (plant spacing, seed selection, irrigation) and organic fertilizers and pesticides. Storage techniques will also be emphasized for these crops, as post-harvest losses to insects, birds, rodents and spoilage sometimes reach 30% or more in rural Haiti.

The extension agents of the DON will also focus on shifting production and consumption of fruits and vegetables to those with higher nutritional values, especially of vitamins A and C. Many such fruits are currently grown (mango, orange, grapefruit, avocado), but are highly seasonal in nature. The agricultural program, therefore, will also concentrate on developing a program promoting production of "winter" vegetables like cabbage, tomatoes and carrots in small homesite garden plots. This will require an effort providing seeds and information on techniques. Finally, protein needs will be addressed through the promotion of small animal production rather than the raising of larger animals (pigs, cows, goats), which often require substantial investments and do not supply a steady, easily prepared source of animal protein for family consumption. The extension agents are already undertaking rabbit production at nutrition centers

and will expand this program to include greater home production and consumption of rabbits as well as chickens and turkeys, which require far smaller investments, have shorter growth periods, can be stored "on the hoof" and provide a regularly available supply of protein.

Although the essential focus of the DCN Agricultural Extension program will not change significantly, the organization of extension activities will be modified. The DCN extension agents will no longer be based at a CERN, nor work exclusively with the families of children enrolled in a CERN, as has been the case under Project 521-0075. As the CERNs become more selective, more mobile and more focused on recuperative feeding for the severely malnourished, it is necessary to broaden the scope of the agricultural program, as a preventive nutrition measure. Current plans are for the assignment of DCN agricultural extension agents at the health district level, acting in coordination with the nutrition surveillance system. This will mean a greater concentration of such agents in the South Region at outset, with a subsequently more equal dispersion as the surveillance system is instituted in the other regions. The DCN's agents will provide technical and material assistance to those communities identified as having significant nutrition problems (whether or not a CERN has been set up in the area).

The agricultural inputs, like the nutritional surveillance, promotion and rehabilitation activities are part of an integrated continuum focusing increasingly on the families with malnourished or non-growing children. (1) Working with the health agents and auxiliaries at the regular village gatherings, the agricultural extension agents will provide information on crops, seed availability, food preservation that is practical, timely and relevant. (2) For children not gaining weight, the agronome will provide a specific suggestion for a home activity suited to the individual family. This is consistent with the effort to make education efforts highly action oriented and clearly focused. (3) Each foyer de démonstration will include lessons on home food production, including a small demonstration plot to be worked by the participants and will, when its plants mature, provide seed for all participants (several months later) Follow-up will assure their distribution and proper use. Seeds will be distributed during foyers as well in order to initiate home gardens in parallel with the demonstrations. (4) Children receiving food supplements (Title II) would be visited at home by the agronome who will make a specific evaluation of the resources available to the family and assist in initiating home production activities. (5) CERNs will have a garden, worked by the participating mothers, the produce of which will be used in the CERN. Seeds and animals will be provided to these families and their use monitored by regular home visits by the agronome.

By linking the Agricultural Extension Program to the surveillance system rather than CERNS per se, its limited resources will be used in an optimal fashion in the areas of greatest risk. Should this organizational arrangement prove to be effective, the DON will explore a possible expansion of the program with the GOH Department of Agriculture.

In addition, the impact of the DON's Agricultural Extension Program will also be extended through other activities planned by the DON. The agents will participate in the nutrition education process as part of the foyers de démonstration provided to rural communities. They will follow-up on the foyers with home visits to participants to provide assistance in the establishment of home gardens or small animal projects. The DON agricultural agents will also participate in the training and recyclage programs for DARNDR's agronomes, and the nutritional agronomy curriculum developed by the Division will be utilized in these courses. And finally, under the amended RHDS Project, the DON's agricultural agents will work more closely than in the past with the Title II outreach programs being carried out by the major PVOs. This will happen as a result of the increasing coordination between the Title II programs and the DON's nutrition recuperation system, as described on p. 31.

The Division of Nutrition's Agricultural Extension Program constitutes one of the few intersectoral activities in the area of food and nutrition and perhaps the only one being carried out at the field level. The DON considers it to be a very important element of its activities, and has strongly requested continued support for the program. Although in many countries such nutrition-oriented agricultural programs are sponsored by the Ministry of Agriculture, this is not the case in Haiti. While the Department of Agriculture has been supportive of the DON's efforts in this area (e.g., DARNDR has agreed to the assignment of eight extension agents to the DON and currently pays the base salaries of two of the DON's three central staff agronomists), it is not currently interested in taking on this program as its own activity.

Traditionally DARNDR has focused its efforts on increasing the production of cash crops, especially those for export (e.g. coffee, sugar). Although its interest in domestically-consumed food crops appears to be increasing, the emphasis is still placed on larger, commercial-scale production, and DARNDR targets its already scarce extension resources on those areas with the greatest productive potential. The focus of DARNDR remains centered on production, rather than on consumption and nutritional impacts.

The DSPP understands the importance of this intersectoral exercise to nutritional status in Haiti, and favors the continuation of the Agricultural Extension Program as part of the activities of the DCN at this time. However, it believes that in the long-run it is properly a function of DARNDR and does not believe itself capable of absorbing all recurrent costs of the program through its scarce budgetary resources. However, DSPP has included the DCN's Agricultural Extension Program in its Title I budget for Fiscal Year 1981, and is willing to support the program through Title I generations until such time as DARNDR becomes interested in and capable of absorbing this effort as its own.

Although DARNDR has not (yet) adopted the DCN's Agricultural Extension Program as its own, the Director of DARNDR's Extension Service has recently pledged his continued support and willingness to cooperate with the DCN in carrying out the program. It should be noted that there has been close coordination in the assignment of extension agents by the two agencies, i.e. there is no duplication of effort or overloading of extension agents. This close coordination is expected to continue.

USAID believes this program to be extremely worthwhile and deserving of continued support in spite of the current lack of strong financial support by either ministry. USAID believes that additional funding for the expansion of this program may become available from other donors (such as the FAO) in the future, and that as its results become better known, interest by DARNDR in absorbing the program will increase substantially. Until that time, USAID and the DSPP will urge that the program be considered a special development activity by the Department of Plan. As such, Plan will approve the use of Title I funds to support the operating costs of the program. These funds will be released to the DSPP, earmarked for use in the Agricultural Extension Program with the DCN as implementing agency. Plan may also use GCH development budget funds to support this program, as it currently does with another nutrition-related intersectoral activity (DIFPAN - see below, pp. 38-39).

c. Summary of AID-Financed Inputs

This Project Amendment provides for short-term technical assistance to the DCN to improve the design of the Agricultural Extension Program and to make the organizational shifts described above. Short-term assistance will also be provided for a more thorough evaluation of the nutritional impacts of the extension services provided through the program. Educational materials and agricultural inputs will also be provided through the Project. As described above, GCH inputs will be limited to P.L. 480 Title I generations for operating costs, with possible additional support through the GCH Development Budget.

## B. Curative Interventions Through the RHDS

In addition to the preventive services described above, curative services must be provided for the many already malnourished children in rural Haiti. Indeed, the availability of curative services is the rationale for the nutrition surveillance program (although there is some evidence that a surveillance program alone may have a positive nutritional impact). Project 521-0075 focused primarily upon curative services, provided through nutrition centers or "CERNS". Based on the project evaluations of the CERN program carried out under 521-0075, a decision has been made by the DSPP and USAID to utilize CERNS on a more limited and more selective basis in combination with other curative and preventive measures.

The "curative" nutritional care under the Amended RHDS Project will include the following elements: (1) diagnosis and referral; (2) supplemental feeding; (3) nutritional recuperation; (4) growth monitoring and follow-up.

### 1. Diagnosis and Referral

As described above, the principal tool for initial diagnosis and referral is the nutrition surveillance system. Based on a routine arm circumference measure and/or signs of pedal edema, the RHDS health agent will refer a child to a dispensary for further assessment. The auxiliary nurse will record age, take weight and height measurements, and check for any complications or evidence of severe forms of malnutrition (kwashiorkor, marasmus). She will make any further referral based on the severity of the malnutrition, the age of the child, and evidence of a complication (e.g. presence of fever, diarrhea, rehydration, respiratory illness). The mother of any child who exhibits faltering growth after the initial weighing, will be enrolled in a nutrition foyer de demonstration. Children considered moderately malnourished, (without complications) will be eligible for a supplemental food distribution program, either through the distribution of Title II dry food to the family or entry into a PVO (non-DON) feeding program, if available. Children diagnosed as severely malnourished will be eligible for more intensive nutrition services (described below). The presence of any significant infectious disease or other complication will result in referral to a health center or district hospital, where a qualified nurse's or physician's services are available.

### 2. Supplemental Feeding

There are various degrees of supplemental or recuperative feeding. The distribution of Title II dry foods to the families of moderately malnourished children and the short-term feeding program which is included in a nutrition foyer have been mentioned. Many PVOs distributing Title II food have indicated strong interest in more efficient targeting of this food. By linking provision of food supplements to the surveillance system, efficient use of their food will be maximized. It is expected that 6 to 8 weeks of supplements will be enough to restore growth and demonstrate the impact of food on nutritional health. The supplements are envisioned as therapeutic and not long term. However, DON

CERNS providing intensive, three-month recuperative feeding programs will only be established in areas where the surveillance system has identified the existence of severe malnutrition in a significant portion of the under-five population (see below). And, only children being monitored regularly by health agents in the surveillance program may utilize CERNS. Although this may seem a conservative or stringent approach, the DON's resources for intensive recuperative feeding programs are simply too scarce to provide wider coverage at this time.

### 3. Nutritional Recuperation

Children diagnosed as severely malnourished who also are suffering from infectious disease require intensive medical care which will not be available at the community level of the RHDS system. They will be referred to the nearest medical treatment center with inpatient capability to be treated by a physician or qualified nurse. Children diagnosed as severely malnourished without such complications will be referred to DON nutrition centers, if possible, or to PVO-operated nutrition centers which have been certified by the DSPP as meeting its standards. The DSPP/DON nutrition centers will be patterned after the CERN model developed through Project 521-0075, but operations will be modified in a variety of ways, based on the recommendations of the Project 521-0075 evaluation reports. The basic norms include:

#### (i) Establishment Criteria

Nutrition centers will be established only where more than 10% of the children in the potential "service area" (e.g. a radius of one-day's walk) have been identified through the surveillance system as severely malnourished (3<sup>o</sup> Gomez classification). This stringent norm has been adopted by the DSPP/DON as appropriate, given the scarcity of resources and the investment required to establish a CERN. A more flexible modification of this norm, suggested by the RHDS chief technical adviser, would be to establish centers where 30 or more children in the service area have been identified as severely malnourished. Under the CERN program of Project 521-0075, centers were established where it was estimated that 30% malnourished. Using the new criteria will tie the establishment of a DON recuperative feeding center to the surveillance system, and focus it more exclusively on the most severely malnourished.

#### (ii) Length of Stay

The average duration of a child's stay in the DON nutrition center will be reduced in general from four months under the current CERN program to three months. This is based on the evaluation report's analysis showing that the fourth month of feeding did not significantly improve the nutritional status achieved from that at 90 days. This norm is also intended to increase the "mobility" of nutrition centers, which under Project 521-075 tended to become permanently esconced in a community. Under the amended RHDS Project, nutrition centers will thus be viewed as more temporary in nature,

and used more intensively, with a potential of four cycles per year rather than three.

(iii) Diet Sources

The diet to be provided for feeding in CERNs will be developed using a combination of locally available foods and Title II or World Food Program food commodities. Under the CERN program only local foods were used, primarily due to a strong educational focus in the program and a belief that imported foods did not constitute a part of the local diet in rural Haiti. However, with the de-emphasis of the educational elements of the nutrition center program, and the awareness that surplus food commodities (imported) are readily available in local market places in rural Haiti, the use of Title II foods in nutrition centers feeding programs is considered advisable to achieve a significant cost-estimated at \$5000/center/year in project funds. The use of Title II food will make it possible to reduce the use of project funds to support the centers while improving the nutritional impact of surplus food commodities readily available in Haiti.

The nutrition center programs will thus focus on recuperation of the most severely malnourished children. Elementary education of mothers of children enrolled will be continued on an informal basis by DON staff responsible for the centers. However, these mothers will also be enrolled in a nutrition foyer during or after the recuperative feeding program.

4. Growth Monitoring and Follow-up

Growth monitoring is a routine activity in any comprehensive nutrition program and is an element of the surveillance system. It will be performed on all young children entering the RHDS system at any point, whether obviously malnourished or not. However, the growth of children existing from recuperative feeding programs will be closely monitored by the nutrition center or the auxiliary nurse responsible for the area. Auxiliary nurses, health agents and mothers will be trained in the use of the "Road-to-Health" card system for monitoring children's growth. These cards are simply-designed graphs using different colors to indicate normal and abnormal growth patterns. One copy of the child's card will be retained at the fixed facility while another copy will be given to the mother as an educational tool and reference for follow-up visits by the health agent.

The health agent will be the principal responsible party for the follow-up of children treated for malnutrition. Agents will be assisted by the auxiliary nurses in the dispensaries and by the DON's auxiliary nutritionists, especially in cases of children identified as severely malnourished and referred by agents but who do not show up for further diagnosis and referral.

5. Summary of AID-Financed Inputs

The AID-financed inputs for the curative nutrition services described above overlap to some extent, with those described in earlier sections of the paper. The long and short-term training of new

health personnel at all levels will cover both preventative and curative aspects of addressing the malnutrition problem. The special short-term training to be provided to health agents and auxiliary nurses already in place will focus on both aspects as well. AID will supply certain commodities and materials necessary for effective growth monitoring, such as scales, growth charts, Road-to-Health cards and office supplies.

With respect to the operating costs of the CERN's, USAID is attempting to facilitate a smooth transition from the existing CERN program. This is a delicate task. The final year budget for Project 521-0075, which coincides with the first year of the nutrition component of the RHDS Project, calls for an initial reduction of the number of centers (from 36 to 20) to be supported by the DSPP/DON. Funds from Project 521-0075 will cover the operational costs of these centers for one year. The use of Title II foods will be introduced during this year, as will the new norms regarding the establishment of centers and the duration of stay. These are expected to result in cost-savings adequate to permit AID to reduce its support to the centers in the second year of the amended Project. In the second year of the project AID will finance only 50% of operational costs and the initial capital costs of setting up any new centers justified through the surveillance system. By the end of the third year, AID support to the operational costs of the centers will end.

The programming of the use of Title II food and World Food Program commodities in DON centers and other feeding programs will be based on joint planning involving USAID, PVOs with Title II or WFP programs and the DSPP/DON. An ad hoc Nutrition Planning Committee made up of these groups has already been established and has met to discuss norms for supplement any feeding, ration levels, distribution mechanisms, etc. Preliminary discussions have been held with the voluntary agencies to introduce the concept of supplementary feeding through the Rural Health Delivery System surveillance activities, etc. It is anticipated that during the first year of the implementation of the nutrition amendment, this committee, with the assistance of the nutrition advisor and the DSPP chief administrator and the MSH logistics advisor, will jointly develop the distribution and phasing of food distribution with the RHDS. The DSPP, AID and the Voluntary Agencies consider this process to be a positive step toward expanding and maximizing the nutritional impact of the M.C.H. Title II feeding program in Haiti.

### C. Nutrition Research

A very substantial amount of nutrition research was carried out under Project 521-0075, including most of the research on which the design of this RHDS Project Amendment is based. A table summarizing all this research is included in the Technical Analysis in Section IV. A., below. Included in this research was a feasibility study for the establishment of a nutrition surveillance system as a component of the RHDS (David Eckerson and Irwin Schorr, Nutrition Surveillance in Haiti: A Practical Approach; October, 1979), several studies of feasible nutrition education techniques and potential impacts for rural Haiti, the comprehensive National Nutrition Status Survey (DON/CDC; June 78), and the three extensive project evaluation reports mentioned above. As a result of this research, a wealth of information on malnutrition in Haiti currently exists and forms the basis for the actions called for through this Project Amendment. Although extensive, this research has not encompassed all aspects of the overwhelming nutrition problem in Haiti. The additional nutrition research called for in this project component is important and is based largely on informational gaps identified under the previous studies, especially the National Nutrition Status Survey.

The DON has proposed a research program over the next four years which consists of three field studies and two applied research activities. In addition, the Project Amendment calls for evaluations of the impact of the proposed RHDS nutrition interventions (see Evaluation Plan, Section V.E., below).

#### 1. Basic Research

The Research Section of the DON will undertake, with the assistance of short-term technical advisers and personnel from the Evaluation, Statistics and Epidemiology Sections of the DSPP, the following studies:

##### a. Nutritional Anemias:

The National Nutrition Status Survey of 1978 indicated that between 22 and 53 percent (depending on geographic location) of Haitian children under five are anemic, by WHO standards. Between 19 and 52 percent of the mothers of these children are also anemic. Wide variances in the mean hemoglobin values were found according to location and the general physiological state of the women of child-bearing age in the area. Based on these findings, the CDC recommended additional research to determine the reason(s) for the widely varying anemia rates, especially of the mothers, and the significance of these rates for overall health status. Outside short-term technical assistance, possibly from

the CDC, will be required for this study. An estimated six person-months are considered necessary for both the development of the most appropriate methodology and the analysis of data obtained.

b. Morbidity and Nutritional Status

The National Nutrition Status Survey indicated a high level of illness in children, as perceived by their mothers or guardians. In response to questions from interviewers, 54.6% of all children were reported to have been "sick" during the previous week 44.4% were reported to have had diarrhea and 32.2% a fever. A clear relationship was also found to exist between the perceived illness and the existence of acute malnutrition. Although the perceived rates of morbidity are high and correlation between morbidity and acute malnutrition is clear, the Nutrition Survey provided no data on actual morbidity or recommendations on the optimal approach to study these interrelated problems. With the assistance of the technical assistance already being provided through the RHDS project, the DON proposes to undertake additional research to confirm or modify the data obtained on "perceived morbidity" and to investigate further the relationship between morbidity and acute malnutrition.

Within the general research area of the relationship to morbidity to nutritional status, several more specific research projects will be designed and carried out. One of these will be a study of the incidence of measles and its effect on nutritional status. Data from the National Nutrition Status Survey suggests that the overall prevalence of measles antibody in preschool children in Haiti differs significantly from that in West Africa, where measles appears to be a more widespread and serious public health problem. Because measles can be prevented through an immunization program, the DSPP/DON wishes to determine the extent to which measles is a public health problem in Haiti, both in terms of incidence and nutritional impact, so that an immunization program for measles could be included in the RHDS, if deemed necessary. The CDC recommended further study in this area, and it is expected that the technical assistance required for the study will be obtained through the CDC with funds included in this Amendment. It is anticipated that 4-6 months of technical assistance will be needed to assist the DON Research Unit to design and implement this study.

c. Relationship between Socio-economic Variables and Food Consumption/Nutritional Status.

Although the nutritional status of a population is dependent not only on the health care services available but on the socio-economic status of that population, no detailed studies of this relationship have been carried out in rural Haiti. This type of study will be carried out in the North Region of Haiti, which has been the subject of a recent socio-economic survey (partially financed by AID) in conjunction with the work of the FAO in that Region. The data from this survey will be correlated

with updated data on food consumption in the Region, which will be collected under this amended Project. The DON will then test the relationship between various socio-economic variables and the current data on food consumption and nutritional status in the North Region in an attempt to determine which variables are "keys" to the improvement of nutritional status. Under this Amendment, funding will be provided for data preparation and analysis only. This study will be designed and carried out by the DON Research Unit, with the assistance of staff from the North Region Development Organization (ODN). RHDS personnel will be utilized for the collection of data, supervised by the DON Regional Nutritionist.

## 2. Applied Research

The Research and Evaluation Section of the DON will carry out practical studies of two different elements of the Nutrition Program described above:

### a. Arm Circumference Measure

As now planned, the nutrition surveillance system will rely on the use of the arm circumference tape (Shakir Strip) by the health agent in the field to screen the under-five population in his area for malnutrition. This tool has been used effectively in nutrition programs in many parts of the world. When a case of malnutrition is identified with the tape, the child will be referred for a more thorough assessment, to be made at the dispensary by an auxiliary nurse using anthropometric measures (e.g. weight for height). The DON intends to collect data on the correlation of the initial, arm-tape diagnosis with the various anthropometric measures to determine the sensitivity of the arm-tape as a diagnostic tool with respect to acute malnutrition. This study will be conducted as part of the surveillance activity, and no additional technical assistance or funding is foreseen.

### b. Title II Food and Nutritional Status

With the increasing use of P.L. 480 Title II food commodities as a nutritional "curative intervention" in the context of the RHDS, the DON Research and Evaluation Section intends to undertake research on the impact on nutritional status of (1) selected PVO-sponsored feeding programs using Title II foods, and (2) Title II dry food distribution programs, where supplemental commodities are given to families with moderately malnourished children. Title II foods have been distributed in Haiti through PVO outreach programs for some years, and no significant nutritional impact evaluation has been carried out. As these programs are being more closely integrated into the RHDS, the ad hoc Nutrition Planning Committee and the DON have agreed upon the desirability of such research. The PVOs will assist the DON with the collection of the necessary data.

## 3. Summary of AID-Financed Inputs

This Project Amendment will finance the short-term technical

assistance mentioned above as required for the three areas of basic research. It will also pay for the necessary materials, cost of data analysis, and some local costs (e.g. cost for data collection required beyond the capacity of DSPP/DON personnel). Any technical assistance required for the applied research studies will be obtained from existing advisory personnel without additional cost to the Project.

#### D. National Nutrition Policy and Planning

The Five Year Plans of various GOH ministries, including Health (DSPP), Agriculture (DARNDR) and Education (DEN), all state nutrition-related goals and objectives. However, the latter two ministries barely focus on the problem of malnutrition as part of their operational programs, and there exists very little in the way of intersectoral cooperation toward the achievement of the commonly-stated goal of improvement in the nutritional status of the population. Apart from the Agricultural Extension Program of the DON, the only intersectoral effort currently being made in the nutrition area is taking place at the national policy and planning level, under the auspices of the Department of Plan. The Division for the Formulation of Food and Nutrition Policies (DIFPAN) was established as a special activity of the Department of Plan in 1976, through a grant from UNICEF. The GOH provided an interagency technical staff, with representatives from the DARNDR and the DSPP, plus a statistician. This staff has been extensively and ably assisted by one resident and several short-term U.N. technical advisers.

Since its inception in 1976, DIFPAN has focused on the preparation of several analytical studies which it considered necessary precursors to the formulation of a national nutrition policy. These included a "sector assessment" type document and a five-year project of food production patterns in Haiti. At the end of August 1980, DIFPAN published the first volume of a planned two-part set on "Foundations and Proposals for a National Food and Nutrition Policy". The first volume, entitled "Global Policy" contains a multi-sector analysis of the nutrition problem in Haiti, and a formulation of the overall goals and objectives of a national food and nutrition policy, which is recommended for adoption by the GOH. A proposed second volume on "Sectoral Policies" will discuss more specifically the different factors affecting the malnutrition problem, and the responsive actions recommended to be taken by GOH ministries in each sector. This volume will be published during 1981, and it is expected that the DSPP/DON will attempt to respond to its recommendations for the health sector through the amended RHDS project.

The Department of Plan has incorporated DIFPAN into its normal operations, and it will be supporting its routine operating costs in the future. Its new name is Unité de Programmation Alimentaire et Nutritionnelle (UPAN). The role of UPAN will include (a) intersectoral planning and programming; (b) coordination of related ministerial activities in the food and nutrition area; (c) assessment of the nutritional impact of proposed ministerial projects; (d) recommendation of policy changes conducive to improvement of the nutritional status of the Haitian population; and (e) distribution and interpretation of data on food and

nutrition collected through various ministerial activities.

AID-financed Inputs

Given the high quality of DIFPAN's work in the past and the decision of Plan to support its continued existence (as UPAN), USAID believes it is important to strengthen this organization as it becomes an integral part of the Government of Haiti. Although it is not directly connected to the Rural Health Delivery System, UPAN's intersectoral planning and coordinating activities are expected to support and refine the nutritional interventions to be made through this amended Project, as well as other sectors. In particular, it is believed that the activities of the DON's Agricultural Extension Program will receive the guidance and support of UPAN in its future recommendations.

UNICEF support for technical assistance to DIFPAN terminated at the end of 1980. USAID there proposes to provide additional short-term technical assistance (up to 5 persons-months over the life of project), especially in the areas of agricultural economics and statistics. Further, funding is included for short-term training of DIFPAN staff through local workshops and seminars (1 per year during the life of project) and short courses/workshops in various aspects of nutrition planning provided by FAO, UNICEF and under the AID centrally funded nutrition planning grant, publication of nutrition policy papers and materials, limited office equipment and one vehicle.

#### IV. ANALYSES OF RHDS NUTRITION COMPONENT

##### A. Technical Analysis

The merger of the previously planned Intersectoral Nutrition Project with the Rural Health Delivery System Project is intended to achieve: (a) a fiscally and administratively feasible alternative to parallel and duplicative delivery networks, (b) a holistic approach to community medicine, recognizing the importance of nutrition as a key element of health status, and (c) a strategy consistent with Mission, Agency and GOH objectives in integrating health and nutrition services both technically and administratively.

In the past three years, under the auspices of Project 521-0075, eleven studies have been conducted to ascertain the feasibility and advisability of alternative technical strategies to address the problem of malnutrition in Haiti. Table IV below summarizes the type of study undertaken, the researcher, and a summary of the results. These studies, carried out in conjunction with numerous PVOs and other groups providing nutrition services in Haiti, have led to the aggregate strategy being proposed by this Project Amendment.

The Technical Analysis included in the RHDS Project Paper demonstrates the feasibility of the RHDS design. The concept of the multi-purpose rural health worker trained to undertake curative and preventive health and nutrition activities has been demonstrated successfully in other AID projects. The nutrition activities to be undertaken by the health agents and other RHDS personnel were identified, designed, and/or elaborated jointly by AID-funded technical advisors, USAID/PHO and DSPP professionals, based on evaluations of activities under Project 521-0075 and past pilot health projects in Haiti.

In particular, the modifications in the role and operations of CERNs were recommended by the evaluations of Ms. Joyce M. King ("AID Role in Haiti's Mothercraft Network", Jan. 1979) and Ms. Catherine J. Fort ("Cost-Effectiveness of Mothercraft and other Alternatives for Haiti," Jan. 1979). These recommendations were largely adopted, resulting in the re-definition of CERNs as more highly "mobile" and selective recuperation centers for the most severely malnourished of Haitian children under five. The linkage of nutrition surveillance to recuperation efforts was strongly emphasized in the King report as the most effective way to utilize limited resources while maximizing nutritional impact. As to the operations of CERNs, both reports agreed that in order to improve efficiency and cost-effectiveness, the norms concerning location, admission criteria, length of supervision and attendance would have to be modified to shorten length of stay, increase mobility, select younger and more severely malnourished children, and integrate the DON/RHDS supervision systems. These design changes have been incorporated in this Project Amendment. In addition,

Table IV

INTERVENTIONS CONSIDERED FOR HAITI

NUTRITION SECTOR

FEASIBILITY STUDY TITLE	PURPOSE	CONSULTANT DATE OF STUDY	RESULTS
Vitamin A Fortification of Sugar	To determine the feasibility of reducing vitamin A deficiency through fortification of sugar.	Barret October 1977	Negative feasibility determination due to lack of centralized processing facilities and absence of refined sugar in Haitian diet.
Salt Iodization	To determine the feasibility of reducing goiter through iodization of salt.	Barrett October 1977	Negative feasibility determination due to lack of centralized processing facilities and absence of refined salt in Haitian diet. Nutrition survey (1978) indicates goiter not a severe public health problem.
Wheat Fortification	To determine the feasibility of improving the quality of the diet by increasing the protein quality and adding vitamins/minerals to wheat flour.	Barrett October 1977 Degner/Bownick Jan/Feb 1980	Determined to be impractical due to technical problems at the flour mill and existing Canadian/GOH commercial AKAMIL project.
Nutrition Surveillance	To determine the feasibility of including nutrition surveillance as a component of rural health outreach.	Shorr/Eckerson October 1979	Resulted in basis for nutrition surveillance component of proposed amendment.
Nutrition Status Survey	To provide baseline data and to ascertain the level of nutritional status of rural Haitians.	Center for Disease Control June 1979	Will serve as baseline data and demonstrates severity of nutritional problems in Haiti.

Table IV (Continued)  
INTERVENTIONS CONSIDERED FOR HAITI

NUTRITION SECTOR

FEASIBILITY STUDY TITLE	PURPOSE	CONSULTANT DATE OF STUDY	RESULTS
Inventory of Existing Primary and Secondary Source Data on Haiti	To provide: a) a documentation of all nutrition data currently available, 2) a critical analysis of the data, 3) identification of data gaps and weaknesses, 4) identification of needed investigative studies.	King, March 1978	Data analysis and compilation of literature used as reference by all subsequent basic and applied research activities. Information system of BON modified according to analysis and recommendations.
Survey of Sociological and Dietary Information and Specific Nutritional Deficiencies	To gather and analyze information on existing child rearing/feeding practices which influence health/nutrition status.	Murray/Alvarez to begin June 1980	Information to be used in designing nutrition messages for education program under RHDS and MCH/FP projects.
Small Farmer Income and Nutrition Status	To examine relationship between production variables, farmer income, and household nutritional status.	Ahlers/Schorr March 1980	Information to be used as: 1) baseline for World Bank Integrated Rural Development Project, 2) basis for modification of agronomy program of BON.
Fish Ponds	To ascertain the feasibility of introducing fish ponds as a means of expanding and upgrading protein sources in the Haitian diet.	Randolph Sept 1978	Artisanal fish ponds rejected due to negative cost benefit/ratio.
Mass Media Nutrition Education	To determine the feasibility of mass media education campaign and its projected effect on nutritional status.	Meyer/Novelli March 1978 Alexander et.al Nov 78	Resulted in basis of nutrition education component of proposed amendment.
Interpersonal Nutrition Education	To modify mass media proposal to be more consistent with institutional capability of BON and educational objectives of RHDS.	Parlato Oct 80	

the recommendations made in the evaluation of the DON's Agricultural Extension Program (Harlan Attfield, "Bureau of Nutrition Agricultural Extension Program - Description and New Directions", Jan. 1979) were adopted by Project 521-0075 and will be continued in the extension program funded through this Project Amendment.

The two new major activities to be undertaken by DON and RHDS personnel under this Amendment -- nutrition surveillance and nutrition "foyers de demonstration" -- are based primarily on the experiences of the Integrated Health Project of Petit-Goave, the surveillance program of the Albert Schweitzer Hospital and the prior pilot efforts in surveillance of the DON, HACHO and CARD (the disaster relief organization formed during the drought of 1976-77). The nutrition foyer was developed in the Integrated Health Project of Petit-Goave as an alternative to the nutrition center, to overcome absenteeism problems of children and mothers during the long four-month rehabilitation period. The King evaluation of the CERN program demonstrated the severity of the absentee problems in the CERNs (46% of the mothers attended significantly fewer than the required number of educational sessions). The foyer design condenses the training program for mothers to twelve sequential lessons over a two-week period. This separates the nutritional rehabilitation of the child from the education of the mother. Preliminary data from the Integrated Health Project indicate that the introduction of foyers into the test areas of the Project significantly reduced child mortality rates in those areas even in the absence of nutrition rehabilitation centers. In addition, no differences were found in death rates during follow-up months between children who had been in foyers with their mothers and children existing from traditional CERNs.

With funding in this Amendment, the basic foyer design of the Integrated Health Project of Petit-Goave will be incorporated to the extent possible into the RHDS service delivery program. The basic design of the foyers (messages utilized, admission criteria, linkage to surveillance program, training and supervision) will be changed very little from that model, except in response to the results of studies of child-rearing and feeding practices now being conducted. It is anticipated that the Haitian medical director, the field supervisor and the auxiliary nurses who participated as technical advisors for the establishment of the DON foyer activity in the context of the RHDS.

The design of the nutrition surveillance activity in the RHDS was elaborated by David Eckerson and Irwin Shorr in October 1979 in the report, "Nutritional Surveillance in Haiti: A Practical Approach". The objectives and methodology of the proposed program are fully consistent with the guidelines presented in Methodology of Nutritional Surveillance, a report of the joint FAO/UNICEF/WHO Expert Committee (Technical Report No. 593). The design of the activity, while not a replication of the surveillance system used in the Integrated Health Project of Petit-Goâve shares with it certain basic principles: (a) family register sheets to be kept by health agents for all families in their areas, (b) routine measurement of all children under five, and (c) the use of "road to Health" cards and growth charts to be distributed to families as educational tools. The coverage of the DON/DSPP surveillance system may not be quite as extensive as that of the Integrated Project, because it will not rely upon the unpaid community volunteer agents (below the health agent level), as did that Project. However, it is the position of the surveillance feasibility study carried out by Eckerson (concurrent in by USAID/H) that the surveillance activity as described above will attain coverage levels sufficient for the primary objectives of the surveillance activity, i.e., the location of cases of malnutrition and the targeting of resources to the neediest areas. It will be the responsibility of the resident nutrition advisor working on the surveillance activity, together with the DSPP/DON Regional Nutritionist, to design the pilot surveillance activity in the South to maximize coverage and the preventive potential of the surveillance program, taking into consideration the human resource and recurrent cost constraints faced by the DSPP.

In summary, eleven technical baseline and feasibility studies together with three evaluations have led to the formulation of the USAID nutrition strategy entailed by this Project Amendment and to the design of the various project activities within the RHDS, as well as those complementary to it. The activities proposed for funding have been jointly agreed upon by USAID, the AID-financed RHDS technical advisors, the DSPP and DON as technically appropriate, based on available resources and the anticipated institutional capability which will develop during the course of the RHDS Project.

B. Economic and Social Analyses

1. Economic Benefits

Primary health care, including prevention of and treatment for malnutrition, is a basic human need. The economic "value" of improved health and nutritional status is extremely difficult to measure quantitatively, and the relationship between improved health/nutritional status and economic development is variable. Some developing countries have improved their health and nutrition status indicators significantly while economic indicators have remained relatively constant. In other cases, economic indicators have been improved while health/nutrition status indicators have remained stable. In still others both types of indicators have improved simultaneously. In spite of these varying experiences, there is evidence indicating that a comprehensive set of measures taken to improve the health and nutritional status of a large portion of a country's population can have a major developmental impact, primarily through increases in the productivity of labor force. Although the focus of the nutrition component of this Project Amendment is on young children, it is believed that the interventions to be undertaken will reduce the levels of stunting and wasting in childhood growth, reduce morbidity rates, reduce child mortality rates and increase life expectancy. Over the long term it is assumed that such impacts will significantly strengthen the productivity of the labor force of Haiti by reducing absenteeism due to poor health and increasing the energy level of workers. However, as the nutrition interventions to be taken in this Project are integrated into a more comprehensive rural primary health care program, it will be difficult to tell which specific measures affect which aggregate indicators and to what extent. It will also be impossible to measure accurately a causal relationship between improvements in such health indicators and productivity levels.

2. Cost - Effectiveness

In spite of these difficulties, it is not impossible to test the cost-effectiveness of different kinds of approaches to the malnutrition problem in Haiti, and to design a "package" of measures which appears to be the most cost-effective of the alternatives available under the circumstances. The January, 1979 Fort evaluation focused exclusively on cost-effectiveness of the CERN program, compared to other approaches. Although this report indicated that the available data were inadequate for a complete analysis of all the different approaches to malnutrition which had been experimented with in Haiti, the report examined five different experiences:

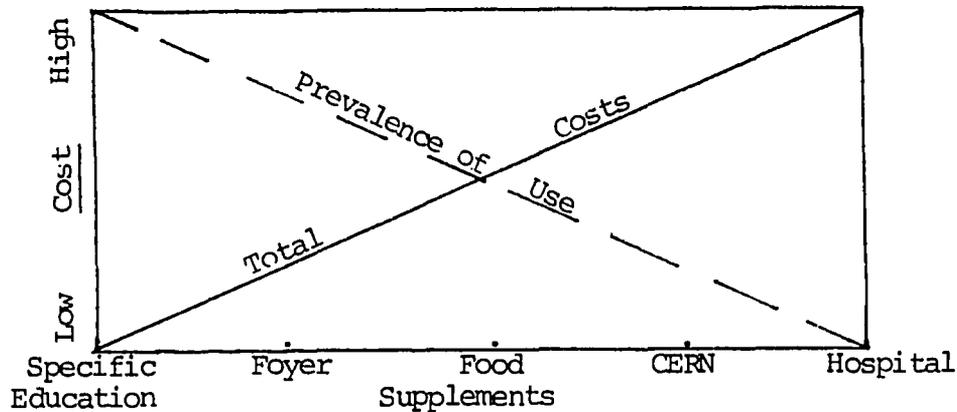
- 1) Hospital Rehabilitation
  - a) Albert Schweitzer Hospital
  - b) National University Hospital
- 2) DON Mothercraft Centers (CERNS)
- 3) HACHO Nutrition Centers (similar to CERNS)
- 4) Integrated Project/Petit-Goãve
  - a) Rehabilitation Centers
  - b) Nutrition Education "Foyers"
- 5) Church World Service Nutrition Centers  
(Title II Dry Food/Supplementary Feeding)

The direct recurring cost per child served by a nutrition intervention strategy are highest for hospital rehabilitation. Next highest in per capita cost (and highest among those facilities including mothers in the program) were the CERNS administered by the Division of Nutrition under Project 521-0075. The lowest cost program was the CWS center program, which provided only dry food (Title II) distribution with food preparation demonstrations to mothers. The two approaches of the Petit-Goãve Integrated Project were operated independently, and Project research personnel asserted that improvements in the nutritional status of children were as favorable for the education-oriented foyer de démonstration as for the rehabilitation centers, at less than one third of the cost. Although this project was small relative to the scale of the CERN program, the report found the Integrated Project nutrition foyer program the most promising from a cost-effectiveness point of view. This program provides the model for the nutrition education component of the amended RHDS Project.

The evaluation report notes appropriately that when the goal of any development activity is to reach out to the most impoverished and inaccessible people to provide basic services which are totally lacking any strategy is going to be expensive. However, the principal conclusion drawn is that a nutrition intervention package can be designed which is much more cost-effective than that of the CERN program under 521-0075, primarily "by taking various elements of different programs and putting them together in an optimal way". The examples of recommended ingredients are more effective nutrition surveillance system combined with the use of low-cost foyers de démonstration and supplementary feeding of severely

malnourished children through "mobile" rehabilitation centers. Finally the report recommends cost-savings through the integration of such a package of nutrition interventions into the infrastructure of the proposed rural health delivery system, as it is established. These recommendations formed an important conceptual basis for the design of the RHDS nutrition component.

The chart below is a hypothetical model based on the findings of the Fort Report regarding costs and the RHDS nutritional intervention network. It shows that the general array of costs is roughly inversely related to the expected prevalence of use of each successive stage in the nutritional intervention network.



### 3. Social Analysis

The comprehensive social analysis conducted by Dr. Suzanne Saulniers for the RHDS Project Paper (pp 75-85; Annex IV) provides substantial background on health and nutrition beliefs and practices in rural Haiti. The approach presented in this project amendment is based on much of the information generated by Dr. Saulniers. Two adjunct studies are currently being carried out and will add to the existing data. First, a study of child rearing and feeding practices begun in July 1980, will be completed by June 1981. This information will be utilized to develop appropriate messages for the nutrition education program to be conducted under the RHDS. In addition, under this Project, a study to assess the nutritional impact of families of the Title II dry food distribution program will also be conducted.

It is expected that the results of these studies will provide direct programming information that can be utilized in the RHDS Project activities outlined above. Apart from these studies, this Project Amendment will rely upon the in-depth Social Soundness Analysis carried out for the RHDS Project.

C. Financial Analysis and Plan

The original proposed cost for the five year RHDS Project was \$33.3 million, including \$16.0 million of AID funds and \$17.3 million of GOH resources. Under the proposed Project Amendment, these figures are increased as follows:

Total Project Cost	\$35.925 mil.
Total AID Contribution	17.500 mil.
Total GOH Contribution	18.425 mil.

The additional funding required to add a significant nutrition component to the RHDS Project for the remaining four-year life of project period is detailed in Table V of the financial plan below. This table illustrates the projected costs over the next four fiscal years (approximate time remaining in RHDS) of activities attributable solely to the proposed nutrition activities within the RHDS. With respect to Table V it is important to note that the largest single recurring cost item, salaries of DON personnel, has been programmed to permit a phased but total withdrawal of AID project funding by the third year of the RHDS nutrition component. This is in line with the Mission's strategy to move away from support of the operating budget costs of GOH development institutions. This has been done by reducing project funds for salaries by 20% of the FY 80 amount in FY 81, by 40% of the FY 81 amount in FY 82, and by 100% of FY 82 amount in FY 83. Thus, no salaries will be provided in FYs 83 and 84 with project funds. These reductions are compensated for through increases in GOH public treasury contributions and Title I generations which USAID project officers consider to be reasonable and which have been discussed thoroughly with DON/DSPP officers. Other operating cost items are also phased down, so that AID project funds are no longer required for their support by the last year of the Project. These include the local costs of the nutrition centers and the DON's Agricultural Extension Program.

FY 1981, which will be the first year of the amended RHDS Project, is the transition year, in which DON and DSPP budgets will be integrated. **The AID funds remaining from Project 521-0075 as of October 1, 1980 have been budgeted for this year as well.** A detailed budget for this transition year,

TABLE V

BUDGET FOR NUTRITION COMPONENT OF RHDS BY CATEGORY BY YEAR

Expenditure Category	FY 1981			FY 1982			FY 1983			FY 1984			TOTALS		
	GOH T.P.	Title I (GOH)	AID	GOH T.P.	Title I (GOH)	AID	GOH T.P.	Title I (GOH)	AID	GOH T.P.	Title I (GOH)	AID	GOH T.P.	Title I (GOH)	AID
Personnel	48300	90800	109000	63000	132640	64757	105000	160000		105000	160000	-	321300	543440	173757
Supervision	-	-	20000	-	10000	10000	-	10000	5000	-	15000	-	-	35000	35000
Training	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local	-	-	60000*	-	-	62000*	-	-	50000*	-	-	50000*	-	-	222000*
Participant	-	-	46000	-	-	36000	-	-	36000	-	-	36000	-	-	454300
Commodities															
Health	-	-	50000*	-	-	70000*	-	-	60000*	-	-	40000*	-	-	220000*
Agriculture	-	15000	30000	-	20000	25000	-	20000	25000	-	30000	-	-	85000	80000
Office Supplies	-	10000	15000*	-	15000	10000*	-	15000	10000*	-	25000	-	-	65000	35000*
Educational Materials	-	-	25000	-	-	40000	-	-	40000	-	-	35000	-	-	140000
Local Costs - Research	-	-	15000	-	-	25000	-	-	25000	-	-	25000	-	-	90000
Local Crsts-Nut. Centers	-	-	80000	-	-	60000	-	15000	20000	-	15000	-	-	30000	160000
Transportation															
Vehicles	-	-	8500*	-	-	18000*	-	-	9000*	-	-	18000*	-	-	53500*
POL	-	-	10000	6000	-	8000	10000	-	6000	16000	-	-	32000	-	-
Local Transportation	-	-	2000*	-	-	2000*	2000	-	-	2000	-	-	4000	-	4000*
Technical Assistance	-	-	120000**	-	-	120000	-	-	110000	-	-	100000	-	-	450000
Contingency (10%)	-	-	62850	-	-	52175	-	-	38900	-	-	18819	-	-	172743
<b>TOTAL</b>	<b>48300</b>	<b>115800</b>	<b>653350</b>	<b>69000</b>	<b>177640</b>	<b>602932</b>	<b>117000</b>	<b>220000</b>	<b>434900</b>	<b>123000</b>	<b>245000</b>	<b>322818</b>	<b>357300</b>	<b>758440</b>	<b>2014000</b>
*From RHDS Budget		(115000)			(162000)			(129000)			(108000)				
** From Project #075, an additional \$29,000 in TA will be funded for the final evaluation of that project. The remaining unliquidated funds (approx.\$35,000) will be utilized to assist the activities of the Ministry of Plan's Food and Nutrition Planning Unit (UPAN), consistent with 075 Project Purposes.															
															<u>1,500,000</u> Total AID
															<u>1,115,740</u> Total GOH
															<u>2,615,740</u> TOTAL

Transition Year  
RHDS Nutrition Amendment

TABLE VI

DON Budget FY 81 (12 mos)	AID			GOH		Total
	Project 075	Project 091 (already obligated)	Project 091 Amendment (to be obligated in FY 81)	Title I	Tresor Public	
<u>A. Central Office</u>						
Personnel	\$ 48,000			\$ 33,600	\$ 26,220	\$ 107,820
P.O.L.			10,000			10,000
Equipment & Suppl.		15,000		10,000		25,000
<u>B. Field Activities-Health</u>						
Personnel (22 resp.) (22 asst.)	28,000			32,800	18,720	79,520
CERs (20 ctr x 250 x 12)	60,000		20,000			80,000
Supervision	20,000					20,000
Edu. Materials			25,000			25,000
Research			15,000			15,000
Training S/T		60,000				60,000
<u>C. Field Activities - Agric.</u>						
Personnel (B/C & Field)	33,000			24,400	3,360	60,760
Material	30,000			15,000		45,000
<u>D. Technical Assistance</u>	29,000		120,000			149,000
<u>E. Participant Training</u>			46,000			46,000
<u>F. Commodities</u>	20,000	40,500				60,500
<u>G. Contingency :Inflation (10% AID total)</u>			62,850			62,850
TOTAL	\$ 268,000	\$115,500	298,850	\$115,800	\$ 48,300	846,450

GOH Total \$170,100

TABLE VII  
 4-YEAR AID RHDS BUDGET  
 WITHOUT NUTRITION COMPONENT  
 (AID Project Funds)  
 in thousands

		FY 81	FY 82	FY 83	FY 84	Total
Construction	90	782	2231	1802	352	5257
Drugs		500	267	200	-	967
Equipment/Supplies		385	340	283	405	1413
Vehicles/Parts		418	276	439	70	1203
Personnel		454	332	323	521	1630
Training		440	446	635	334	1855
TA.	280	840	840	840	-	2800
Evaluation		15	22	28	35	100
Contingency		230	165	165	215	775
<b>Total</b>	<b>370</b>	<b>4064</b>	<b>4919</b>	<b>4715</b>	<b>1932</b>	<b>16,000</b>

4-YEAR AID RHDS BUDGET  
 WITH NUTRITION COMPONENT  
 (AID Project Funds)  
 in thousands

		FY 81	FY 82	FY 83	FY 84	Total
Construction	90	782	2231	1802	352	5257
Drugs		500	267	200	-	967
Equipment/Supplies		435*	365	308	405	1513
Vehicles/sp. parts		428	284	445	70	1227
Personnel		583*	406.757	328	521	1838.757
Training		486	482	671	370	2009.
T.A.	280	960*	960	950	100	3250
Evaluation		15	22	28	35	100
Research		15	25	25	25	90
Nutrition Centers		80*	60	20	-	160
Educational Materials		25	40	40	35	140
Contingency		292.85	217.675	203.9	233.818	948.243
<b>Total</b>	<b>370</b>	<b>4601.95</b>	<b>5360.432</b>	<b>5020.9</b>	<b>2146.818</b>	<b>17,500.00</b>

\* Includes Project 521-0075 funds totaling \$268,000

indicating the exact source of funding for each activity of the DON during FY 81, is attached as Table II.

Table VII provides updated, comparative budgets of AID project funds for the next four years of the RHDS, both with and without the nutrition activities proposed in this Amendment. These budgets show the projected impact upon each component of the RHDS which results from adding the proposed nutrition activities. Note that the FY 1981 column on the "With Nutrition Component" Budget includes the remaining funds from Project 521-0075.

This financial plan has been designed carefully in order to ease the administrative integration of the DON's budget and personnel into the DSPP's operations. It will assure the continued operation of all DON central level activities. The only activity which is programmed for reduction is the number of existing CERNs. The transition year budget calls for a reduction in the number of CERNs from 36 to 20 while the nutrition surveillance system is being developed and the new norms for DON nutrition rehabilitation centers are being implemented.

#### D. Institutional Analysis

The Institutional Analysis in the RHDS Project Paper (pp.90-97) contained a detailed description of the organization of the various semi-autonomous agencies dealing with specific public health problems (i.e. SNEM, Division of Family Hygiene and the Division of Nutrition). No further description of that organizational structure is considered necessary in this PP amendment. This analysis provides a description of the process by which the administrative and fiscal structures of Division of Nutrition and the DSPP will be merged during the course of the current fiscal year, so that the former becomes a functioning subdivision of the latter. This process will be something of a pilot effort, as the DSPP subsequently intends to integrate the other two semi-autonomous public health programs (SNEM and the Division of Family Hygiene) into its administrative structure. The lessons gained through the initial efforts involving the DON will facilitate this process.

##### 1. Service Delivery Personnel

As described above in the discussion of preventive and curative nutrition interventions through the RHDS, the service delivery functions of the DON will be carried out by RHDS field personnel. CERN "responsables" who have shown commitment and ability

operating CERNs will be retrained under the RHDS as auxiliary nurses or health agents when possible . As the number of CEPNs is likely to be reduced during the transition period, there may be some dislocation of existing DON field personnel. However, as the nutrition surveillance system is established, and new nutrition rehabilitation centers are established in the areas of greatest concentration of severe malnutrition, qualified DON field personnel who have been laid off by the reduction in CERNs will be rehired to administer these centers, if they have not become RHDS health agents or auxiliary nurses in their own communities. Therefore it is expected that a very large portion of current DON field personnel will become DSPP personnel working in the RHDS, in nutrition activities and other areas. The supervision of DON field personnel is already being carried out largely by Regional and District DSPP personnel working in the RHDS, in nutrition activities and other areas. The supervision of DON field personnel is already being carried out largely by Regional and District DSPP personnel (reinforced by visits from central DON staff). As these personnel become DSPP employees per se, the supervision and training programs will be completely unified within the DSPP.

## 2. Central Level Personnel

The integration process for central level staff has begun in the course of preparing the budget for this Project Amendment. Job classification and salary levels of DON employees have been "equalized" with those of equivalent existing DSPP personnel. In the RHDS Project Paper, project funds for salaries are limited to health agents and facility maintenance teams during their first year on DSPP payrolls. This Amendment will result in the payment of some central level DSPP salaries to Division of Nutrition personnel which were not in the original RHDS Project design. However, as noted above, the Amendment's financial plan has programmed a complete phase-out of project-funded salaries to DON personnel over a three-year period. A phasing out is considered necessary as almost all DON salaries have been paid in their entirety by AID over the past four years, and the DSPP is not able to absorb this "new" operating cost in its entirety during the transition year. Their continued partial (but reduced) payment by AID will facilitate the integration of the DON into the DSPP, which intends to absorb all DON salary costs by FY 1983, through increasing COH and Title I resources. The physical location of the Division of Nutrition, now several blocks from the DSPP, will not be changed in the immediate future, due to severe office space limitations in the current DSPP building. However, it is expected that, over time, certain of the administrative functions of the DON will be either incorporated into the DSPP central offices or eliminated, e.g., transportation, accounting and training.

### 3. Budget

As mentioned, the preparation and approval of the budgets included in the financial plan of this Project Amendment constitutes the initial unification of the budgets of the DON and DSPP. Table II in the Financial Plan has been agreed upon as the transition year budget for the DON, and includes funding from Project 521-0075 and the RHDS Project (521-0091), as well as GOH resources. The DON, formerly on a calendar year budget basis, has now moved to a fiscal year basis, and will be included in the overall DSPP and RHDS budgets beginning in FY 1982. The DSPP's accounting office will assume financial reporting responsibilities for DON operations during the transition year (FY 1981).

### 4. Education, Training and Research

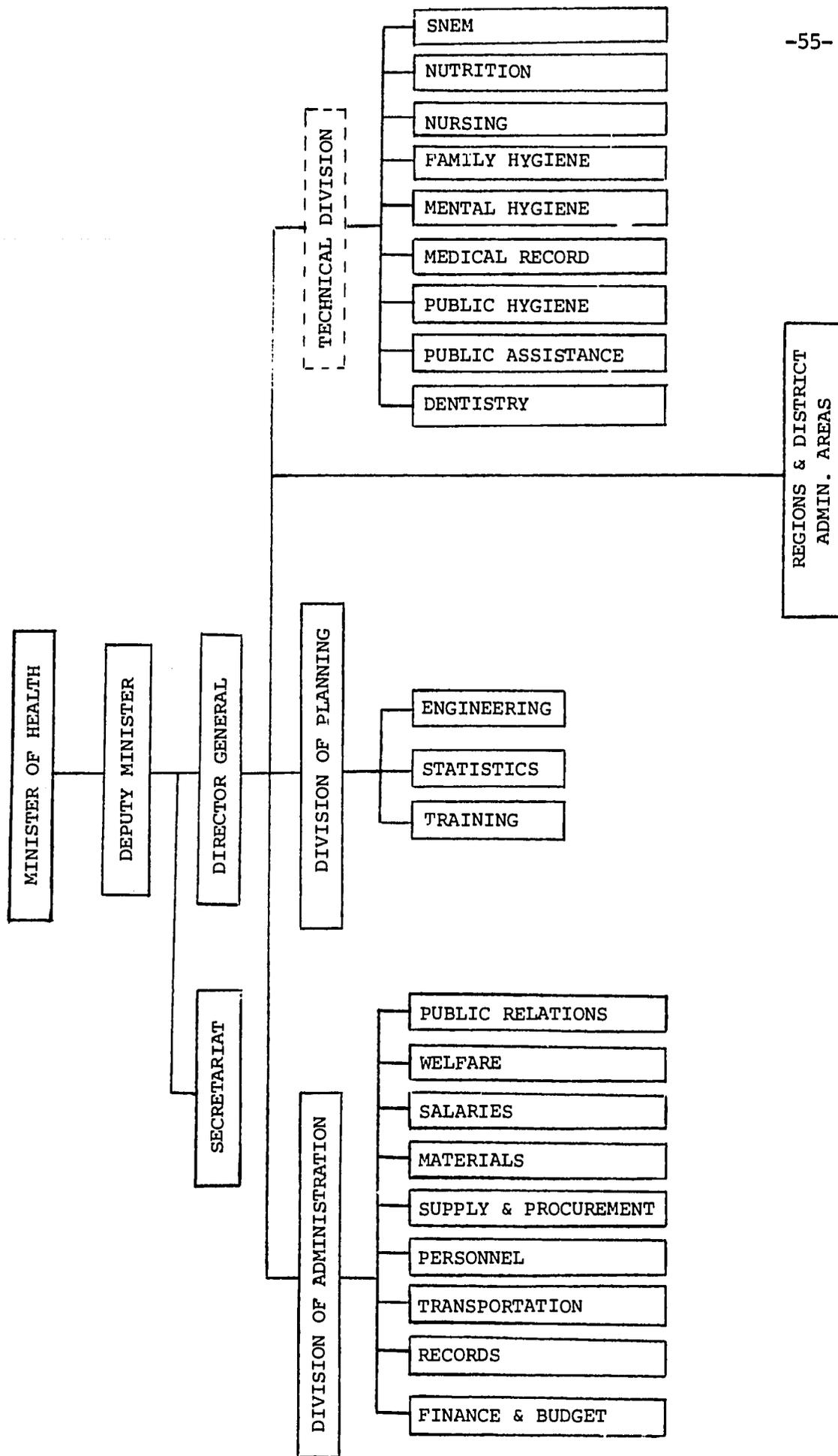
During the transition year the functions of the DON Education and Training Section will be integrated into the DSPP Training Section (under the Division of Planning). The DSPP has proposed such integration

to: a) standardize educational messages utilized in all its programs; b) centralize the design and production facilities for DSPP education/refresher courses for DSPP field personnel. To this end, an ad hoc committee is to be established, including the DSPP Training staff and staff members of the DON, the DHF (Division d'Hygiène Familiale) and SNEM, in order to standardize messages and coordinate the centralized education and training activities. The long-term RHDS training advisor, and short-term advisors provided through this Amendment, will assist in this process.

In the area of research, it is expected that the DON will retain a separate Research Section during the early years of the combined project. The DON's Research Section is the more experienced in planning, designing and executing research projects than is the DSPP, and it is felt that the proposed research projects under this Amendment will be more quickly and effectively carried out if this unit remains intact. However, at the level of data-gathering and statistical analysis, there will be an integrative process, as RHDS workers and Regional Statisticians will carry out functions for both the DON Research Section and the Planning and Epidemiology Sections of the DSPP.

Table VIII

ORGANIZATIONAL CHART OF DSPP





Time Frame/Implementation For Nutrition Surveillance

Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
Activities																																						
Arrival N. P. o th	x																																					
Supervisor Training	x	x	x																																			
Preparation Training Program		x	x																																			
Training Auxiliaries				x																																		
Training Health Agents				x																																		
Surveillance Implementation					x	x	x	x	x	x	x																											
Total Reporting							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Survey Preparation										x	x	x																										
Survey Training													x																									
Survey Field Phase													x	x	x	x																						
Evaluation/Analysis															x	x	x	x																				
Southern Preparation																		x																				
Arrival N. P. o th																				x																		
Supervisor Training																				x	x	x																
Preparation Training Program																					x	x																
Training Auxiliaries																							x															
Training Health Agents																								x														
Surveillance Implementation																									x	x	x	x	x	x								
Total Reporting																									x	x	x	x	x	x	x	x	x	x	x	x	x	x
Survey Preparation																																						
Survey Training																																						
Survey Field Phase																																						
Evaluation/Analysis																																						

FROM: NUTRITIONAL SURVEILLANCE IN HAITI  
 A PRACTICABLE APPROACH  
 IGC # AID/SOD/POB-C-0054  
 DAVID ECKHARDT AND IRLAND STARR  
 October 1, 1979

MAR 10 1981

ANNEX B



RE PUBLIQUE D'HAITI

SECRETARERIE D'ETAT DE LA SANTE PUBLIQUE  
ET DE LA POPULATION

No...1853...

PORT-AU-PRINCE, LE.....10 MARS 1981.....

Monsieur Allan B. FURMAN  
Directeur de l'USAID  
En Ses Bureaux

Monsieur le Directeur,

J'ai l'avantage de vous informer qu'après analyse de la composant Nutrition du programme de Santé Rurale, mon Département a pensé que ce projet peut être exécuté aux bénéfices des populations Haitiennes au cours de quatre années à venir. Je tiens toutefois à souligner à votre attention les points suivants:-

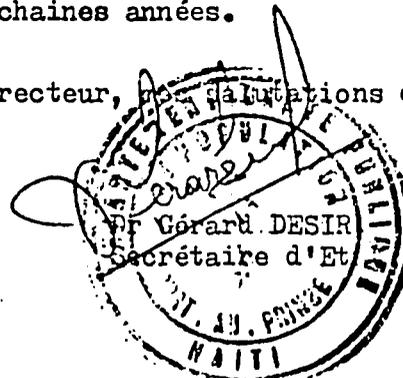
10.- L'évaluation qui doit avoir lieu à la fin de la première année du projet pilote dans la région Sud devra se faire non pas par la Direction régionale qui a assuré l'exécution de ce projet, mais pour une équipe externe incluant notamment des techniciens du Bureau Central de Planification et de la Division de Nutrition.

20.- Les critères et indicateurs devant servir pour cette évaluation doivent être bien précisés dès le début de l'exécution du projet.

30.- La Division de Nutrition, en accord avec le Bureau de Planification et assisté d'autres techniciens, doit aussi, dès le début du projet préciser les conditions d'établissement et de formation des Centres d'Education et de récupération nutritionnelle (CERN) ainsi que des foyers de démonstration.

Ces réserves faites, mon Département donne son accord à l'amendement proposé au programme de Santé Rurale et sollicite de l'USAID la valeur supplémentaire de \$. 1.5000.000.00 nécessaire en vue de l'exécution de la composante Nutrition pour les quatre prochaines années.

Veillez agréer, Monsieur le Directeur, mes salutations distinguées.



DATE REC'D		
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UNOFFICIAL TRANSLATION

Mr. Allan R. Furman  
USAID Director  
Port-au-Prince

Dear Mr. Director:

I take this opportunity to inform you that after analysis of the Nutrition component of the Rural Health Project, my Department has decided that this project should be implemented during the next four years for the benefit of the Haitian People. At the same time, I would like to call your attention to the following points:

1. The evaluation scheduled for the end of the first year of the pilot project in the South area should not be done by the regional office which is responsible for the implementation of that project, but by an external team which would include technicians from the Nutrition Division and the Central Office of Planning of the DSPP.
2. The criteria and indicators to be used for this evaluation should be outlined right from the start of the project implementation.
3. The Nutrition Division, in agreement with the Planning Office, assisted by other technicians, must also, from the start of the project, outline the criteria for establishing Nutrition Education & Recuperation Centers (CERNs), as well as nutrition demonstration programs (foyers de démonstration).

With these points being made, my Department gives its full approval to the proposed amendment to the Rural Health Program and requests from USAID the supplement of \$1,500,000 needed to implement the Nutrition Component during the next four years.

Sincerely,

Dr. Gérard Désir  
Secrétaire d'Etat

SUMMARY OF TECHNICAL ASSISTANCE REQUIREMENTS

Technical assistance will be provided over the life of the project, including the following expertise and levels of effort:

<u>Area of Expertise</u>	<u>Person Months</u>				<u>Total</u>
	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	
Resident Advisor (LT)	4	12	8	-	24
Nutrition Education (ST)	2	3	3	-	8
Agricultural Extension(ST)	2	3	2	-	7
Nutrition Planning (ST)	1	2	2	-	5
Evaluation & Research (ST)	-	4	4	4	12
	<u>9</u>	<u>24</u>	<u>19</u>	<u>4</u>	<u>56</u>

A. Resident Nutrition Advisor

The long-term nutrition advisor will assist counterparts in: (1) working with AID and MSH in the integration of nutrition activities into the RHDS; (2) the design, implementation and evaluation of the nutrition surveillance system; (3) design, implementation and evaluation of both in-service training programs and the public nutrition education programs; (4) planning for the food distribution element of the nutrition program; (5) planning for and coordinating the work of the short-term nutrition consultants. A detailed Scope of Work is attached.

B. Short-Term Consultants

It is anticipated there will be a need for approximately 32 person-months of short-term technical assistance in at least the following areas.

1) Nutrition Education

A short-term education advisor for the production of materials, the nutrition foyers and the nutrition curriculum design will be funded by this Amendment. Estimated time required is 8 person months.

2) Agricultural Extension

This Project Amendment provides for short-term technical assistance to the DON to improve the design of the Agricultural Extension Program and to make the required organizational adjustments. Short-term assistance will be also provided for a more thorough evaluation of the nutritional impacts of the extension services provided through the program. Estimated time required is 7 person months.

3) Nutrition Planning

Short-term technical assistance will be provided to work with the Division for the Formulation of Food and Nutrition Policies (DIFPAN) within the Ministry of Plan. This assistance may include agricultural economics, statistics and training of DIFPAN staff. Estimated time required is 5 person months.

4) Evaluation

Impact evaluations of the surveillance activity, the nutrition foyer program and the DON agricultural extension program will be carried out only at the end of the RHDS Project (mid-1984). These evaluations will require the use of fully independent technical consultants; estimated time required is 4 person months.

The DON's agricultural extension program will also be "process evaluated" independently of on-going RHDS activities. This evaluation will be scheduled 18-24 months after the start-up of the surveillance activity and will include an evaluation of both the traditional agricultural extension/food production component and the surveillance (data collection) component of the proposed DON agricultural extension program. This evaluation will require outside participation financed under the technical assistance provided through the Project Amendment. Estimated time required is 3 person months.

5) Research

Based on high, but geographically diverse, rates of anemia among children under five and their mothers, the CDC recommended additional research to determine the reason(s) for the widely varying anemia rates and the significance of these rates for overall health status. Outside short-term technical assistance, will be required for this study. An estimated three person-months are considered necessary for both the development of the most appropriate methodology & the analysis of data obtained.

One area of particular concern is the incidence of measles and its effect on nutritional status. Data from the National Nutrition Status Survey suggests that the overall prevalence of measles antibody in preschool children in Haiti differs significantly from that in West Africa, where measles appears to be a more widespread and serious public health problem. Because measles can be prevented through an immunization program, the DSPP/DON wishes to determine the extent to which measles is a public health problem in Haiti, both in terms of incidence and nutritional impact, so that an immunization program for measles could be included in the RHDS, if deemed necessary. It is anticipated that 6 months of technical assistance will be needed to assist the DON Research Unit to design and implement this study.

SCOPE OF WORK FOR THE NUTRITION ADVISOR

A. Nutrition Surveillance

Nutrition Surveillance activities will be monitored in the pilot area by the DON's Regional Nutritionist, a fully trained professional. This person will be one of the principal counterparts for the long-term technical advisor to be provided through this Project Amendment. The Regional Nutritionist and the nutrition adviser will have primary responsibility for the development and testing of the surveillance system, although the DSPP's Regional Administrator will also be deeply involved, and is the final authority on design and implementation activities. The nutrition adviser is expected to be stationed at least 50% of the time in the Les Cayes DSPP Office for the South Region while the system is being developed and he will move as the surveillance system is replicated in other regions and districts. The scope of work for the Regional Nutritionist and the nutrition adviser regarding nutrition surveillance will include the following tasks:

- 1) to design and/or modify forms for data collection;
- 2) to assist field supervision by periodically visiting and coordinating the nutrition surveillance activities of the auxiliary nutritionist, auxiliary nurses and health agents;
- 3) to check on the quality of data collected before submitting forms to the regional statistician;
- 4) to assist the statistician with data analysis;
- 5) to design and execute a training program for the auxiliary nutritionist, auxiliary nurses and the health agents in the use of the arm circumference tape, measuring heights and weights, the detection of clinical signs of malnutrition and other measures required for routine surveillance and for an anthropometric evaluation survey;
- 6) to work with the DSPP Bureau of Plan and Evaluation and with the DON to establish the criteria and indicators for evaluating the impact of the nutrition surveillance system;
- 7) to assist the outside evaluation team and to coordinate with the Regional Administrator to ascertain progress, reestablish and modify goals, schedule future work, etc; and
- 8) to write and submit periodic reports to the Regional Administrator;

B. Nutrition Education

The nutrition adviser will assist in the following educational tasks:

- 1) the design, implementation and evaluation of in-service training programs for the DSPP personnel;

- 2) the production of educational materials for nutrition activities in health as well as other sectors;
- 3) the design and implementation of nutrition foyers, and
- 4) the revision of the curricula for the medical, nursing, auxiliary nursing and health agent training programs.

#### C. Nutrition Rehabilitation

The programming of the use of Title II food and World Food Program commodities in DON centers and other feeding programs will be based on joint planning involving USAID, PVOs with Title II or WFP programs and the DSPP/DON. An ad hoc Nutrition Planning Committee made up of these groups has already been established and has met to discuss norms for supplement any feeding, ration levels, distribution mechanisms, etc. Preliminary discussions have been held with the voluntary agencies to introduce the concept of supplementary feeding through the Rural Health Delivery System surveillance activities, etc. It is anticipated that during the first year of the implementation of the nutrition amendment, this committee, with the assistance of the nutrition advisor and the DSPP chief administrator and the MSH logistics advisor, will jointly develop the distribution and phasing of food distribution within the RHDS. The DSPP, AID and the Voluntary Agencies consider this process to be a positive step toward expanding and maximizing the nutritional impact of the MCH Title II feeding program in Haiti.

#### D. Planning, Coordination and Management

In addition to the previously listed tasks the Nutrition Advisor will:

- 1) Assist the AID Project Manager and MSH leave in Chief of Party in the identification of short-term technical assistance required to implement the nutrition component of the RHDS. The Nutrition Advisor will have primary responsibility for preparing the scopes of work for these individuals.
- 2) Coordinate activities of the short-term nutrition technical advisors and act as liaison with MSH central-level technical assistance team.
- 3) Monitor nutrition and health activities sponsored by Private Voluntary Agencies which complement RHDS nutrition objectives, e.g., P.L. 480 Title II feeding programs, agricultural extension and nutrition planning activities.
- 4) Assist the Director and Administrator of the Division of Nutrition in the programming of resources and the preparation of procurement, training and financial plans.

E. Qualifications

A graduate degree in public health nutrition, public health and/or medicine with 3 or more years of experience in the implementation of village level health/nutrition programs.

Language Qualifications

FSI 3 + or equivalent in French; knowledge of Haitian Creole desirable.

Government of Haiti counterparts

The Nutrition Advisor will have as counterparts for the surveillance activities, the DSPP Regional Nutritionist and the DSPP Regional Health Director. For the more general activities listed above, the counterpart to the Nutrition Advisor will be the Director of the Division of Nutrition.

ANNEX D

# **SUMMARY**

# **HAITI NUTRITION STATUS SURVEY: 1978**

Bureau of Nutrition  
Department of Public Health and Population  
Republic of Haiti

*in cooperation with*

U.S. Department of Health, Education, and Welfare  
Public Health Service  
Center for Disease Control

*and*

The Agency for International Development  
Department of State  
Washington, D.C.

**JUNE 1979**

HAITI NUTRITION STATUS SURVEY

1978

Bureau of Nutrition  
Department of Public Health and Population  
Republic of Haiti

in cooperation with

U.S. Department of Health, Education, and Welfare  
Public Health Service  
Center for Disease Control  
Atlanta, Georgia 30333

and

The Agency for International Development  
Department of State  
Washington, D.C.

INTRODUCTION

The Bureau of Nutrition, Department of Public Health and Population, Republic of Haiti with the assistance of the Center for Disease Control, Public Health Service, Atlanta, Georgia, U.S.A. completed a national nutrition status survey between June 1978 and September 1978. The purposes of this survey were to provide an estimate of the nutritional status of children of preschool age; to determine the prevalence of anemia in these preschool children and their mothers; and to determine the frequency of selected socioeconomic, demographic, health, and dietary characteristics and their relationship with the nutritional status of children.

METHODSSampling

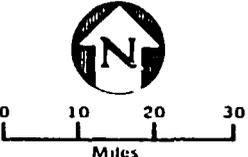
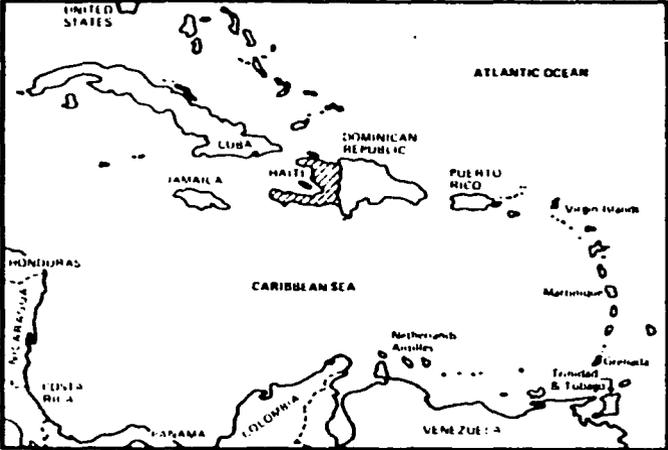
The Republic of Haiti has a land area of approximately 11,000 square miles most of which is mountainous. The estimated 1978 population based on extrapolation from the 1971 sample census is 5.3 million persons. Sixteen percent of this population, about 840,000, is under 5 years of age. Approximately 24 percent of the population live in urban areas the largest of which is Port-au-Prince with a population of about 800,000. For the purposes of this survey, the five former Départements comprising all of rural Haiti and metropolitan Port-au-Prince formed six sampling universes (see Figure 1 and Table 1). Although Port-au-Prince is considered part of the Département de l'Ouest, in this survey it is considered a separate sampling universe.

Sampling procedures for the survey used a two-stage methodology. In the first stage 30 enumeration districts were randomly selected in each universe from the 1971 census listing. The second stage involved random selection of initial households. Data were collected on 30 consecutive children ages 3 through 59 months beginning with the initial household. This provided a survey sample of 5,400 children.

Methodology

Eight 3-man survey teams were trained to administer the survey questionnaires, weigh and measure the children, and obtain blood specimens for hemoglobin and measles antibody analyses. Accuracy and reproducibility of the measurements were emphasized during their

FIGURE 1. Map of Haiti



3-week training course. The survey team measured the height or length of each survey child to the nearest 0.1 cm with a portable measuring board. Weight was determined to the nearest tenth of a kilogram using a spring scale. The presence or absence of pedal edema was determined by firm thumb pressure for 3 seconds on the dorsal surface of both feet. Blood specimens were obtained for hemoglobin determinations on a 20 percent subsample of children and their mothers.

A special group of 730 children ages 3 through 59 months was selected from private nursery schools and from socially advantaged families in Port-au-Prince. Anthropometric indices for these children can be used to provide an estimate of the potential growth obtainable for the Haitian preschool age population.

#### Anthropometric Indices

Three anthropometric indices are used to describe the nature and extent of malnutrition in preschool children: weight for height, height for age, and weight for age.<sup>1,2</sup> Weight for height, an estimate of body proportions, gives a measure of current nutrition status. Height for age is a measure of growth and therefore may be used as an indicator of past nutrition. The weight for age index is a measure of the combined current and past components of nutrition.<sup>3</sup> This last index does not discriminate between the acutely undernourished thin child and the chronically undernourished child who exhibits linear growth retardation, but whose weight for height is adequate.

Data for all anthropometric indices are presented as percentages of the NCHS/CDC reference median rather than the Stuart/Meredith reference for height and weight. The larger number of children, improved sampling techniques, direct weight for height calculations, and the complete statistical description used in the NCHS/CDC reference improve the statistical precision of the anthropometric data.<sup>4</sup>

Children with a weight for height of less than 80 percent of the NCHS/CDC reference median are considered acutely malnourished. Children with a weight for height between 80 and 84.9 percent of the reference median can be considered marginally undernourished. Use of this intermediate classification of acute undernutrition permits the identification of a wider spectrum of undernourished children and helps place the problem in proper perspective. Children with a weight for height greater than 120 percent of the NCHS/CDC median are considered overweight. Children with a height for age less than 90 percent of the reference median are considered chronically malnourished. Children with a weight for age of less than 75 percent of the reference median are classified as having second degree or third degree undernutrition similar to the Gomez classification. Waterlow has suggested a system of classification which permits assessment of the extent of undernutrition in children by using categories called wasting, stunting, and concurrent wasting and stunting. Children above 90 percent of the median height for age but less than 80 percent of the reference median weight for height are classified as wasted. Children are considered stunted if they are below

90 percent of the median height for age but above 80 percent of the median weight for height. Children below these cut-offs for weight for height and for height for age are classified as having concurrent wasting and stunting, and are probably at greatest risk of morbidity and mortality.

### RESULTS

Data from 5,353 preschool children were analyzed - questionnaires on 46 children were excluded because of obvious errors in age or anthropometric data. Age and sex distribution of the children is shown in Table 2.

#### Acute Undernutrition (Wasting)

Table 3 presents the distribution of weight for height values in the different geographic areas and in the special group. For the Representative Rural Sample (the weighted data from universes I through V), 6.4 percent of the children 3 through 59 months of age are severely wasted (less than 80 percent of the reference median weight for height). In metropolitan Port-au-Prince, 3.8 percent of the children are severely wasted. In the representative rural sample 10.4 percent of the population have a moderate degree of wasting (80 to 84.9 percent of the reference median).

The weight for height standard deviation distribution curves for the survey children and for the special group are shown in Figure 2. Weight for height of children in the special group is greater than that of the NCHS reference population whereas weight for height of the national survey sample is decidedly inferior.

### Growth Retardation (Stunting)

The height for age distribution is shown in Table 4. The prevalence of stunting or chronic undernutrition (height for age less than 90 percent of the reference median) ranges from 15.7 to 33.4 percent among the geographic areas. Although there is some variation between the rural areas, it is not statistically significant. Data from metropolitan Port-au-Prince are significantly different than the combined rural sample. The 0.4 percent prevalence of growth retardation seen in the special group is only 1/65 of the prevalence found in the Representative National Sample.

Figure 3 shows the distribution of height for age values for the survey group and for the special group. The special group follows almost exactly that of the reference population. The distribution of height for age of the survey group indicates that it is shorter by about 1.75 standard deviation units ( $Z$ -scores).

### Waterlow (Wasting and Stunting)

The Waterlow cross-classification for height for age and weight for height is shown in Table 5. The largest percentage of children with concurrent wasting and stunting - children considered to be of greater risk of increased mortality and morbidity - is in the Département de Nord.

### Anemia

Figure 4 shows the prevalence of anemia for the 1,056 children representing a 20 percent subsample of the survey children. Anemia is least prevalent in the Artibonite and most prevalent in metropolitan

Port-au-Prince. In the National Sample, the 24 through 35 month age group has the highest percentage of anemic children. The prevalence of anemia in the mothers or guardians of the survey children is: lactating - 35 percent; nonpregnant - 36 percent; and pregnant - 38 percent. Women residing in Port-au-Prince tend to have a higher prevalence than those from the rural universes.

### Goiter

Goiter is found to be present in 1.2 percent of the mothers/guardians from Port-au-Prince, whereas 4.2 percent of the rural women demonstrate clinical signs of this condition. A high prevalence is found in the Département de l'Ouest (8.0 percent) and the Artibonite (4.3 percent).

### Breast-Feeding, Weaning, and Bottle Feeding

Table 6 shows the percentage of children being breast-fed by age and by geographic area. In the rural areas almost all children are breast-fed through the first year of life. In metropolitan Port-au-Prince nearly 29 percent of the children are not being breast-fed at the age of 12 months. Table 7 shows the percentage distribution of children by age at weaning compared with the age of the mother in the Urban Sample and the Representative Rural Sample. In both the urban and rural areas, younger mothers tend to wean their children earlier than do older mothers. The difference in breast-feeding patterns between urban and rural mothers is apparent in this table.

DISCUSSION

The Haiti Nutrition Status Survey provides representative objective information on the magnitude and location of protein-energy malnutrition and on the prevalence of anemia. The data can be used in planning nutrition policy and programs to improve the nutritional status of the population. They can also be used as a baseline to help evaluate the effectiveness of future nutrition programs.

In Haiti, acute undernutrition is a major problem as evidenced by substantial numbers of children who are wasted. During the summer of 1978, 15.9 percent of the children were severely or moderately wasted. Nationally, an estimated 127,000 children were in critical need of nutritional support. More children in the rural areas are acutely undernourished than in the urban areas. Acute undernutrition begins in infancy and by the second year of life assumes major proportions. During this period, the nutritional needs of the child are high and the major source of food begins to change from only breast milk to breast milk with some food supplementation. Additionally, these young children are more susceptible to acute infections and to the acute dehydration associated with these infections.

In Haiti there is little stunting during the first year of life, as shown in Table 8. For the first 12 months, height for age data compare favorably with the NCHS/CDC reference population indicating that Haitian children, as compared to American children, are not born with a length/height deficit. After 12 months of age, the deficit

in height for age becomes marked and by the second year of life (when Haitian women generally wean their children) over 19 percent of Haitian children show signs of stunting. The deficit of height for age continues for these children and may be due to the continuing shortage - both qualitatively and quantitatively - of food or to the infectious and parasitic disease processes.

The special group of Haitian children taken from private pediatric practices and private day care centers in Port-au-Prince have little stunting or wasting. Over 5 percent of the children, however, are greater than 120 percent of the reference median weight for height, therefore classified as overweight.

In practical terms the small number of children with concurrent wasting and stunting may not justify the development of a remedial nutrition program specifically limited to certain geographic areas. An action program, however, targeted to rural areas and to children under 36 months of age may be most effective in reducing the prevalence of wasting. Since the prevalence of stunting and wasting does not differ significantly between départements, this program should be directed to all départements. Table 9 is a summary table of the percent of undernourished children using various anthropometric indices.

Between 22 and 53 percent of Haitian children in various geographic areas are considered anemic by WHO standards. Anemia is most severe in the 24 to 35 month age group. Between 19 and 52 percent of the mothers/guardians of the survey children are considered anemic; wide variances

of the mean hemoglobin values were found according to physiological state of the women and geographic area. Nutritional deficiency of iron and malaria may be a contributing cause of anemia, as well as hookworm and roundworm infections, and microbial infections, but this survey did not attempt to identify or define the causes of anemia.

There are important differences in feeding practices for children in urban and rural populations. Children in rural areas are breast-fed longer and weaned at a later age than urban children. There is a trend for younger urban and rural mothers to wean their children earlier.

RECOMMENDATIONS

The Haiti National Nutritional Survey was conducted June through September 1978 to quantify the magnitude and distribution of malnutrition in young children and their mothers. It was not designed to determine the causes of the malnutrition found. The survey results have, however, identified various areas which need immediate action. In the section below some of these nutritional, educational, and research areas which need timely support by the Haitian government and by various international agencies are listed. By no means is this list of recommendations exhaustive, nor should execution of these recommendations supplant efforts to improve the economic, agricultural, and health care systems which are essential in all countries and are necessary for optimum health.

NUTRITIONAL

- Immediate nutritional rehabilitation should be provided to those children who are presently severely undernourished (i.e., less than 80 percent weight for height); approximately 48,000 at the time of the survey. Priority should be given to those who exhibit wasting and stunting, nearly 25,000 children at the time of the study. These children are at greatest risk of increased morbidity and mortality.
  
- Preventive nutritional activities should be directed nationally to all children under 35 months of age. Data from this survey show that many Haitian children begin to develop severe nutritional deficiencies before reaching 6 months of age.

- A nationwide surveillance system should be established to detect, at the earliest possible moment, foci of undernutrition in various geographic and age-specific categories. This surveillance system should be jointly established by governmental health and agricultural and other appropriate ministries and should utilize, as a minimum, nutritional, agricultural, meteorological, and health indicators.

EDUCATIONAL

- A nationwide educational program should be directed to all Haitian mothers in an effort to improve weaning and breast-feeding habits. This educational program should take into account various differences in lifestyle and employment between rural and urban women. The use of AKAMIL, a weaning food, should be promoted in this educational effort.
- The development of mass media health educational programs that primarily use the radio should be reexamined. This survey has shown that radios are not effective in reaching either the target population (mothers of undernourished children) or significant numbers of the general population.

RESEARCH

Survey results have identified various research areas that need additional study:

- The etiology of different anemia rates for mothers and children throughout the country and the significance of these rates on their overall health status.
- The epidemiology of measles, its effect on nutritional status, and its significance as a public health problem in Haiti.
- The sociological, behavioral, and anthropological determinants responsible for changes in breast-feeding patterns.
- The relationship of morbidity with anthropometric measurements.

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3. Gomez F, et al: Mortality in second and third degree malnutrition. J Trop Pediatr 2:77, 1956.
4. Waterlow, JC, et al: The presentation and use of height and weight data for comparing the nutritional status of groups of children under the age of 10 years. Bull WHO 55:489-498, 1977.

Table 1. Sampling Universes and Population: Haiti 1978

<u>Universe</u>	<u>Departement</u>	<u>1978 Est. Population<sup>1</sup></u>	<u>Urban/Rural</u>
I	Nord-Ouest	255,000	Rural
II	Nord	855,000	Rural
III	Artibonite	940,000	Rural
IV	Ouest (Excluding Port-au-Prince)	1,250,000	Rural
V	Sud	1,200,000	Rural
VI	Metropolitan Port-au-Prince	800,000	Urban
Special Group		-	Urban
I-V	Representative Rural Sample	4,500,000	Rural
I-VI	Representative National Sample	5,200,000	Rural/Urban

<sup>1</sup>King, J.M.: Analyses and Computations of Nutrition Data and Studies, USAID, March 1978.

Table 2. Percentage Distribution of  
Preschool Children<sup>a/</sup> by Age and Sex: Haiti 1978

<u>Age in Months</u>	<u>Male</u>	<u>Female</u>	<u>Total<sup>b/</sup></u>
3-5	3.4% (179)	3.3% (170)	6.7% (349)
6-11	6.7% (341)	7.0% (383)	13.7% (724)
12-23	11.6% (610)	12.2% (645)	23.8% (1255)
24-35	10.5% (577)	9.9% (530)	20.4% (1107)
36-47	10.4% (556)	9.3% (493)	19.6% (1049)
48-59	8.2% (443)	7.6% (426)	15.8% (869)
Total	50.8% (2706)	49.2% (2647)	100.0% (5353)

<sup>a/</sup> Representative National Sample. See Table 1 for description of geographic areas and sample universes.

<sup>b/</sup> All percentages are weighted by universe population proportions. The actual number of persons surveyed are given in parentheses.

Table 3. Percentage Distribution of  
Preschool Children by Weight for Height Classes  
and Geographic Area: Haiti 1978

<u>Geographic Area</u> <sup>a/</sup>	<u>Percentage of Reference Median</u>				<u>Total</u> <sup>b/</sup>
	<u>Wasting</u>		<u>Normal</u>	<u>Over-Weight</u>	
	<u>&lt;80.0</u>	<u>80.0-84.9</u>	<u>85.0-119.9</u>	<u>120+</u>	
I	5.3%	9.5%	84.6%	0.6%	100.0% (891)
II	6.8%	10.3%	82.3%	0.6%	100.0% (892)
III	6.9%	11.6%	80.5%	1.0%	100.0% (889)
IV	5.1%	9.3%	85.1%	0.4%	100.0% (895)
V	7.3%	10.8%	81.0%	1.0%	100.0% (893)
Representative Rural Sample	6.4%	10.4%	82.5%	0.7%	100.0% (4460)
-----					
VI	3.8%	7.1%	87.0%	2.1%	100.0% (893)
Representative National Sample	6.0%	9.9%	83.1%	1.0%	100.0% (5353)
-----					
Special Group	0.1%	1.2%	93.6%	5.1%	100.0% (730)

<sup>a/</sup> See Table 1 for description of geographic areas and sample universes.

<sup>b/</sup> All percentages are weighted by universe population proportions.  
The actual number of persons surveyed are given in parentheses.

Table 4. Percentage Distribution of  
Preschool Children by Height for Age Classes  
and Geographic Area: Haiti 1978

Geographic Area <sup>a/</sup>	Percentage of Reference Median				100+	Total <sup>b/</sup>
	Stunting		Normal			
	<85.0	85.0-89.9	90.0-94.9	95.0-99.9		
I	8.6%	18.0%	35.2%	27.4%	10.8%	100.0% (891)
II	11.8%	21.6%	33.4%	25.4%	7.7%	100.0% (892)
III	7.9%	21.3%	38.7%	24.0%	8.2%	100.0% (889)
IV	7.5%	19.6%	33.1%	29.6%	10.3%	100.0% (895)
V	8.5%	18.4%	35.6%	28.1%	9.4%	100.0% (893)
Representative Rural Sample	8.7%	19.9%	35.1%	27.1%	9.2%	100.0% (4460)
-----						
VI	4.3%	11.4%	31.6%	34.8%	17.9%	100.0% (893)
Representative National Sample	8.0%	18.6%	34.6%	28.3%	10.5%	100.0% (5353)
-----						
Special Group	0.1%	0.3%	7.4%	30.1%	62.1%	100.0% (730)

<sup>a/</sup> See Table 1 for description of geographic areas and sample universes.

<sup>b/</sup> All percentages are weighted by universe population proportions. The actual number of persons surveyed are given in parentheses.

Table 5. Percentage Distribution of  
Preschool Children by Waterlow Classes  
and Geographic Area: Haiti 1978

<u>Geographic Area<sup>a/</sup></u>	<u>Waterlow Class</u>				<u>Total<sup>b/</sup></u>
	<u>Wasting</u>	<u>Stunting</u>	<u>Wasting &amp; Stunting</u>	<u>Normal</u>	
I	3.1%	24.5%	2.1%	70.3%	100.0% (891)
II	2.5%	29.0%	4.4%	64.1%	100.0% (892)
III	3.5%	25.8%	3.4%	67.4%	100.0% (889)
IV	2.9%	24.8%	2.2%	70.1%	100.0% (895)
V	3.1%	22.7%	4.1%	70.0%	100.0% (893)
Representative Rural Sample	3.0%	25.2%	3.4%	68.4%	100.0% (4460)
VI	2.4%	14.2%	1.5%	82.0%	100.0% (893)
Representative National Sample	2.9%	23.6%	3.1%	70.4%	100.0% (5353)

<sup>a/</sup> See Table 1 for description of geographic areas and sample universes.

<sup>b/</sup> All percentages are weighted by universe population proportions. The actual number of persons surveyed are given in parentheses.

Table 6. Percentage Distribution of Preschool Children being Breast-Fed  
at the Time of the Survey by Age of Child  
and Geographic Area: Haiti 1978

Age in Months	Geographic Area <sup>a/</sup>						Total <sup>b/</sup>
	I	II	III	IV	V	VI	
3-5	100.0% (44)	98.3% (60)	100.0% (55)	96.7% (60)	100.0% (56)	90.2% (61)	97.3% (336)
6-11	95.1% (103)	97.3% (113)	96.3% (108)	90.9% (99)	94.1% (135)	71.7% (113)	91.0% (671)
12-23	59.7% (181)	66.9% (175)	60.5% (195)	50.3% (177)	53.6% (237)	28.9% (166)	53.1% (1131)
24-35	0.6% (157)	5.4% (184)	5.2% (153)	3.1% (162)	5.8% (121)	3.1% (161)	4.3% (938)
36-59	0.4% (275)	- (262)	1.1% (265)	0.4% (275)	1.2% (249)	1.6% (254)	0.8% (1580)
Total <sup>b/</sup>	33.2% (760)	37.3% (794)	37.1% (776)	31.4% (773)	40.1% (798)	25.6% (755)	34.6% (4656)

<sup>a/</sup>See Table 1 for description of geographic areas.

<sup>b/</sup>All percentages are weighted by universe population proportions. The actual number of biological mothers who were questioned about the breast-feeding status of their children is given in parentheses.

Table 7. Percentage Distribution of Survey Children  
by Stated Age of Weaning and by Age of Mother  
by Geographic Area<sup>a/</sup>: Haiti 1978

Age of Mother (Years)	<u>Representative Rural Sample</u>					Percent of Mothers in Age Group
	Age in Months of Child at Weaning					
	<12	12-17	18+	Never Breast-Fed	Total	
<25	19.5% (52)	42.8% (128)	36.9% (113)	0.9% (2)	100.0% (295)	13.2%
25-34	10.4% (127)	36.8% (486)	52.3% (698)	0.5% (5)	100.0% (1316)	53.9%
35+	8.2% (66)	26.9% (243)	64.8% (551)	0.1% (1)	100.0% (861)	32.9%
Total <sup>b/</sup>	10.9% (245)	34.3% (857)	54.4% (1362)	0.4% (8)	100.0% (2472)	100.0%

Age of Mother (Years)	<u>Urban Sample (Port-au-Prince)</u>					Percent of Mothers in Age Group
	Age in Months of Child at Weaning					
	<12	12-17	18+	Never Breast-Fed	Total	
<25	51.9% (70)	20.7% (28)	12.6% (17)	14.8% (20)	100.0% (135)	24.6%
25-34	44.2% (133)	28.2% (85)	17.6% (53)	10.0% (30)	100.0% (301)	54.8%
35+	32.7% (37)	34.5% (39)	29.2% (33)	3.5% (4)	100.0% (113)	20.6%
Total	43.7% (240)	27.7% (152)	18.8% (103)	9.8% (54)	100.0% (549)	100.0%

<sup>a/</sup> See Table 1 for description of geographic areas.

<sup>b/</sup> All percentages are weighted by universe population proportions and are based on numbers of children with known age of weaning.

Table 8. Percentage Distribution of  
Preschool Children<sup>a/</sup> by Height for Age Classes  
and Age: Egypt 1978

<u>Age in Months</u>	<u>Percentage of Reference Median</u>				<u>Total<sup>b/</sup></u>
	<u>Chronic</u>		<u>Normal</u>		
	<u>&lt;85.0</u>	<u>85.0-89.9</u>	<u>90.0-94.9</u>	<u>95.0+</u>	
6-11	2.2%	8.0%	33.2%	56.6%	100.0% (809)
12-23	5.7%	20.5%	39.4%	34.4%	100.0% (1816)
24-35	6.1%	20.4%	40.0%	33.4%	100.0% (1657)
36-47	5.6%	17.0%	40.2%	37.2%	100.0% (1422)
48-59	3.5%	12.8%	43.0%	40.8%	100.0% (1267)
60-71	1.0%	15.0%	45.1%	38.9%	100.0% (1045)
Total	4.5%	16.7%	40.4%	38.5%	100.0% (8016)

<sup>a/</sup>Total Representative Sample. See Table 1 for description of geographic areas and sample universes.

<sup>b/</sup>All percentages are weighted by universe population proportions. The actual number of persons surveyed are given in parentheses.

Table 9. Summary Percent Distribution of Preschool Children  
Below Cut-off Levels for Various Anthropometric Indices  
by Geographic Area: Haiti 1978

<u>Geographic Area<sup>a/</sup></u>	<u>Weight for Height<sup>b/</sup></u> <u>&lt;85.0% Median</u>	<u>Height for Age<sup>b/</sup></u> <u>&lt;90% Median</u>	<u>Weight for Age<sup>b/</sup></u> <u>&lt;75% Median</u> <u>2<sup>o</sup>-3<sup>o</sup> Gomez</u>	<u>Concurrent<sup>b/</sup></u> <u>Wasting</u> <u>and Stunting</u> <u>Waterlow</u>
Northwest I	14.8%	26.6%	25.8%	2.1%
North II	17.1%	33.4%	34.2%	4.4%
Artibonite III	18.5%	29.2%	30.8%	3.4%
West IV	14.4%	27.1%	26.1%	2.2%
South V	18.1%	26.9%	29.5%	4.1%
Representative Rural Sample	16.8%	28.6%	29.5%	3.4%
Port-au-Prince VI	10.9%	15.7%	14.6%	1.5%
Representative National Sample	15.9%	26.6%	27.3%	3.1%
Special Group	1.3%	0.4%	0.5%	0.0%

<sup>a/</sup> See Table 1 for description of geographic areas and sample universes.

<sup>b/</sup> These cut-off levels are described on pages 5-6.

10

FIGURE 2. Weight for Height Z-Scores: Haiti 1978

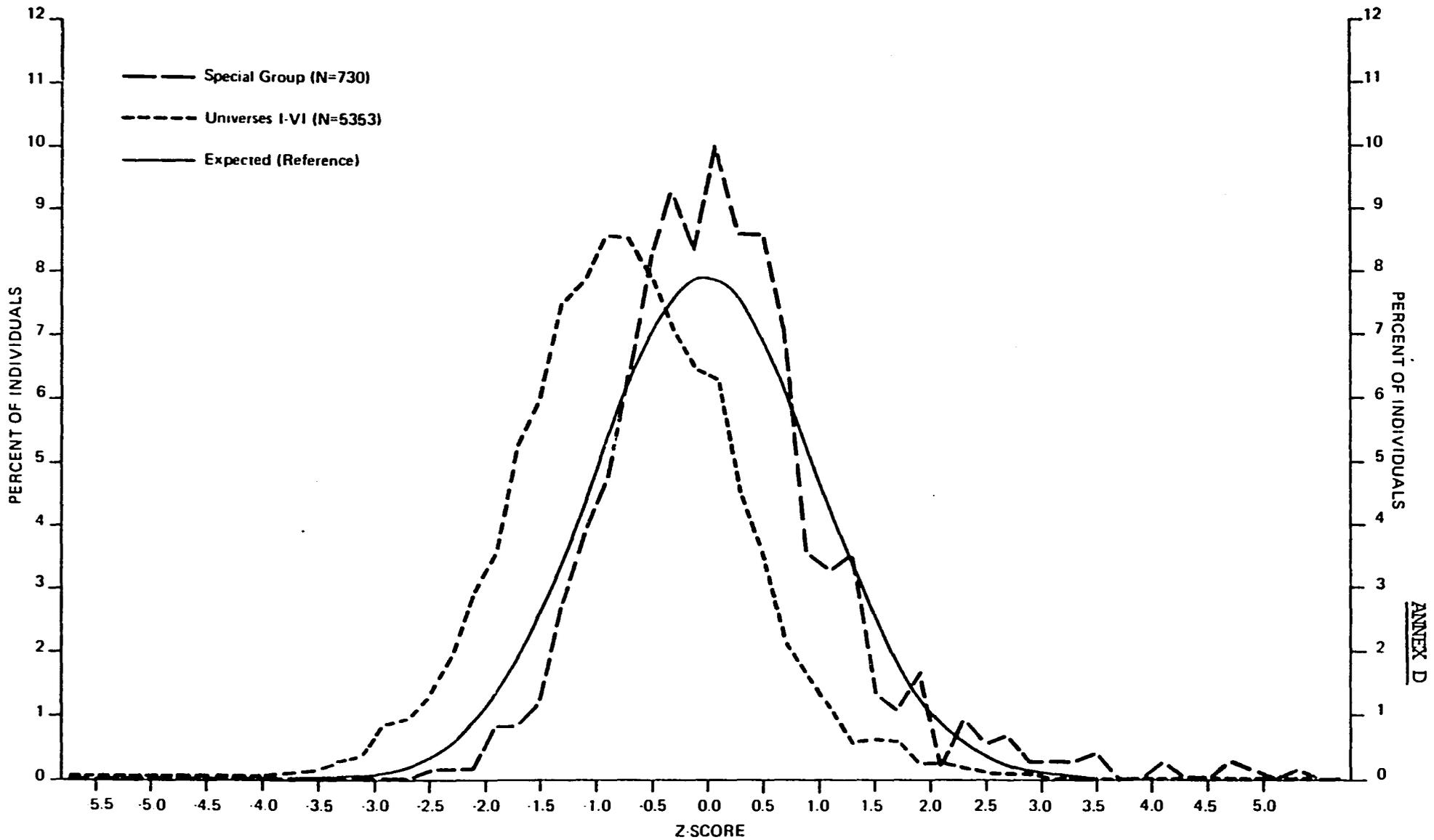
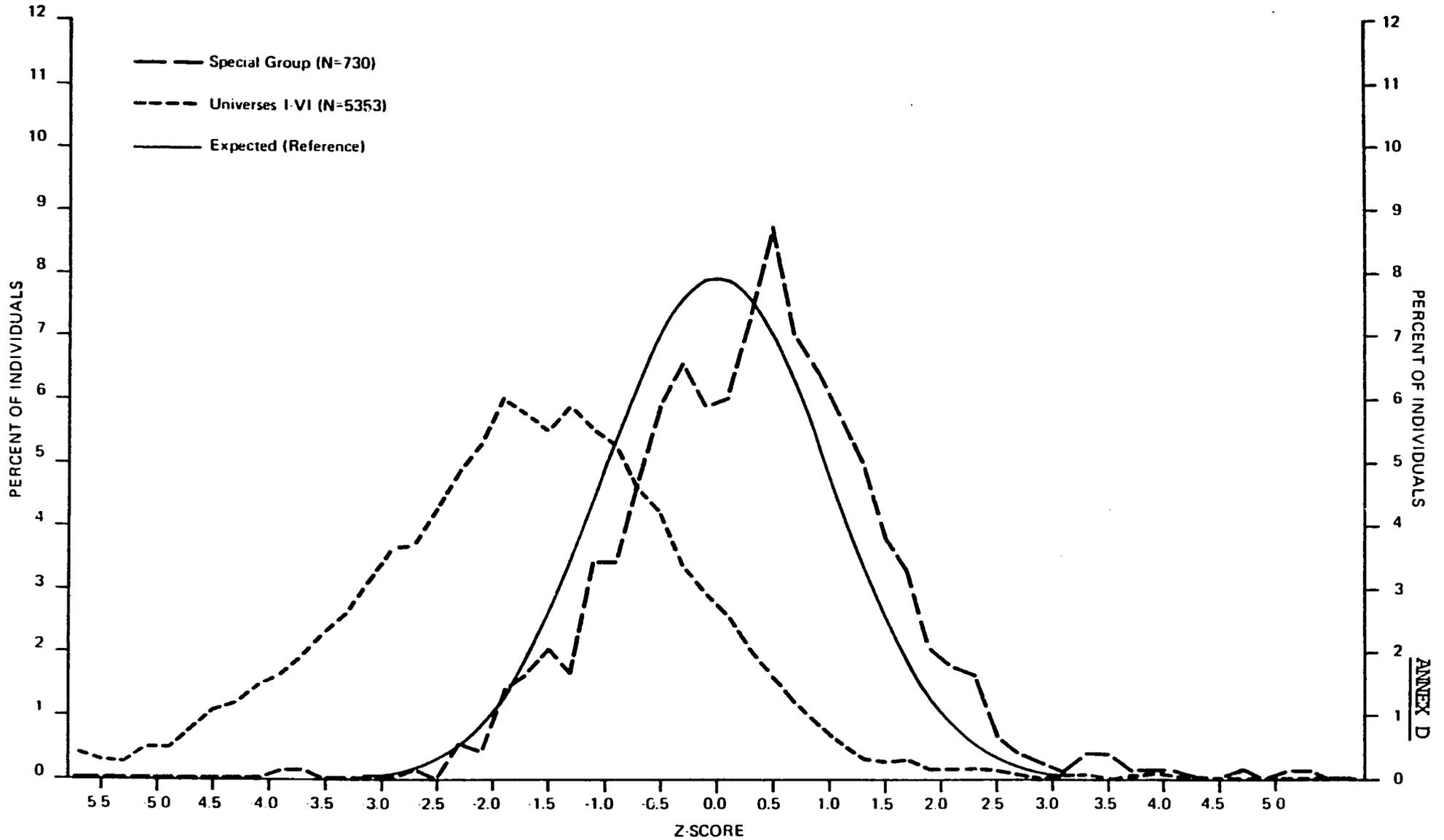


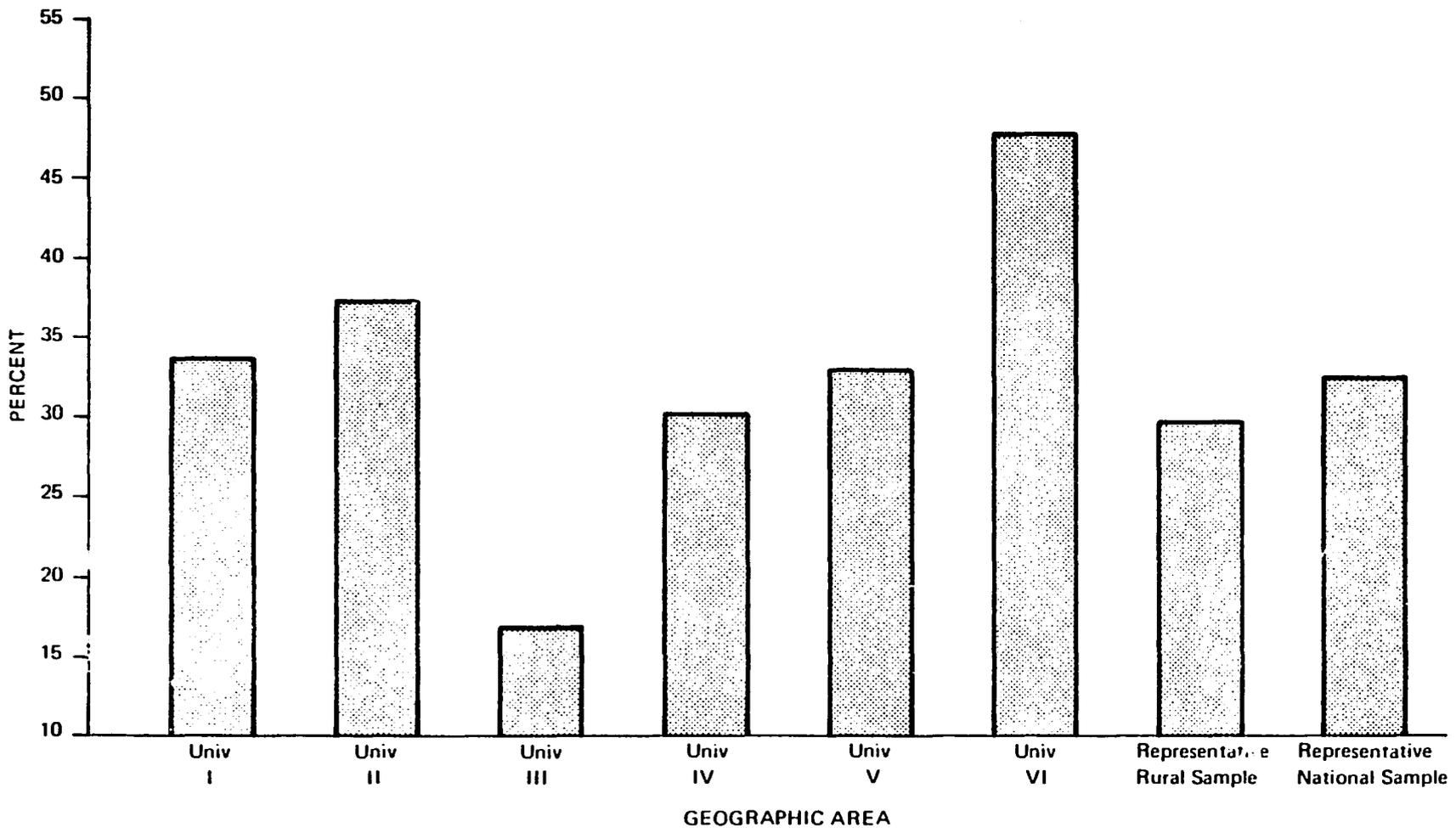
FIGURE 3. Height for Age Z-Scores: Haiti 1978



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**FIGURE 4. Prevalence of Anemia<sup>1</sup> in Preschool Children by Geographic Area: Haiti 1978**



ANNEX D

<sup>1</sup>Anemia defined as a hemoglobin value of < 10 gms/100 cc for ages <24 months and < 11 gms/100 cc for ages >24 months.

## EVALUATION PLAN

The regularly-scheduled evaluations to be conducted under the RHDS Project to ascertain the impact of the preventive and curative services provided by health agents and auxiliary nurses will simultaneously evaluate the field service components of the nutrition activities described in this Project Amendment (e.g. health agent and auxiliary nurse training, performance of RHDS personnel, coverage, etc.). However, additional evaluations will be required for the new nutrition activities added by this Amendment at the central and field levels. For example, the pilot nutrition surveillance activity in the South Region will be evaluated 12-18 months after the start-up of the surveillance system, prior to its replication in another health region of Haiti. This evaluation will be carried out primarily by technicians of the Central DSPP Bureau of Planification and Evaluation, the Division of Nutrition and the long-term nutrition adviser under the RHDS project. The Regional Health Administrator, the USAID Project Manager, the Chief of Party of the long-term RHDS advisory team (MSH) and the USAID evaluation officer will also participate.

With respect to education and training, a formative evaluation process for the development and testing of educational materials was established in the Division of Nutrition under Project 521-0075 with technical assistance provided by A.I.D. This process will be continued and expanded to include all new materials and training modules designed by the DON for RHDS and other DSPP or DARNDR personnel and projects. The nutrition foyers program will be evaluated 12-18 months after its introduction into one of the established health regions. It is anticipated that, as with the first RHDS service delivery evaluations, this evaluation of the foyers will focus on process indicators, and will require only minimal outside participation.

The DCN's agricultural extension program will also be "process evaluated" independently of on-going RHDS activities. This evaluation will be scheduled 18-24 months after the start-up of the surveillance activity in the South and will include an evaluation of both the traditional agricultural extension/food production component and the surveillance (data collection) component of the proposed DON agricultural extension program. This evaluation will require outside participation financed under the technical assistance provided through the Project Amendment.

Impact evaluations of the surveillance activity, the nutrition foyers program and the DCN agricultural extension program will be carried out only at the end of the RHDS Project (mid - 1984). These evaluations will require the use of fully independent technical consultants.

Funding has been provided in the technical assistance component of this Project Amendment to cover the cost of the above-mentioned evaluations.

The criteria and indicators to be used in the above-described evaluations will be specified prior to the execution of these activities.

DEPARTEMENT DE LA SANTE PUBLIQUE ET DE LA POPULATION  
BUREAU DE NUTRITION  
P. O. BOX 707  
PORT-AU-PRINCE, HAÏTI

Port-au-Prince, le 16 février 1971

Monsieur Jerry M. Russell  
Directeur de la Section Santé  
US/AID, Port-au-Prince

Monsieur le Directeur,

J'ai l'avantage de vous faire parvenir annexée à la présente une photocopie de la correspondance reçue du Directeur Général du Département de l'Agriculture dans laquelle il donne son approbation à la continuation des activités agricoles dans le cadre du projet Amélioration de la Nutrition.

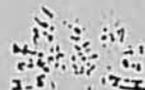
J'en prends occasion pour remercier l'AID d'avoir bien voulu accorder son attention aux activités agricoles du Programme d'Amélioration de la Nutrition, ce qui permettra aux bénéficiaires d'améliorer leur connaissance en alimentation.

Avec mes salutations, je vous prie d'agréer, Monsieur le Directeur, les assurances de ma considération distinguée.

William Fougère, M.D.  
Directeur

mca

Annexe



REPUBLIQUE D'HAÏTI

DEPARTEMENT DE L'AGRICULTURE, DES RESSOURCES NATURELLES  
ET DU DEVELOPPEMENT RURAL

MINISTRE GÉNÉRAL

No. P.S. 317.....

Port-au-Prince, le 10 Février 1981

Dr. William FOWLER  
Directeur du Bureau de Nutrition  
Département de la Santé Publique  
et de la Population  
Port-au-Prince.

Monsieur le Directeur,

J'accuse réception de votre lettre du 21 Janvier 1981 et prends plaisir à vous confirmer la poursuite de l'assistance du Département de l'Agriculture, des Ressources Naturelles et du Développement Rural (DARN) au programme de nutrition appliquée du Bureau de Nutrition du Département de la Santé Publique et de la Population.

J'en prends occasion pour souligner à votre attention, qu'en dehors de l'assistance technique fournie par le DARN au Bureau de Nutrition, les prochaines actions à entreprendre dans ce domaine devraient se dérouler dans le cadre des programmes des Districts Agricoles.

En conséquence, j'estime indispensable une concertation entre le Bureau de Nutrition et les Directeurs de Districts pour que la Division Technique intéressée de ce Département puisse assurer le suivi et le contrôle des activités planifiées conjointement.

Je vous prie d'agréer, Monsieur le Directeur, l'assurance de ma parfaite considération.

  
Michel GAUTHIER  
Directeur Général

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DEPARTEMENT DE L'AGRICULTURE, DES RESSOURCES NATURELLES  
ET DU DEVELOPPEMENT RURAL

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Port-au-Prince, le 19 Janvier 1981.

Docteur William Fougère  
Directeur du Bureau de Nutrition  
du Département de la Santé Publique  
et de la Population.  
Port-au-Prince.

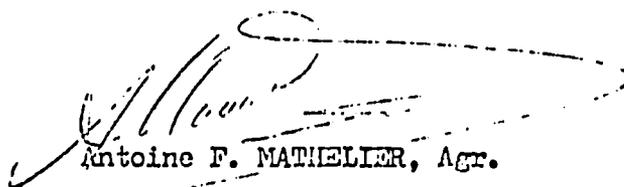
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Monsieur le Directeur,

J'accuse avec plaisir réception de votre lettre en date du 7 Janvier 1981 sous couvert de laquelle vous sollicitez une nouvelle fois la coopération du DARNDR au programme que poursuit le Bureau de Nutrition du Département de la Santé Publique et de la Population dans le domaine de l'éducation nutritionnelle au niveau des paysans et de l'orientation de la production selon les besoins nutritionnels des populations concernées.

Je tiens à vous rassurer de la poursuite de cette assistance technique du DARNDR pour la promotion de vos différentes actions au niveau du terrain. Je dois vous informer, cependant que la décision finale reste de la compétence du Directeur Général qui vous fera part, en temps et lieu, des dispositions prises à cet égard.

Je saisis cette occasion, pour vous renouveler, Monsieur le Directeur, l'assurance de ma considération distinguée.

  
Antoine F. MATHELIER, Agr.  
Directeur Division Supervision