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NUTRITIONAL SURVEILLANCE
IN HAITI: A PRACTICABLE
APPROACH

IQC NO. AID/SOD/PDC-C-0084
Work Order #5

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Summary: Consultant Activities

Upon arrival in Haiti the consultants met with USAID officials and representatives of the Haitian government concerned with nutritional surveillance.

After investigations at the central level, the consultants made field trips to the Northwest Department and then the Northern Department, to ascertain practicable approaches to nutritional surveillance in the country.

A proposed plan for surveillance was developed in collaboration with USAID and Haitian officials from both the regional and central level of decision making.

This plan, which is contained in this report, was formally presented to the representatives of the Haitian Ministry of Health and USAID/Haiti officials in a meeting convened on 9/17/79 and following their recommendations, agreement was reached in principle upon the modalities of the project.

Summary: Recommendations

1) That USAID/Haiti program 298,730 dollars to be used in project 099, Intersectoral Nutrition Development for the implementation of a nutrition surveillance system,

2) that this system be instituted on a regional basis, beginning first in the Northern Department and then later extending to the Southern Department with a view toward implementation through-out the country.

3) That a regional approach and already existing personnel and institutions be utilized to monitor the extent and severity of undernutrition incorporating parameters of weight for height, arm circumference, edema, birth and mortality information.

4) That this information be used for regional planning purposes and that other information be obtained on a regional basis in collaboration with other governmental agencies and private organizations to expand the scope of surveillance activities as capabilities develop.

5) That an experienced nutrition planner be contracted for a period of 3 years to aid in the implementation of this project.

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I. Introduction

At the request of USAID/Haiti, David Eckerson and Irwin Shorr visited Haiti from August 26 to September 20, 1979 to identify components and to design a framework for a nutritional surveillance program appropriate to Haitian needs and capabilities. Mr. Eckerson was employed through the New TransCentury Foundation's IQC with USAID/Washington and Mr. Shorr was employed through a non personal services contract. All funding was in conjunction with project 099, Intersectoral Nutrition Development. This report is based on the consultants' findings obtained through personal interviews with Haitian and international donor agency officials; site visits to parts of Port-au-Prince, the Northwest and Northern departments of Haiti and from an extensive review of relevant documentation.

II. Background

Within recent years Haiti has shown strong interest in nutritional surveillance. Accent has been primarily within the health sector. Along with regular reporting of weight for age data from the existing health system, Haiti introduced in 1977, with the financial assistance of WHO, a nutritional surveillance project in selected areas of the Southeast, Gonave and Northwest departments of the country. This system, which only lasted one year, relied upon health facility data supplemented by other data collected from random sites where local volunteers could be recruited. The basic parameters used in this project were weight, age, height, mortality and birth information for children less than 5 years of age. (See Annex 1)

In another project, "Projet Integre," which was financed by USAID, nutrition surveillance was a component of project activities. Using health agents recruited from local communities, surveillance included the registration of all families and their children in the project area and attempts were made to record birth and death information. The health agents were also periodically assisted by a medical team from surrounding health institutions and regularly weighed and measured children less than 5 years old at quarterly health rallies. (See Annex 2)

Haiti has also recently undertaken a National Nutrition Survey (1978) with the assistance of USAID and the Center for Disease Control. A national nutrition conference following this activity recommended the institution of a national food and nutrition surveillance system. (See Annex 3).

III. Current Activities Related to Nutrition Surveillance in Haiti

Nutrition Surveillance has been defined by a joint FAO/UNICEF/WHO Expert Committee as "the provision of on-going information about nutritional conditions and the factors that affect them in order to contribute to the design and implementation of measures to improve nutritional status."¹

In Haiti, nutritional surveillance is generally limited to the sporadic collection of information related to the nutritional status of selected population groups within the country. There is little information being collected on the causes of under-nutrition. Finally, most of the information collected does not contribute to the implementation of measures to improve nutritional conditions.

Current activities related to food and nutrition surveillance in Haiti are centered within the Ministry of Planning, the Ministry of Agriculture, the Ministry of Health and various projects undertaken by the international donor community.

A. Activities Within the Ministry of Planning

Since 1977 a nutrition planning unit has existed in the Ministry of Planning. This unit, the Division de Formulation de Politiques Alimentaires et Nutritionnelles (DIFPAN), is directly responsible to the Bureau National de Formulation de Politique D'Alimentation et de Nutrition (BUNAFPAN). BUNAFPAN is an interministerial

¹Methodology of Nutritional Surveillance; WHO Technical Report Series No. 593, Geneva 1976.

committee composed of key decision makers, having amongst its representatives the Ministers of Planning, Health and Agriculture. In practice, this body rarely meets; and in everyday affairs, DIFPAN is responsible to the Direction of Social and Economic Programming in the Ministry of Plan.

DIFPAN has as one of its mandates the task of implementing a food and nutrition surveillance system for the country. DIFPAN, however, is not specifically responsible for the implementation of this system. It is supposed to identify appropriate agencies that will:

- 1) collect information
- 2) analyze the results
- 3) disseminate information concerning production, marketing, food consumption and the nutritional status of the population, identifying changes surveyed, the causes for these changes and their tendencies
- 4) predict future variations
- 5) recommend preventative actions and interventions.

(See Annex 4 for DIFPAN's activities)

DIFPAN must undertake these activities in collaboration with "technical ministries," i.e., the Ministries of Agriculture and Health. In the view of the Ministry of Planning, food surveillance is a task of the Ministry of Agriculture and nutrition surveillance is a task of the Ministry of Health. The Ministry of Planning through DIFPAN, can only serve as a communicator to the respective Ministries of what the other is doing. It is assumed that through communication a collaboration in health and agricultural activities

can be effected. The Ministry of Planning is limited in that it cannot collect information in the field, nor can it tell the technical ministries what to collect. Thus, in the area of food and nutrition surveillance, little has been done by DIFPAN other than advocate the need for such a system.

DIFPAN itself has an uncertain future and funding from the "Projet Interagence de Promotion de Politiques Nationales d'Alimentation et Nutrition PIA/PNAN)," an interagency structure of the United Nations composed of UNICEF, UNDP and other organizations is due to terminate in October of 1979. The Government of Haiti will assume 60% of DIFPAN's financing and PIA/PNAN will probably continue with some assistance in the form of an advisor and some salary supplements. The activities of DIFPAN, however, will be drastically curtailed. DIFPAN will be reduced in personnel after October and will exist with the sole objective to produce a document that will describe the most feasible structure for the institutionalization of nutrition planning in Haiti.

B. Activities Within the Ministry of Agriculture

Food surveillance activities in the Agricultural sector are centered within the Statistical and Economic Section (SES); the Division of Meteorology and the Service National de Commercialisation Agricoles (SENACA), all of which are agencies of the Ministry of Agriculture, which in Haiti is called the Department de l'Agriculture, des Ressources Naturelles et du Developpement Rural (DARNDR).

All information that is collected within the agricultural sector is centralized at Port-au-Prince. Major constraints of limited personnel, low operating budgets, poor quality of data and expedient analysis of information make food surveillance within DARNDR very weak.

The most promising food surveillance activities within DARNDR are being undertaken by SENACA. Market prices are being collected from eight rural, nine urban and eight regional markets on a continuous basis. While SENACA's actions are limited to food prices, their data could eventually serve as a viable component of a national food and nutrition surveillance system. There are difficulties that exist in data analysis and a lack of enough personnel at SENACA, yet these difficulties are being overcome. SENACA is now investigating the use of computer facilities to aid in the rapid treatment of their data.

Serious difficulties exist in the SES unit of DARNDR, which is responsible for data collection concerning agricultural production and socio-economic conditions. A current USAID/Haiti project, Agricultural Development Support II (ADSII), will attempt to strengthen SES capabilities to collect viable agricultural and socio-economic data. This project, which is based on aerial photography, will establish an area sampling frame for the entire country, thus permitting SES personnel to collect valid data from small representative samples. This project also foresees the addition of computer facilities for the SES unit. This model, however useful it may be in future activities of a surveillance system, is far from an implementation phase.

Finally, the Division of Meteorology operates 120 weather stations

throughout the country. Lack of personnel to record and transmit data hinders their operations. The division is in the process of trying to upgrade their system and have a project under consideration with FAO/UNDP to extend their facilities to 250 stations throughout the country. Along with this they want to work in collaboration with SES to establish an early warning system for the country. The status of this project is very uncertain yet, if approved, may form a viable component in a future food and nutrition surveillance system.

C. Activities in the Ministry of Health (DSPP)

Within the Ministry of Health, nutrition surveillance is a facet of daily operations. Regular reporting monitors malnutrition according to the Gomez classification. This information is gained from health facilities throughout the country. It is the practice of DSPP that every child less than 5 years of age be weighed if brought in for a dispensary visit. This data is recorded daily; and every month each facility in the health system must make a report concerning the numbers of children that were found to be normal or suffering from first, second, or third degree malnutrition.

This system is re-enforced by the fact that most dispensaries have at least one weighing scale. In many cases they are equipped with three different types: a standing detecto upright scale; a detecto table scale for small children and a Phillipine hanging beam balance. Personnel have been trained in the use of these scales.

The Ministry of Health has recently begun a process of regionalization whereby the administration of health services is being

decentralized to the regional level. With the assistance of USAID, a project for strengthening health services is also in the early stage of development. This project envisions strengthening the health infrastructure throughout the country by providing communities with health agents who will serve to deliver simple health services. In three areas of the country, the North, South and Artibonite, these health agents are already in place. None of these areas are up to full strength, however.

Activities that health agents undertake that relate to surveillance are the registry of all persons in the communities they serve and the drawing of detailed maps of their work zones. Information is also collected by health agents on mortality and births in their communities. It is envisaged that each dispensary in the country will have four health agents serving it and each agent will cover 1,500 - 2,000 people.

Besides collecting information on births and mortality, the health agent is responsible for referring undernourished children to the dispensaries.

Within the Ministry of Health structure there is also a Bureau of Nutrition (BON), which has charge of nutrition activities within DSPP. The BON is responsible for the training of health personnel in nutrition related matters and has recently published guidelines to be followed in the Ministry for nutritional operations.

The BON basically works from Port-au-Prince; and from the central level, supervises actions in the field. Its major activities are

the supervision of CERNs (Centres d'Education et de Recuperation Nutritionnelles), of which there are 35 scattered around the country. The CERN system has existed for over ten years and basically attempts to recuperate children in communities determined to be at nutritional risk. Communities are identified by small community surveys carried out by BON supervisory personnel; and from the surveys, communities are identified for the placement of CERNs. The CERN system also has an agricultural component through which extension agents work with families of children being treated in the community. There are approximately 30 agricultural agents fulfilling this task.

At another level, BON is responsible for the supervision and training of nutritionists, one for each region, that will be stationed throughout the country. Likewise, auxiliary nutritionists, usually two for each region, are trained by and responsible to the BON. These nutritionists will supervise the nutritional activities that are undertaken in the respective regions.

Major constraints in the surveillance activities of the Ministry of Health are as follows:

- 1) Monthly reports from health facilities are irregular. Furthermore, when they are received at the regional level they are forwarded directly to Port-au-Prince. Regional administrators have little idea of what is happening in their regions. Recent efforts to address this problem by the Ministry will post statisticians in each region and they will be responsible to prepare a report for the administrator each month and then forward data to DSPP.

2) At the central level reports are stored for one year and then compiled into a national report...the delay being two years before the data is presented.

3) Standardization is needed at all levels, from filling out forms to the identification by health agents as to what constitutes undernutrition. Health agents identify undernutrition by two clinical signs: hair and thin limbs. Both are very subjective.

4) Supervision at all levels is weak and is due in part to lack of trained personnel and lack of mobility.

5) At the central level coordination between the statistical section of DSPP, the Bureau of Nutrition and the Division of Family Hygiene is lacking.

D. Activities of the International Donor Community

Surveillance activities of the international donor community are disparate and uncoordinated. Activities such as those undertaken by Catholic Relief, CARE, Church World Service and the Seven Day Adventists relate primarily to the donated food distribution systems they run. Each agency operates in a specific region or territory.

Regional development authorities exist in the Northwest, North and Artibonite regions of the country. These organizations, funded through agencies such as FAO, The World Bank, The Inter-American Development Bank and others, collect information regularly in order to assess their respective projects' ability to meet given objectives. In the northern region, the Organisation du Developement du Nord has as a specific objective the orientation of activities to

those most in nutritional need.

Infrastructures exist within all these agencies for the collection and treatment of data they receive. In some cases data is collected in an on-going manner. In others, data is collected from periodic surveys. The data collected ranges from sophisticated agricultural data to simple anthropometry.

IV. Summary of Current Activities and Capabilities for Surveillance in Haiti

What becomes clear from a review of current surveillance activities in Haiti is that a variety of information is being collected from different sectors. Some information is more valid than others. Coordination of surveillance activities, given the diversity of collecting agencies, is very difficult. Normally this should be the charge of the Ministry of Plan, but in Haiti this is not possible.

Very little is done with information collected to program nutrition interventions. Nor is information used to answer questions about what factors are producing unfavorable nutritional conditions.

Perhaps the most useful surveillance activities in Haiti are being undertaken by the Ministry of Health. In theory the health system should be able to monitor the extent and severity of undernutrition throughout the country in children less than 5 years of age. It seems feasible, in our view, that a project in nutritional surveillance be channeled through the Health Ministry. At a later point in time, other Ministries can be integrated into the system.

Given the constraints of the centralized operations of the Ministry of Health, it also seems feasible to begin a surveillance system on a regional basis.^{1/} In this way the system can extend to other regions of the country, eventually attaining a countrywide basis. Given the limited capacity of any agency in the country to sustain a major "new" and complex intervention, surveillance activities must be kept very simple so as not to strain the system.

By adopting a regional approach, and being based within the health system, surveillance activities could broaden by incorporating regional staff of technical ministries, such as the Ministry of Agriculture, into the system. Linkages could also be achieved with the incorporation of regional development authorities into such a system along with international donor agencies.

^{1/}In talks with Mr. Lopez of DIFPAN it was learned that a soon to be released study on Nutritional Surveillance for the Dominican Republic and Haiti commissioned by PIA/PNAN will recommend a regional approach to surveillance activities in these countries. The study team never visited Haiti, however.

V. Goals and Objectives for Nutritional Surveillance in Haiti

A. Goals

1) To establish a national nutrition surveillance system that will give a continuous description of the extent, severity and changes over time in malnutrition levels among the Haitian population with particular reference to at-risk groups.

2) To establish a nutritional surveillance system that will provide decision makers with information to assist in the formulation of priorities, policies, interventions and/or further investigation to undertake in the nutrition sector.

3) To establish a system that will provide the possibility for future linkages among sectors related to nutritional status.

B. Specific Objectives

1) To use the existing personnel and facilities of the health system to collect data on the nutritional status of children under five years of age who have been identified by the Haitian Government as a high risk priority group.

2) To establish a surveillance system at a regional level for simple and standardized data collection, analysis and reporting that will assist in decision making by appropriate regional and central personnel.

3) To test the system in one region (North) for feasibility and to determine future needs and the likelihood of expanding the system to the rest of the country on a regional basis (one region at a time).

4) To train appropriate personnel in the existing health structure by upgrading the quality of current nutrition data reporting and by introducing necessary new measures to detect malnutrition.

5) To establish linkages with other government ministries and private organizations by investigating their nutrition related activities which could strengthen the nutrition surveillance system.

VI. Proposed Plan for Nutrition Surveillance in Haiti

A. General Description

The proposed plan for nutrition surveillance in Haiti will begin in the Northern Department and upon evaluation will be extended to the Southern Department, with a view toward later being extended throughout the country. The system will utilize currently existing facilities and currently available personnel taking into consideration their present roles, activities and responsibilities. The utilization of existing facilities and personnel will create a minimal strain on the infrastructure and therefore will assist in facilitating successful implementation of the project.

Auxiliary nutritionists, auxiliaries, health agents and a statistician who currently have roles in the health delivery system of

the proposed regions will be used in the surveillance system.

In addition to utilizing existing personnel, it is recommended that (1) a previously designated regional nutritionist position be filled with a Haitian technician and that (2) a new position be established for the technical assistance of an experienced nutrition planner.

Limited anthropometric data (weight for age) will be collected from hospitals, clinics and dispensaries on a regular basis. In addition to this, two measures of acute undernutrition will be added. Health agents will be trained in the detection of pedal edema and in the use of a "Shakir Strip" (Morley Tape), thus assuring the detection and referral of acutely malnourished children to the hospital, clinic and dispensary system. Other information to be utilized in the surveillance system will include birth and mortality information collected by the health agents.

Health agents will initially screen all children under five years old in their respective communities. Children identified as undernourished by edema or Shakir Strip criteria will then be referred to the nearest dispensary. At the dispensary these children will be weighed by auxiliaries and treated for undernutrition. Periodic visits to the field by auxiliaries to supervise the work of the health agents will enable the auxiliaries to weigh those children who were referred but did not go to the dispensary. Therefore, all children under five in the region will be included in the surveillance system.

Monthly reports concerning births, deaths and numbers of children undernourished will be sent to the regional authorities where this data will be analyzed and acted upon. Copies will also be sent to the central health authorities in Port-au-Prince.

Efforts will also be made at the regional level to extend surveillance activities beyond the health system. Efforts will be made by the Regional Nutritionist and Nutrition planner to link other governmental and private organizations operating in the region into the surveillance system.

To evaluate the system and test its effectiveness, a limited anthropometric survey of the region will take place before extending the project to the south.

B. Personnel

1. Regional Administrator

The Regional Administrator serves as the head of the health activities in the North at the Department of Public Health and Population, Regional Bureau of the North, Cap-Haitien. In this capacity, he will coordinate with the nutritionist and the nutrition planner on all matters of the nutrition surveillance system, reviewing activities, progress and future planning as well as controlling the budget for any expenses. He will review data reports from the nutritionist and nutrition planner and supervise a regional anthropometric based nutrition survey 12 months after the commencement of the project. He will provide a final report on the activities of the pilot project with recommendations for future extension.

2. Nutritionist and Nutrition Planner

The nutritionist and nutrition planner will be stationed at the regional level in the Department of Public Health and Population at Cap-Haitien and will be responsible to the Regional Administrator. They will coordinate with each other on administration and implementation of all phases of the surveillance system. Their duties will include the following:

- a) develop and/or modify forms for data collection that will be used throughout the region,
- b) head field supervision by periodically visiting and coordinating, the nutrition surveillance related activities of the auxilliary nutritionists, auxilliaries and the health agents,
- c) collaborate with other regional governmental and private agencies towards the extension of surveillance activities into other sectors,
- d) check on the quality of data collected before submitting the forms to the statistician at the region level,
- e) coordinate with the statistician concerning data analysis,
- f) train the auxiliary nutritionists, auxiliaries and the health agents in the use of Shakir Strip, the detection of pedal edema and activities required to conduct a regional anthropometric based nutrition survey,
- g) head the evaluation team and coordinate with the Regional Administrator to ascertain progress, reestablish and/or modify goals, scheduling, future work, etc., and
- h) write and submit periodic reports to the Regional Administrator before sending copies to Port-au-Prince.

3. Auxiliary Nutritionists

Two auxiliary nutritionists are currently based in the Department of Public Health and Population in Cap-Haitien. They will be responsible for the supervision of auxiliaries and health agents, periodically visiting them in the field and collecting the data forms, checking on quality of work, and helping to solve any related technical and logistical problems.

They will be the main liaison between the nutritionist, nutrition planner and auxiliaries, and are responsible to the nutritionist and nutrition planner.

They will also assist the nutritionist and nutrition planner in training of the auxiliaries and health agents.

4. Auxiliaries

The auxiliaries will take the weights of all children under five years of age, which is already part of their daily duties. They will record the weight on forms which will be collected by the auxiliary nutritionists. They will be responsible for supervision of the health agents, visiting them regularly, checking on the quality of their measurement-taking performance, and help solve logistical and technical problems.

They will also follow up on those children classified in the red and yellow zones of the "Shakir Strip" (arm circumference tape) who were referred to but did not appear at the clinic within the month. These children will be weighed in the village by the auxiliaries and

and forms will be filled out so that all children served by the health agents are reported in the nutrition surveillance system. The auxiliaries will be responsible to the auxiliary nutritionists.

5. Health Agents

The health agents will measure each child from one through five years of age in their community with a "Shakir Strip". They will also screen every child for evidence of pedal edema. Children who fall in the red or yellow category of the Shakir Strip or who have signs of pedal edema will be referred to a dispensary by the usual method of giving the mother or the child a referral slip. The other half of the slip is kept with the agent to show the auxiliary who has been referred.

The health agents will also complete data on births and deaths within their respective communities to be submitted monthly to the dispensary they work from. The agents are responsible to the auxiliaries.

6. Statistician

A statistician in the Department of Public Health and Population will compile and store all the surveillance data which will be made available for periodic reports. He will monitor the quality of data he receives, and communicate directly with the nutritionist, nutrition planner, the auxiliary nutritionists and the Regional Director when required, about the data. He will also assist in determining the sampling frame for the evaluation survey and consult with project administrators concerning survey methodology.

C. Technical Measures of Nutritional Status and Equipment

1. Introduction

Anthropometry (i.e., body measurements) is used because it is quantifiable, objective, rapid and a relatively simple method of assessment of nutritional status, as compared with other longer, more complicated methods such as biochemical, clinical, and/or intensive dietary analysis. This anthropometric-based nutrition surveillance method requires simple equipment, is less complicated and requires less training time than other methods. Data can be processed and analyzed within a short time after collection which makes it readily available for nutrition planning purposes.

It must be emphasized that anthropometry is a valid method which can provide reliable data on the prevalence, incidence, extent and severity of malnutrition. For associations between anthropometry and other variables, indications of nutrition related problems can be derived, but anthropometry alone cannot conclusively identify or explain causes of malnutrition.

2. Measures

a) Anthropometry

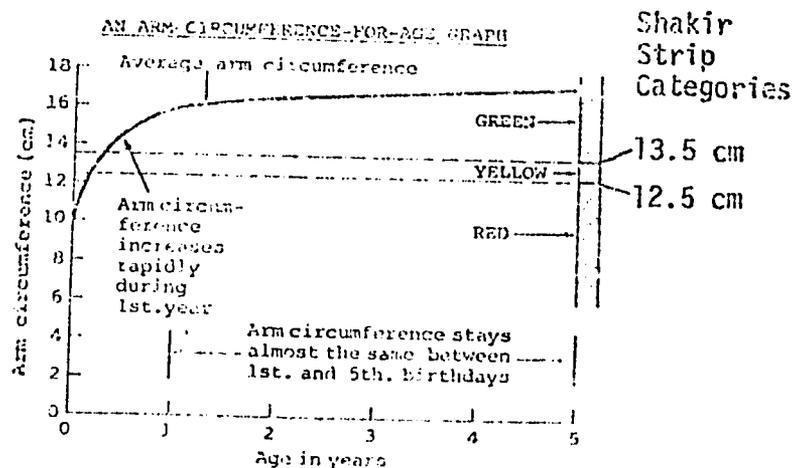
(1) The auxiliary currently takes the weight of all children under 5 with a Phillipine hanging beam balance which are located in every clinic/dispensary. The Gomez classification of weight-for-age is already used.

(2) Since the health agent has no objective standardized method

of referring malnourished children to a clinic/dispensary, the "Shakir Strip" will be used by the health agents as a screening test for acute undernutrition.

The "Shakir Strip" is a narrow strip made from ICM width clean unused X-ray film. It is employed for measuring arm circumference. The strip has three colors applied with felt tip pens, separated by a scratch mark, which correspond to the categories shown in the figure below. "If a child's mid-upper arm circumference falls in the green, the child is well nourished; if in the yellow, the child is probably malnourished; if in the red, the child is malnourished."^{1/} The figure below also demonstrates that the average arm circumference of well nourished children does not change significantly over the 1 to 5 year age range, so that precise age is not essential for interpretation.

FIGURE 6 AN ARM CIRCUMFERENCE-FOR-AGE GRAPH SHOWING SHAKIR STRIP CATEGORIES



^{1/} Figure reproduced from Morley D. Child to Child Program Institute of Child Health, 30 Guilford Street, London WC2E 9EH, United Kingdom Shakir, A.C. (1975) The Surveillance of Protein-Calorie Malnutrition by simple and Economic Means (A. Report to UNICEF). J. Trop. Ped. and Env. Child Health. 21=69-85

b) Clinical

Pedal edema is always present in special types of severe acute undernutrition (i.e., Kwashiorkor). The health agent will use a simple test for pitting edema on the dorsum of the foot and will refer all children who exhibit this characteristic to a health facility.

D. Training for the Surveillance System Implementation

All training will take place in Cap Haitien at the Regional Bureau for Public Health and Population. Ample facilities exist for the numbers of people involved. Initially training sessions will be planned by the Regional Health Administrator, the Regional Nutritionist, the Nutrition Planner and the two Regional Auxiliary Nutritionists. Since there are approximately 100 dispensary auxiliaries and 108 health agents to be trained, it is envisioned that three separate sessions be held composed of auxiliaries and health agents from the three respective administrative districts of the northern department. (See Annex 6 for Northern Department Health Data)

From each district dispensary auxiliaries will be introduced to the particulars of the surveillance system and will then be trained and standardized in the taking of weight measurements. They will also be trained in the detection of pedal edema and in the use of the Shakir Strip. Since auxiliaries are already trained in the taking of weight, it is expected that one day will be required for training in all measures and the majority of time will be spent on practice and standardization exercises. (See Annex 5 for the protocol to be used for standardization)

After one day of district auxiliary training, health agents from the same district will be brought in to be trained in the detection of pedal edema, the use of the Shakir Strip, the collection of mortality and birth information and the general practicalities of the surveillance system.

It is expected that health agent training will take two days and emphasis will be upon practice and standardization of measurements.

All training will be carried out by the regional nutritionist, the nutrition planner and the two auxiliary nutritionists. After the dispensary auxiliaries have been trained, they will be used to assist in the training of the health agents. In this way they will also be re-enforced in what they have learned with two days additional practice.

At the end of training both the dispensary auxiliaries and the health agents will undergo a standardization exercise together.

E. Evaluation Survey

After one year a limited anthropometric nutritional status survey will be carried out in the Northern Department to test the reliability of data being collected by the surveillance system. This survey will be based upon a representative sample of children under 5 years of age chosen by population proportionality within the three administrative districts in the north. Parameters to be used in the survey will include length/height, age, weight, edema and arm circumference taken on every child within the sample.

Survey enumerators will be chosen from capable auxiliaries within the respective districts. Two auxiliaries will form one team, and there will be two teams per district, a total of six teams for the entire department. Each district will be surveyed at a separate time, and based upon representative sample size, it is expected that three weeks will be required to complete each district. Thus, nine weeks will be required to finish all field work.

Survey planning, sampling methodology, data analysis and logistics will be under the responsibility of the Regional Health Administrator, in collaboration with the regional nutritionist, the nutrition planner and the regional statistician.

The two auxiliary nutritionists in the northern region will be responsible for field supervision, in collaboration with the Regional nutritionist and the nutrition planner. Survey enumerator training will require five days with all teams being trained and standardized together at one time in Cap Hatien.

After the project is extended to the south, this same exercise will be included in project activities there.

F. Materials

The anthropometric equipment (Phillipine balances for weight and Shakir Strip for arm circumference tapes) have already been described. Several hundred tapes can be made from a cleaned X-ray film very easily at almost no cost.

It is recommended that two 4-wheel drive vehicles with ample storage space for transport of supplies be purchased under the project budget

and assigned to the nutritionist and nutrition planner in the north. If the project extends to the south, two other vehicles will be required.

Additionally the project should also purchase and assign a bicycle to each dispensary to help facilitate the task of visiting the health agents in the field.

Office supplies will also be required (see budget).

H. Illustrative Budget

	North Year I	North Year II	South Year II	North Year III	South Year III
<u>Technical Assistance</u>					
Nutrition planner salary	20,000	10,000	10,000	10,000	10,000
■ using allowance	5,000	2,500	2,500	-	5,000
Travel and shipping	2,500	-	-	-	2,500
Consulting Firm Overhead/Miscellaneous	20,000	10,000	10,000	10,000	10,000
<u>Materials</u>					
Vehicle purchase (2 - 4 wheel drive x 2 regions)	20,000	-	20,000	-	-
Gas (2,000 gallons/vehicle per year x \$2.00 per gallon)	8,000	8,000	8,000	8,000	8,000
Maintenance	2,000	2,000	2,000	2,000	2,000
Bicycle purchases (65 x \$150 x 2 regions)	9,750	-	9,750	-	-
Office supplies	1,000	1,000	1,000	1,000	1,000
Shakir Strip	50	50	50	50	50
Miscellaneous	5,000	2,500	2,500	2,500	2,500
<u>Training</u>					
Auxiliaries for surveillance (per diem) (100 x \$5.00 x 3 days)	1,500	-	1,500	-	-
■ health agents for surveillance (per diem) (108 x \$5.00 x 2 days)	1,080	-	1,080	-	-
Transportation (\$10.00 x 208)	2,080	-	2,080	-	-
<u>Survey</u>					
Training (5 days x \$5.00 x 12 persons)	-	300	-	-	300
Training Transport (\$10.00 x 12 persons)	-	120	-	-	120
Survey per diem 63 days x 12 persons x \$5.00 (surveyors)	-	3,780	-	-	3,780
63 days x 2 persons x \$5.00 (chauffeurs)	-	630	-	-	630
32 days x 3 persons x \$5.00 (supervisors)	-	480	-	-	480
Gas (\$20.00 x 63 days x 2 trucks)	-	2,520	-	-	2,520
Miscellaneous	-	2,000	-	-	2,000
Total	97,960	45,880	70,460	33,550	50,880
Total year I	97,960				
Total year II		116,340			
Total year III				84,430	
Total Project Costs				298,730	

VII. Conclusions and Caveats

The proposed plan for nutritional surveillance in Haiti is based upon a regional approach so that data can be obtained and acted upon quickly and effectively. This plan is necessarily simple, so as not to overload existing personnel and institutions with more than they can handle effectively. If successfully implemented, this system will monitor the extent and severity of malnourished children under five years of age in the areas of the project.

It must be emphasized, however, that this project is operative within the health sector primarily. It seeks to transcend this bias by forming linkages with regional governmental and private organizations so that a multisectoral approach can be achieved.

In Haiti, as in many parts of the world, multisectoral approaches to nutrition are difficult to obtain. This project takes into consideration this fact and attempts in a practicable way to overcome enormous constraints.

The major reason for nutritional surveillance is to know where nutritional problems exist, why they exist and how to remedy them. The proposed plan will enable decision makers to know where nutritional problems exist. With this knowledge the health system can react in ways to combat these problems on a remedial basis, targeting resources to help those acutely in need.

To be truly effective, however, the Ministry of Agriculture, regional development authorities and private organizations must

work in concert with the Ministry of Health to analyze and solve nutritional problems on a multifaceted basis. In talks with officials in the Northern Department there was a stated desire to achieve this. However it remains to be seen if this multisectoral approach can be put in practice.

The strength of this project will be judged by its ability to transcend the health sector basis upon which it is instituted and link other agencies into the surveillance network.

VIII. People Contacted

Port au Prince

Linda Morse	USAID Health Office
Dr. John Becker	USAID Agriculture Office
Dr. Fougere	Director/Bureau of Nutrition/DSPP
Dr. Toureau	Assistant Director/Bureau of Nutrition/DSPP
Dr. Amade	Research and Evaluation/ Bureau of Nutrition/DSPP
Dr. Bordes	Director/Division of Family Hygiene and Planning/DSPP
Dr. Midi	Chief of Health Planning/DSPP
Dr. Hillaire	Assistant Chief of Health Planning/DSPP
M. Guillet	Chief of Statistics/DSPP
Dr. Deslouché	Secretary General of Health/DSPP
M. Roche	Director of Social Planning/Ministry of Plan
M. Dorville	Director of DIFPAN/Ministry of Plan
M. Lopez	Nutrition Advisor/DIFPAN/Ministry of Plan
M. Celestin	Chief of Statistics/Division of Family Hygiene/DSPP
M. Mays	Haitian Institute of Statistics
Dr. Roisin	WHO Epidemiologist
Dr. Milor	IDB Regionalisation Project
Mme. Klein	CRS Program Officer
Perry Smith	Director CWS
Bunny Ormond	USAID Health Officer
Ted Ahlers	Agricultural Economist
Anne Cary	U.S. Embassy Economic Officer
M. Tannis	Office of International Coordination/DARNDR
M. Durmand	SENECA
M. Dauphin	Chief of Agricultural Statistics/DARNDR
M. Goutier	Director of the Division of Meterology/DARNDR

Mlle. Wacschle	World Food Program
Peter Stoces	FAO Program Officer
M. Aalders	FAO Agricultural Advisor
Jim Allman	Independent Researcher
M. Kofi Joppa	UNICEF Program Officer
Linda Lankeau	CARE
Mme. de Banquero	Assistant Resident Representative/UNDP

Northern Department

Dr. Engrand	Regional Health Administrator/Northern Province
Debby Leroy	PAHO Advisor/Northern Province
M. Le Garce	Assistant Administrator/ODN
M. LeNoir	Agricultural Advisor/ODN
M. Martin	DSPP Statistician/Northern Province
M. Angrand	Sanitary Officer/Northern Province
Mlle. Magloire	Auxiliary Quartier Morin/Northern Province
Jocelyne Pierre	Auxiliary Quartier Morin/Northern Province
Rose Claire Abraham	Auxiliary Quartier Morin/Northern Province
Henri Antoine	Health Agent/Quartier Morin/Northern Province
Mlle. Zamor	Auxiliary/Petite Anse/Northern Province
Sladys Dessources	Auxiliary/Robillard/Northern Province
Mlle. St. Ilma	Health Agent/Robillard/Northern Province
M. Delvaris	Health Agent/Robillard/Northern Province
Mlle. Casmir	Auxiliary/Acul de Nord/Northern Province
M. Noel	Agricultural Extension Agent/ODN
Mlle. Julmice	Auxiliary Nutritionist/Northern Province

Northwest Department

Mme. Guy Aspelly	Responsible/Nutrition Surveillance Center/ Anse Rouge/Northwest Province
Dr. Chery	Regional Doctor/Anse Rouge Region/Northwest Province
M. Leger	General Inspector/HATCHO/Gonaives
Mme. Cesar	Supervisor/HATCHO/Northwest Province
Mlle. Plancher	Auxiliary Nutritionist/HATCHO/Northwest Province
Mlle. Agatha	Responsible of CERN/ATREL/Northwest Province
M. Joseph	Agronomist/ODPG/Gonaives/Northwest Province

ANNEX I

WHO PROTOCOL FOR HAITI
NUTRITION SURVEILLANCE
PROJECT, 1977

PROJET DE SURVEILLANCE NUTRITIONNELLE

Etabli par le Bureau de Nutrition du Département de la Santé
Publique et de la Population en collaboration avec
l'Organisation Mondiale de la Santé

13 juillet 1977

I.- Objectifs à court terme:

- 1- Permettre une répartition des secours alimentaires sur base de la situation nutritionnelle des enfants de 0 à 5 ans dans les diverses localités des zones affectées.
- 2- Fournir aux autorités les informations scientifiques nécessaires pour une prise de décision concernant l'extension, la réduction ou l'arrêt de l'aide alimentaire d'urgence.

à moyen terme:

- Détecter de manière précoce le développement d'une disette grave dans n'importe quelle région du pays.

II.- Zones où l'on va renforcer le système de surveillance nutritionnelle:

Sud-Est : Aquin

Bainet

Côtes de Fer

La Gonave: La Gonave

Nord-Ouest: Port de Paix

Gros Morne

HACHO

Môle St. Nicolas

III.- Méthode:

La collection de données s'effectuera à deux niveaux:

- 1- Les services de Santé publiques, mixtes et privées communiqueront par mois le nombre de cas d'œdème (kwashiorkor) et les résultats mensuels poids/âge pour tous les consultants de 0 à 5 ans au chef de district qui fera parvenir les rapports journaliers au Bureau de Nutrition, Département de la Santé Publique et de la Population.

2- Les responsables de certaines communautés locales sélectionnées au hasard dans les zones sinistrées visiteront 2 fois par mois toutes les habitations pour détecter les décès (mortalité: 0-1 an, 1-5 ans, plus de 5 ans) les cas d'œdème (0 à 5 ans) et prendre la mesure du poids et de la taille des enfants en dessous de 5 ans en utilisant les formulaires appropriés.

Le chef de district et/ou l'auxiliaire-nutritionniste se déplacera 2 fois par mois pour superviser et rapporter les données concernant la quinzaine écoulée.

Au niveau du district, les auxiliaires-nutritionnistes feront parvenir le rapport au Bureau de Nutrition via le chef de district, la semaine suivant la collecte des données.

IV.- Etapas:

- 1- Formation du personnel médical et para-médical par un séminaire d'une journée dans:
 - 1) le Sud-Est
 - 2) zone de l'HACHO
 - 3) zone de Gros Morne
 - 4) Port de Paix
 - 5) l'île de la Gonave
- 2- Formation des responsables communautaires (une journée sur place)
- 3- Collection des données après la distribution du matériel et des formulaires.
- 4- Transmission des informations au Bureau de Nutrition sera faite comme mentionné dans le paragraphe III.
- 5- Compilation et analyse des données par le Bureau de Nutrition.
- 6- Transmission mensuelle des résultats assortis des actions correctrices recommandées:
 - Secrétaire d'Etat de la Santé Publique et de la Population
 - CARD
 - Autres institutions participantes ou intéressées

V.- Direction et Supervision

- Le Bureau de Nutrition est responsable de la surveillance, en assume la direction intégrale et la supervision à tous les niveaux avec le personnel des districts sanitaires concernés et l'aide des consultants de l'OPS/OMS.

VI.- Contributions respectives du Département et de l'OPS/OMS

OPS/OMS

- 1- Coopération technique d'un médecin et d'une nutritionniste en Santé Publique en poste en Haiti.
- 2- Assistance technique du personnel du Bureau Régional.
- 3- Don de 75 balances et d'infantomètres.
- 4- Fourniture pour l'impression des formulaires à utiliser au niveau des institutions sanitaires et des communautés.

Département de la Santé Publique et de la Population

- 1- Désignation d'un professionnel du Bureau de Nutrition pour assumer la direction technique de cette activité.
- 2- Détachement à temps partiel d'une auxiliaire-nutritionniste du district de Port-au-Prince.
- 3- Recrutement (ou transfert d'une autre section) d'un compilateur chargé de la compilation des données.
- 4- Préparation et impression des formulaires nécessaires au niveau central.
- 5- Assumer la supervision des activités, la collecte des données et l'envoi des rapports au Bureau de Nutrition.

Annex II

"PROJET INTEGRE"
NUTRITIONAL SURVEILLANCE
PROTOCOL, 1978

Nutrition Surveillance,
"Foyers-de-Demonstration"
and
Nutrition Centers in the
Integrated Project of Health and Population

Introduction

The Integrated Project of Health and Population, under the Division of Family Hygiene of the Haitian Government followed three defined populations with three different levels of interventions in rural Haiti from 1974-78. In all three populations, a basic level of health and nutrition surveillance was carried out by full-time resident-home-visitors ("Agents Communautaires") with community collaborators. Nutrition monitoring activities were carried out by these workers backed up by a technical supporting team at quarterly intervals. The team set up roving "health and nutrition rallies" in churches or schools, moving from area to area. Usually, about 200 families from nearby villages attended a quarterly rally. At these rallies all under-five-year-olds were weighed, measured, examined for edema and other signs of malnutrition. Each caretaker of a child received a record which could be understood and kept with the child:-- the road-to-health wt/age card. This record, in the hands of the family showed whether or not the child was augmenting in weight. Families learned that when weight gain is at a standstill from one quarterly weighing to another, the child in question is in serious trouble, even though he has no "symptoms".

Once a child was diagnosed as in need of nutritional help, the local health workers who lived nearby intervened in three ways:

- a) They distributed high-calorie milk powder* to the family as a special "medicine" to help the child begin to gain weight, along with instructions in its use.
- b) They set up special "weigh-in" sessions every two weeks in neighborhoods in order to monitor children in special need, with the idea that the child could be referred in to a clinic immediately if the milk supplement was not efficacious
- c) They gave education to the families in how to continue to rehabilitate the child using local food products, especially pureed beans.

This basic plan was in effect in all three defined populations from 1974-1978. In one area (Trou Chou Chou) an agricultural program was introduced at the same time by a Canadian development group. However, no nutrition rehabilitation centers or other special program was added. In the area around Meilleur (5^{eme} and 6^{eme} Grand Colline) a special modification of the "Centre de Rehabilitation et Education Nutritionel" (CERN) was introduced. These were called "Foyers-de-Demonstration Nutritionels" (FDN), and were 12-day intensive demonstration education sessions carried out in needy villages by workers trained by the Bureau of Nutrition under the supervision of Mereille Henry, an auxiliary nutritionist trained in both the Bureau of Nutrition and in a PAHO nine-month auxiliary nutritionist program. Mereille Henry worked under the supervision of Dr. W. Dieudonne, medical director of the Integrated Project. In a third defined population (that centered around Grand Goave) the usual "C E R N" program was undertaken in accordance with the norms of the Bureau of

*Powdered dry skim milk, reinforced with sugar and vegetable oil in proportions of 4:1:1 was mixed dry and placed in plastic sacks of 1.2 k each. When reconstituted with water, this provides a supplement of about 400 calories and 20 grams of protein per day for a two week period.

Nutrition under Dr. William Fougere.

Although all three defined populations were rural and had little access to a very modern medical facility, they were somewhat different in their ecologic settings. Both Trou Chou Chou and Meilleur are more mountainous, previous coffee growing areas; Grand Coave is more low-land and has a major highway traversing it. All three areas proved to have high infant and preschool mortality rates before the introduction of a health program. This was verified through study of a cluster sample of surrounding villages.

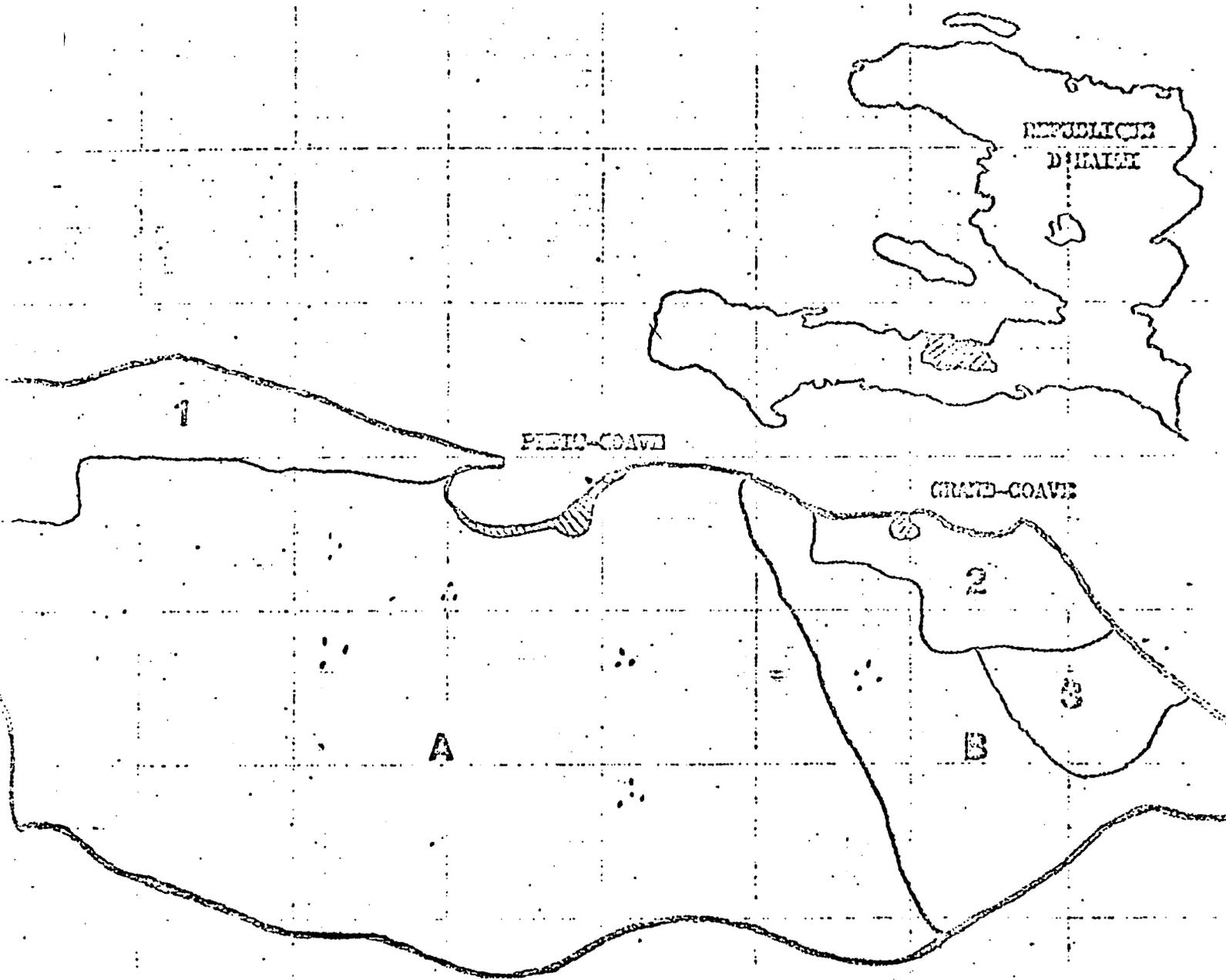
Methodology

Family registration, village by village, was a prerequisite carried out at the beginning of the three-year project, so that each community collaborator had a directory which he updated in order to keep track of the families for which he was responsible. The collaborator (1:500 population) was usually chosen from those who helped to register a village area. In each area, about 2000 children under the age of six were under nutrition surveillance. Without the family register sheet, many children would have been left out of the program, simply because no-one would know of their existence. (A family register sheet is annexed). Registering families can be carried out by all sorts of community members; community councils are usually good at identifying people who can participate.

In summary, family registration permitted us to characterize the three areas:

<u>Area 1</u>	<u>Area 2</u>	<u>Area 3</u>	<u>Area 4</u>
<u>Trou Chou Chou</u>	<u>Grand Coave Region</u>	<u>Meilleur Region</u>	<u>"Control" Area</u>
Pop. 9,572	Pop. 10,343	Pop. 12,175	Cluster sample 10,000
Under- Six-year olds: 1900.	Under-six-year olds: 1900.	Under-six-year olds: 2,200.	Immunization ser- vice only.

DEPARTEMENT DE LA SANTE PUBLIQUE ET DE LA POPULATION
DIVISION D'ENQUETE FAMILIALE
PROJET INTERNE DE SANTE ET DE POPULATION



A - Commune de Petit-Goave
Population: 130.000

B - Commune de Grand-Goave
Population: 65.000

- 1 - Aire d'Action "Tren Chouchou"
Population: 9.672
comprenant toute la troisieme section rurale
et une partie de la deuxieme section rurale
- 2 - Aire d'Action "Grand-Goave" - Population: 10.343
comprenant la septieme section rurale ainsi
qu'une partie de la premiere section rurale
et tout le bourg de Grand-Goave
- 3 - Aire d'Action "Mollour" - Population: 12.175
comprenant la cinquieme section rurale et une
partie de la sixieme section rurale

Cluster sample population
10,000

Road-to-health wt/age cards were established for each pre-school child. In addition, a "fiche pediatrique"* were also established in the central office. These "fiches pediatriques" in a loose leaf notebook permitted analysis of findings at a central office. (Alternatively, a local dispensary could keep the "fiches pediatriques" zone by zone, so that these dossiers could go out with the team to a given zone). In this way, wt./ht. findings could be inscribed:

- 1) on the road-to-health wt/age card in the hands of the mother,
- 2) in a dossier kept for the child at a center.

Step two of the nutrition surveillance program, carried on concomitantly, was the formation of two types of community level workers:

- a voluntary community collaborator (usually a local farmer) for every village or two (about 100 families or 500 people were assigned to the voluntary collaborator),
- a resident home visitor (agent communautaire, or full-time resident-home-visitor) for every 400-500 families (about 2500 people).

These workers were trained according to the norms of the Division of Family Hygiene. In addition, they were given on-the-job field training and learned new skills through continued training. These skills included techniques of immunization, weighing and measuring children, counseling mothers in nutrition, and working with community leaders.

A system of supervision and a reporting form for supervising the two categories of workers was developed. ^{Home-visit record} Cards were left in each home to be signed by the workers when home visits occurred. These "cartes-de-visites-domiciliares"

*Division of Family Hygiene form for Child Health Surveillance.

served for a double-check system in indirect supervision. The supervisor could visit several homes at random to question the family and observe such records.

Next, the system of nutrition surveillance that could be carried out by the two basic levels of workers with a technical supporting team was explained and taught. This included the utilization of Road-to-Health wt/age cards that were to be placed in the hands of mothers or caretakers, and the central record system so that the amount of 1st, 2nd, and 3rd degree malnutrition could be ascertained for each sub-region within a defined population at regular intervals.

The concept of outreach in the form of a Community Health Team serving the population at quarterly health rallies was then introduced to both health professionals and to local community councils. Community collaborators and full-time workers counted on a quarterly visit from the roving technical supporting team. In the meantime, they understood responsibilities ^{follow families out to} to visit each household 1-2 weeks prior to the health rally to invite all residents to the "health rally day."

In time, it could be shown that quarterly health rallies greatly improved morale of the health workers and greatly increased the coverage of the population for immunization, prenatal care, and nutrition monitoring. Since ~~ral-~~lies occurred only once every three months, a local team could afford a few days to leave their dispensary or center to carry this out, rotating from area to area.

To restate their role, the "agent communautaires" in the Integrated Project of Health and Population, were full-time resident-home-visitors whose duties included door-to-door distribution of contraceptives; detection of malnutrition, ^{and} illness ^{with appropriate} and referral, investigation of vital events, and some simple treatments (for example, they were instructed in the importance of oral rehydration and in at least one area had small packets of electrolyte

powders which, when added to a liter of boiled water could be used to prevent dehydration in mild cases of gastro-enteritis). Each "agent communautaire" supervised four or five part-time voluntary community collaborators. Together, they weighed, followed and treated children who had been diagnosed as having third degree malnutrition or faltering weight-gain at the quarterly health rally. "Treatment" consisted of distribution of a supplement in the form of high-calorie milk plus nutrition education.

A kind of early warning system also emerged in the Integrated project. Simple information on rainfall, crops and crop pests was passed on in an informal way to the physicians in charge of the project. Thus, crop-failure could sometimes be remedied or a food shortage foreseen. The possibility for formalizing this system remains to be explored.

Rationale

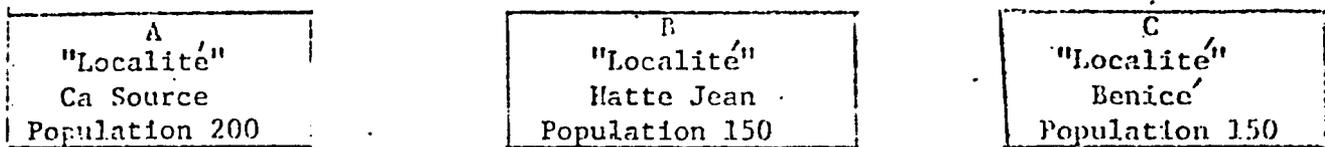
Children do not develop malnutrition "overnight". In the early stages community health workers can diagnose lack of weight gain, or even weight loss. This faltering growth should be a "red flag" in the nutrition surveillance program. In such a situation, the child's caretakers need education in order to prevent kwashiorkor. But this is not enough: in the Integrated Project, these were times when it was necessary to explain that "milk is medicine", even though a rare and precious commodity.

The anorexic child with early malnutrition can usually be coaxed to drink "special" milk* which is sweet, even though other food is being refused. Often she/he is recovering from another illness, such as a respiratory infection. Milk at this time proves to be just the boost such a child may need, at a time when heavier food is unappealing and his calorie needs are increased. Once a child begins to gain weight, the mother often proves capable of continuing the rehabilitation process.

*See page 2.

Resumé on the Nutrition Monitoring, Education and
Rehabilitation System for a Defined Population:*

Beginning with Three Hypothetical Localities (Combined Population 500)



Personnel:

- A. One part-time Community Collaborator for localities A, B, and C (population 500 or 100 families) who:
 - is chosen or elected by the community
 - does home visits for educational purposes
 - invites families to quarterly health rally
 - reports births, deaths, migrations, malnutrition and serious illness.

- B. Full-time Resident Home Visitor (Agent Sanitaire) (1:2500 population) recruited by health system who:
 - supervises 4 collaborators such as the one above
 - visits families most at risk when he visits the localities above
 - carries out simple treatments
 - distributes contraceptives, nutrition supplement or medications
 - organizes quarterly team, in collaboration with community councils and community leaders.

- C. Personnel for the Quarterly Health Rally (in a chosen village) from nearest hospital or dispensary:the above plus:
 - 1 professional*
 - 3-4 rural auxiliaries
 - 5-4 community volunteers

*Dr. Eddy Genece, now at Cape Haitian organized this team for the Integrated Project.

Dr. W. Dieudonné carried on nutrition and health surveillance and supervised the community level workers in all three regions: Trou Choucheu

The Basic Nutrition Package from the Family's Point of View

The Basic Nutrition Package, from the Haitian family's point of view included:

1. the services of a part-time neighbor, a ~~community collaborator~~ who was a member of the locality,
 2. the "agent communautaire", a full-time worker who visited the village at regular intervals with simple curative and preventive services, and
 3. a quarterly health rally very nearby which provided immunizations, deworming and nutrition monitoring.
 4. referral to a health center, ~~or~~ ^{or} nutrition center as needed.
- For pre-schoolers, a Road-to-Health wt/age card was kept by each family.

Children in second or third degree malnutrition, or children with faltering weight gain, would be prescribed a powdered milk supplement.* This supplement, distributed at the quarterly health rally, continued to be distributed every two weeks to the family through their neighborhood collaborators who collected at a distribution point where the child in question could be weighed. Education about how to reconstitute the powdered milk supplement with water was carried out at the quarterly health rallies, and in the homes of collaborators.

How Nutrition Surveillance Worked

When the roving team returned from its health and nutrition surveillance rounds, the weights found on the children surveyed were summarized and compiled by first, second, and third degree malnutrition. (This compilation was very well done by an auxiliary nutritionist.) Findings from each of the rally

*Powdered dry skim milk, reinforced with sugar and vegetable oil in proportions of 4:1:1 was mixed dry and placed in plastic sacks of 1.2 k each. When reconstituted with water, this provides a supplement of about 400 calories and 20 grams of protein per day for a two week period.

stations were set forth in such a way that one could determine.

- . the proportion of children examined by sub-zone
- . the proportion suffering second or third degree malnutrition
- . the area most in need of a special program in nutrition.

When an area proved to be in special need (for example, an area with more than 5% of children in third degree malnutrition), the possibility of establishing a "center" for a "foyer-de-demonstration" was considered.

Annex III

RECOMMENDATIONS OF NATIONAL
NUTRITION CONFERENCE CONCERNING
NUTRITIONAL SURVEILLANCE, 1979

S E A N C E No. 3

Surveillance Alimentaire et Nutritionnelle

- Objectifs
- a) décrire les Objectifs du programme de surveillance nutritionnelle pour Haiti
 - b) identifier les composants d'un programme de surveillance nutritionnelle pour Haiti
 - c) définir l'encadrement technique nécessaire pour formuler, réaliser et évaluer un programme de surveillance nutritionnelle
 - d) déterminer l'assistance requise pour la mise en application d'un programme de surveillance nutritionnelle pour Haiti

Présidents Agr. René Dorville, Dr. Michaèle Amédée

Rapporteur Melle. Marie José Castera

Définition: "Système d'activités conjointes qui permettent une connaissance appropriée, opportune, permanente de la situation alimentaire et nutritionnelle des populations au moyen de la collecte, l'analyse et la diffusion de l'information et d'agir immédiatement".

Objectif A: Décrire les Objectifs du programme de surveillance Alimentaire et Nutritionnelle

Objectif Général: Fournir de façon permanente des informations sur la situation alimentaire et nutritionnelle de la population aux fins de planification et d'intervention

Objectifs spécifiques:

- 1) Renseigner sur l'état nutritionnel de la population et particulièrement des groupes vulnérables
- 2) Analyser par région l'évolution des causes et des facteurs conditionnant l'état nutritionnel (facteurs écologiques, demande, production, conservation, commercialisation, utilisation biologique, consommation des aliments)
- 3) Prévoir la tendance de la situation alimentaire et nutritionnelle dans les différentes régions du pays.
- 4) Porter les organismes intéressés à Prendre des décisions en vue de faire face à une situation chronique et à des situations exceptionnelles.
- 5) Contribuer à l'évaluation des programmes d'alimentation et de nutrition

Objectif B: Identifier les composantes d'un programme de surveillance Alimentaire et Nutritionnelle pour Haiti.

Composantes

Fréquence de récollection

B 1- Production alimentaire:

- Conditions atmosphériques : mensuelle
- Attaques de rongeurs d'insectes : mensuelle
- Estimation de la récolte : trimestrielle
- Irrigation : annuelle
- Elevage : annuelle
- Pluviométrie : mensuelle
- Types de culture : trimestrielle
- Conditions pédologiques : annuelle

B 2- Transport et Commercialisation:

- Voies de communication : trimestrielle
- Moyens de communication : trimestrielle
- prix des aliments : mensuelle

B 3- Consommation:

- revenu :
- produits consommés (types) : cf: enquêtes Daniens
- disponibilités :

Composantes

Fréquence de recollection

B 4- Etat Nutritionnel et Utilisation Biologique:

- Estimation de la population par groupe : annuelle
- Estimation de la population par état physiologique : annuelle
- Couverture sanitaire : annuelle
- Sanitation : annuelle
- Taux de mortalité et de morbidité infantile : trimestrielle
- anthropométrie : trimestrielle
- indicateurs cliniques : trimestrielle

Objectif C: Définir l'Encadrement technique nécessaire pour formuler, réaliser et évaluer un programme de surveillance alimentaire et nutritionnelle

C 1- Devront participer à la formulation:

La DIFPA (Division de formulation de Politique d'alimentation et de nutrition.

Le DARNDR

Le Bureau de Nutrition du BSPP

C 2- Participeront à l'exécution:

<u>Niveau</u>	<u>DARNDR</u>	<u>BSPP</u>
Central		- recollection des données - synthèse des décisions - transmission
Régional		- analyse des données - recommandations - transmission des données dans les deux sens

<u>niveau</u>	<u>DARUDR</u>	<u>DSPP</u>
Communautaire	Collecte des données par: agents agricoles statisticiens agricoles transmission vers le haut	Collecte des données par: -agents de santé leaders communautaires transmission vers le haut

N.B. On doit prévoir la formation de personnel.

C 3- Evaluation

- la structure qui a formulé fera l'évaluation de l'impact, de la marche du programme et de sa couverture
- l'évaluation de l'impact sera semestrielle et celle de la marche du programme et de sa couverture se fera à partir des supervisions.

D- Déterminer l'assistance requise pour la mise en application d'un programme de surveillance alimentaire et nutritionnelle pour Haïti.

D 1- Ressources Matérielles:

- formulaires
- balances
- pluviomètres
- transport
- matériel de bureau

D 2- Ressources financières

- nationales et autres

D 3- Ressources Humaines Ref: point C 2.

Conclusion.- Un système de surveillance alimentaire et nutritionnel se justifie en Haïti. Les structures pour sa formulation, son exécution et son évaluation ont été suggérées ainsi que l'assistance requise. L'application de ce programme ren-

forcera la collaboration entre les départements concernés en vue d'une réelle amélioration de l'état nutritionnel de la population Haitienne.

Annex IV

**CHARTER OF DIFPAN
CREATION AND SCOPE
OF MANDATED ACTIVITIES**

ACCORD ENTRE LE CONSEIL NATIONAL DE DEVELOPPEMENT ET DE PLANIFICATION (CONADEP) ET LE PROJET INTERAGENCE DE PROMOTION DE POLITIQUES NATIONALES D'ALIMENTATION ET DE NUTRITION (PIA/PNAN) RELATIF AU RENFORCEMENT ORGANISATIONNEL DU BUREAU NATIONAL DE FORMULATION DE POLITIQUE D'ALIMENTATION ET DE NUTRITION (BUNAFPAN).

CONSIDERANT QUE:

- 1.- La situation alimentaire et nutritionnelle alarmante de la population haïtienne constitue un problème complexe provoqué en grande mesure par les conditions existantes dans le pays en matière d'offre, de demande et d'utilisation biologique des aliments.
- 2.- L'importance primordiale accordée par le Président à Vie de la République d'Haïti, Son Excellence Monsieur Jean-Claude DUVALIER, à l'augmentation de la production, à la fourniture d'aliments en quantité suffisante et à l'amélioration de l'état nutritionnel de la population, a servi d'orientation dans la définition de certaines priorités figurant au Plan National de Développement 1975/1981.
- 3.- Le Conseil National de Développement et de Planification (CONADEP) a désigné le BUNAFPAN, actuel organe multisectoriel de coordination d'activités en nutrition menées par des secteurs principalement avec l'appui de L'UNICEF, comme la structure au sein de laquelle devraient être préparées des propositions de politique nationale d'alimentation et de nutrition.

- 4.- Le PIA/PNAN a été créé pour aider, dans la région, chaque gouvernement qui le désire à formuler une politique nationale d'alimentation et de nutrition.

Le CONADEP, Conseil National de Développement et de Planification, ci-après dénommé "LE CONADEP" et le Projet Interagence de Promotion de Politiques Nationales d'Alimentation et de Nutrition, ci-dessus dénommé "LE PIA/PNAN

SONT CONVENUS DE CE QUI SUIT:

ARTICLE 1er.-

La Coopération que fournira le PIA/PNAN au CONADEP prendra les formes suivantes:

- a) Aide à la création et à la mise en marche d'une Division de formulation de Politique d'Alimentation et de Nutrition dénommée DIFPAN au sein du BUNAFPAN en participant à la sélection et à l'entraînement du personnel, à l'organisation interne de cette structure et à la préparation du programme de travail devant permettre la formulation d'une politique nationale d'alimentation et de nutrition.
- b) Appui financier et assistance technique pour permettre à la DIFPAN de s'acquitter des fonctions qui lui sont assignées.
- c) Identification des sources possibles de financement externe de programmes et de projets en matière d'alimentation et de nutrition et assistance technique pour préparer les dossiers de requête de crédit pour les projets

découlant de la politique d'alimentation et de nutrition à présenter auprès des organismes internationaux.

ARTICLE 2.-

La PIA/PWAN s'engage à aider le personnel de la DIFPAN à exécuter les grandes lignes suivantes de plan d'action :

- a) Organisation en mai 1977 d'un séminaire de quinze jours pour environ vingt cinq participants.
- b) Diagnostic de la situation alimentaire et nutritionnelle en vue de savoir ce qui se passe, de disposer d'un cadre conceptuel, de dégager les grandes lignes d'orientation politique et d'identifier les possibles points d'action.
- c) Formulation de programmes et de projets spécifiques en matière d'alimentation et de nutrition en distinguant notamment :
 - Les projets qui seront directement pris en charge par le Gouvernement.
 - Les projets qui pourraient être pris en charge par les agences multilatérales et bilatérales de coopération.
 - Les projets qui devront être soumis à la considération des organismes internationaux de financement.
- d) Implantation des structures organisationnelles nécessaires à la mise en marche des programmes et des projets adoptés.

- e) Etude et recommandation au CONADEP de la façon la plus appropriée pour lui de prendre en charge sur une base permanente les activités de :
- surveillance et évaluation de l'application de la politique d'alimentation et de nutrition.
 - reformulation et adaptation constante de la politique d'alimentation et de nutrition.
- f) Mise sur pied au sein du CONADEP de la structure organisationnelle adoptée avec l'incorporation définitive du personnel technique national de la DIFPAN qui a été chargé des travaux antérieurement énumérés.
- g) Etudes pour l'implantation d'un système national de surveillance alimentaire et nutritionnel capable de couvrir par des organes appropriés les aspects suivants:
- collecte d'informations;
 - analyse des données;
 - diffusion d'information sur la production, la commercialisation, la consommation d'aliments et l'état nutritionnel de la population en identifiant les changements survenus, les causes des changements et les tendances;
 - prédiction des variations futures;
 - recommandation opportune des actions préventives et des mesures de redressement indispensables selon le cas.

ARTICLE 3.-

Le PIA/RVAN dans le cadre du présent accord allant du 1er mai

1977 au 31 décembre 1977 s'engage à :

- a) Contribuer pour un montant de 20.000 gourdes ou 4.000 dollars américains à la réalisation en mai 1977 du séminaire sur la politique d'alimentation et de nutrition.
- b) Prendre à sa charge pendant 1977 la rémunération jusqu'à concurrence de 95.000 gourdes ou 19.000 dollars américains des cinq (5) spécialistes et de la secrétaire de la DIFPAN.
- c) Apporter les contributions financières suivantes :
 - 27.500 gourdes ou 5.500 dollars pour l'équipement du bureau,
 - 4.000 gourdes ou 800 dollars pour le matériel de travail
 - 5.000 gourdes ou 1.000 dollars pour les frais de publication technique,
 - 11.000 gourdes ou 2.200 dollars pour les imprévus.
- d) Donner une assistance technique à la DIFPAN par l'intermédiaire d'un conseiller international et par des visites périodiques du personnel technique permanent du PIA/PVAN.

ARTICLE 4.-

Le Conseil National de Développement et de Planification (CONADEP) s'engage à :

- a) Créer au sein du BUNAFPAN une Division de Formulation de Politique d'Alimentation et de Nutrition et lui donner le support institutionnel nécessaire pour son bon fonctionnement.

- b) Prévoir les disponibilités budgétaires nécessaires pour effectuer les dépenses entraînées par le fonctionnement de la DIFPAN qui n'ont pas été prévues dans les engagements du PIA/PNAN.

- c) Mettre à la disposition du personnel de la DIFPAN un des véhicules en utilisation au niveau du BUNAFPAN ainsi que les services d'un chauffeur et du carburant. Le même véhicule pourra être utilisé par le consultant du PIA/PNAN en dehors des heures de travail.

- d) Garantir la continuité institutionnelle de la DIFPAN à la fin de ce présent accord en incorporant de façon permanente la fonction de formulation de politique d'alimentation et de nutrition et le personnel technique de la DIFPAN dans une structure appropriée au niveau du CONADEP.

- e) Intégrer les programmes et projets en matière d'alimentation et de nutrition dans les plans de développement et les budgets de développement tout en renforçant la capacité institutionnelle des secteurs appelés à les exécuter.

ARTICLE 5.-

L'organisation interne de la DIFPAN ainsi que ses attributions et les fonctions du personnel sont détaillées à l'annexe I qui constitue une partie intégrante du présent accord.

DISPOSITIONS GÉNÉRALES

ARTICLE 6.-

Il est entendu que les montants signalés au paragraphe b de l'article 3 pour la rémunération du personnel et qui sont désagrégés à l'annexe I du présent accord, incluent le mois additionnel de salaires et les vacances que paie normalement l'Administration Publique haïtienne.

Le personnel national de la DIFPAN sera engagé directement par le BUNAFPAN en accord avec le CONADEP et le PIA/PNAN.

Ni le PIA/PNAN, ni aucune des organisations des Nations Unies qui le patronnent n'assume de responsabilité de travail ou de contrat avec le personnel national de la DIFPAN.

ARTICLE 7.-

Les fonds apportés par le PIA/PNAN seront déposés par l'UNICEF au compte bancaire spécial du BUNAFPAN et seront destinés spécifiquement et exclusivement, au paiement des dépenses de la DIFPAN. Pour tirer des fonds de ce compte, il faut les signatures prévues par le CONADEP pour la gestion des projets de développement. Le consultant du PIA/PNAN résidant en Haïti donnera son visa uniquement au niveau des premières pièces justificatives délivrées par les fournisseurs.

Pour commencer, le Bureau du Représentant de l'UNICEF à la Jamaïque déposera au compte courant sus-dit du BUNAFPAN la somme de douze mille dollars (\$ 12.000,00). Chaque deux mois

on fera au même bureau de l'UNICEF le rapport du compte avec les pièces justificatives des dépenses effectuées. L'UNICEF fera un nouveau dépôt pour la valeur dépensée et approuvée et en tenant compte du programme de travail et du budget déjà accordé pour la DIFPAN.

ARTICLE 8.-

Bien que l'article 2 du présent accord parle du travail à faire par la DIFPAN de mai 1977 à la fin de 1979 d'après un programme accordé avec le PIA/PNAN, les engagements pris par le PIA/PNAN ne couvrent pour l'instant que l'année 1977. Pour les années 1978 et 1979 le PIA/PNAN et le CONADEP s'entendront pour étendre les engagements respectifs suivant les disponibilités budgétaires et technique du PIA/PNAN à l'achèvement du présent accord.

ARTICLE 9.-

Cet accord entrera en vigueur le 1er mai 1977 pour prendre fin le 31 décembre 1977.

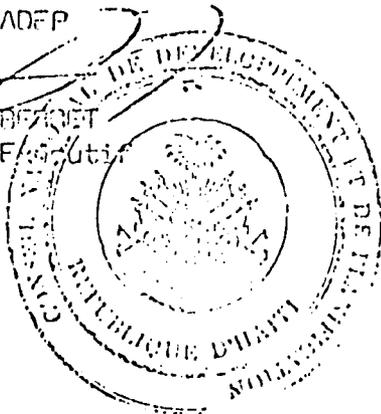
Il pourra être modifié et renouvelé ou annulé par communication écrite entre les Parties avec trente (30) jours d'anticipation.

EN FOI DE QUOI

Les soussignés, dûment autorisés pour le faire, souscrivent le présent Accord en deux originaux en langue française à Port-au-Prince, HAITI, le 4 Mai 1977

Pour le CONADEP

Dr. RAOUL DEFRÈRE
Secrétaire Exécutif
du CONADEP



Pour le Projet Interagence
de Promotion de Politiques
Nationales d'Alimentation
et de Nutrition

JAVIER TORO OCHOA
Coordonnateur Général

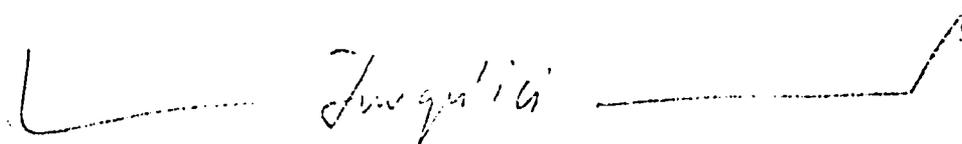
A. M. M. H. H.

ORGANISATION INTERNE DE LA DIVISION DE FORMULATION DE POLITIQUE
D'ALIMENTATION ET DE NUTRITION DU BUNAFRAN ET FONCTIONS DU PERSONNEL.

I - ORGANISATION INTERNE

- 1.- Dans le but d'atteindre les objectifs énoncés à l'article 2 du présent Accord et d'exécuter les engagements indentifiés à l'article 4, paragraphe (a) de ce même Accord, Le Conseil National de Développement et de Planification (CONADEP), dotera le BUNAFRAN d'une Division de Politique d'Alimentation et de Nutrition, ci-après dénommée DIFPAN, dont les attributions seront les suivantes:
- a) Diagnostiquer de la façon la plus complète possible la situation alimentaire et nutritionnelle de la population du Pays dans son ensemble et dans les différentes régions, en identifiant les causes dans les domaines médico-sanitaire, de consommation, de distribution finale, de population, de revenus, d'éducation, de commercialisation et d'agro-industrie et aussi en dégagant l'influence des conditions socio-culturelles et du commerce international d'aliments.
 - b) Examiner les politiques, programmes et projets en cours relatifs à l'offre, la demande et l'utilisation biologique des aliments et recommander les changements éventuellement nécessaires.
 - c) Faire des projections de demande et d'offre futures d'aliments suivant les prévisions de population et de revenus et estimer les besoins dans les domaines médico-sanitaire, d'éducation et d'orientation nutritionnelles.

- d) Faire des propositions de Politique Nationale d'Alimentation et de Nutrition aux instances compétentes, suggère les actions prioritaires à entreprendre immédiatement en faveur des groupes les plus vulnérables et recommander les orientations politiques cohérentes à moyen et à long terme, qui serviront de cadre de référence aux différents secteurs engagés dans l'alimentation et la nutrition.
- e) Elaborer, en étroite relation avec les secteurs correspondants, un Plan National d'Alimentation et de Nutrition, en déterminant les actions prioritaires, en préparant les programmes et projets spécifiques dans la ligne de la Politique d'Alimentation et de Nutrition, en dégagant les besoins en ressources humaines et financières et en indiquant de façon explicite les études de base complémentaires, les politiques spécifiques, les mesures et les changements institutionnels indispensables à l'exécution du Plan d'Alimentation et de Nutrition.
- f) Prévoir les mécanismes institutionnels et structurels nécessaires pour assurer l'administration et la coordination de l'exécution des programmes et projets du Plan d'Alimentation et de Nutrition et recommander le système permanent d'information, de supervision, de contrôle, d'évaluation et de reformulation des plans d'alimentation et de nutrition.
- g) Identifier à l'adresse du CONADEP et des secteurs concernés les besoins de financement externe pour l'exécution des programmes et des projets du Plan National d'Alimentation et de Nutrition.
- h) Publier les travaux réalisés, une fois qu'ils seront approuvés par le Gouvernement, par l'intermédiaire du CONADEP.

A handwritten signature in black ink, appearing to read 'Juequ'ia', is written over a horizontal line that has a small upward-pointing arrow at its right end.

2. La DIFPAN placée sous la direction d'un professionnel national fonctionnant à plein temps, selon l'horaire en usage au DUNAPPAN, comprend le personnel suivant :

Un Directeur;

Un Spécialiste en production, transformation et commercialisation d'aliments, fonctionnant à plein temps;

Un Spécialiste en formulation de programmes et de projets spécifiques, fonctionnant à plein temps;

Un Spécialiste en éducation, fonctionnant à plein temps;

Un Spécialiste en Santé Publique et en Nutrition, fonctionnant à temps partiel;

Une Secrétaire fonctionnant à plein temps.

II - PROFIL DU PERSONNEL DE LA DIFPAN

Dans la mesure du possible, on veillera à trouver au recrutement les profils suivants par poste :

Directeur de la DIFPAN

Le Directeur de la DIFPAN devra être un économiste général ou économiste agricole, avec formation et expérience en Planification du Développement Economique. Il devra avoir une bonne connaissance de la situation économique, sociale et institutionnelle du Pays et de l'orientation et de la stratégie du Plan de Développement 1976-1981. Il devra posséder des qualités de leader, une capacité d'organisation et de direction et aussi une expérience de travail en équipe et d'accès aux niveaux politiques et techniques des secteurs concernés par le travail de la DIFPAN.

Spécialiste en Production

Le Spécialiste en production, transformation et commercialisation d'aliments devra avoir une formation économique et des connaissances et de l'expé-

rience en Planification Agricole, en formulation de politique agricole et en programmation. Il devra posséder une connaissance assez large des problèmes de l'Agriculture et de l'Elevage dans le Pays, des potentialités du secteur et des expériences du Pays en matière agricole.

Au cas où le Directeur choisi pour la DIFPAN est un Spécialiste de l'Agriculture, le poste de spécialiste en production devra se transformer en un poste d'économie générale à être pourvu par un professionnel économiste de formation ayant une bonne connaissance de la situation économique du Pays et du Plan National de Développement 1976-1981.

Spécialiste en formulation et évaluation de projets

Le Spécialiste en formulation et évaluation de programmes et projets spécifiques devra avoir une bonne formation et de l'expérience dans ce domaine et posséder des connaissances économiques.

Spécialiste en Education

Le Spécialiste en Education devra être un professionnel bien imbu de la réalité sociale et éducationnelle de la population du Pays et au courant des valeurs, coutumes et habitudes alimentaires des populations des régions du Pays. Il devra avoir une bonne expérience en planification et programmation de l'Education et aussi en Education au niveau des communautés.

Spécialiste en Santé Publique

Le Spécialiste en Santé Publique et en Nutrition appelé à travailler à temps partiel devra être un médecin nutritionniste ou pédiatre consacré à la nutrition, possédant une bonne expérience en la matière. Il devra connaître la situation nutritionnelle du Pays, les institutions qui interviennent dans ce domaine et les programmes en cours dans le Pays.

III - FONCTION DU PERSONNEL

1. Le Directeur de la DIFPAN aura les fonctions suivantes :

- a) Etablir le programme de base de travail de la DIFPAN en accord avec la coordination générale du PIA/PNAN et selon les orientations des autorités du BUNAFPAN et du CONADEP.
 - b) Mener à bonne fin le travail programmé pour la DIFPAN selon les séquences d'activités établies en conformité avec les attributions de la Division.
 - c) Diriger, coordonner et contrôler le travail des différents spécialistes de la DIFPAN dans le cadre du plan d'action et du programme de travail.
 - d) Répondre auprès des autorités du BUNAFPAN de l'accomplissement des attributions de la DIFPAN et présenter des rapports mensuels d'activités au Coordonnateur National du BUNAFPAN, aux fins de recevoir les directives du Comité de Coordination.
 - e) Assurer l'utilisation adéquate des ressources fournies par le PIA/PNAN dans le cadre de cet Accord en émettant les premières réquisitions à partir de la DIFPAN et veiller à la conservation du matériel et de l'équipement fournis par le PIA/PNAN.
 - f) Etablir les contacts techniques et institutionnels nécessaires au bon accomplissement des fonctions de la DIFPAN.
 - g) Assumer toute autre fonction technique et administrative qui lui serait formellement assignée par le Coordonnateur National du BUNAFPAN.
2. Les Spécialistes de la DIFPAN auront les fonctions spécifiques suivantes :
- a) Participer au Séminaire prévu dans l'Accord.
 - b) Collecter toutes les informations indispensables à l'accomplissement des grandes lignes du Plan d'Action figurant à l'article 2 du présent Accord, en s'adressant aux différents secteurs et Organismes concernés.

- c) Maintenir un contact étroit de travail avec les niveaux techniques de leur secteur respectif.
- d) Suivre les orientations et les directives du Directeur de la DIFPAN, appliquer les méthodologies définies par l'assistance technique du FIA/PNAN et exécuter le programme de travail de la DIFPAN, en ce qui le concerne selon le calendrier pré-établi.
- e) Assurer les fonctions découlant des attributions de la DIFPAN, chacun en ce qui le concerne.
- f) Présenter des rapports mensuels d'évaluation de l'état d'avancement des travaux à l'adresse du Directeur de la DIFPAN.

IV - REMUNERATION DU PERSONNEL

La rémunération du Personnel durant la période allant du 1er Mai au 31 Décembre 1977, se fera comme indiqué au tableau suivant :

Catégories de Personnel	Appointements mensuels en dollars	Total pour les 8 mois en dollars
Directeur DIFPAN, à temps complet	550	4.400
Spécialiste en production ou Economiste général, à temps complet	425	3.400
Spécialiste en formulation de projets, à temps complet	425	3.400
Spécialiste en Education, à temps complet	425	3.400
Médecin spécialisé en Nutrition, à temps partiel	300	2.400
Secrétaire, à temps complet	<u>250</u>	<u>2.000</u>
<u>TOTAL</u>	<u>2.375</u>	<u>19.000</u>

Annex V

HABICHT PROTOCOL FOR STANDARDIZATION

TO BE USED IN PROJECT TRAINING

Procedure for Measurement Standardization (1)

1. Introduction

The standardization procedure outlined evaluates the ability of each survey team to provide quality measurements. The procedure quantitates team accuracy and reproducibility through a system of inter team and intra team comparisons respectively. At high levels of accuracy and reproducibility the proportion of survey error attributable to measurement error becomes minimal.

The composition of each survey team should be closely comparable, the individuals in a team should be assigned selected measurement responsibilities for the duration of the survey, and intensive training and practice in measuring children should precede any attempt at standardization. The adoption of such a systematic procedure is strongly emphasized. Close supervision during these phases identifies and corrects individual team procedural errors.

The standardization procedure evaluates the results of training and practice and identifies those teams whose measurements are unprecise and/or inaccurate. Furthermore, the results of standardization testing provide team insight into the real difficulties of obtaining good measurements and the need for consistently good techniques. Supervisors provide further training for the identified teams aimed at improving the quality of measurements. A second standardization procedure evaluates team improvement. During the field phase (data collecting phase) repeat standardizations are used to evaluate ongoing measurement quality.

Outline of Standardization Procedure

A. Performance of Measurements

The procedure calls for duplicate but independent measurements of each of ten subjects by each of ten examining teams. (Ten teams and subjects are used in this example. Eight teams and eight subjects, et cetera, are acceptable.)

1. Personnel Requirements

- a. Ten 2-man examining teams labelled A-J, (A); (B); (C); (D); (E); (F); (G); (H); (I); (J).
- b. Ten subjects labelled 1-10 to be measured by each examining

team twice.

2. Materials Needed

- a. Ten sets of measuring devices.
- b. Individual Examining Team Recording Forms
(Appendix A, pp. 1-8)

3. Procedure (See Diagram)

The procedure is divided into Cycle a (a_1 and a_2) and Cycle b (b_1 and b_2) to permit duplicate measurements of each subject by each examining team.

Team Improvement. During the field phase (data collecting phase) repeat standardizations of a less formalized nature are used to evaluate ongoing measurement quality.

Outline of Standardization Procedure

A. Performance of Measurements:

The procedure calls for duplicate but independent measurements of each of ten subjects by each of ten examining teams. (Ten teams and subjects are used in this example. Eight teams and eight subjects, et cetera, are acceptable.)

1. Personnel Requirements

- a. Ten 2-man examining teams labelled A-J, (A); (B); (C); (D); (E); (F); (G); (H); (I); (J).
- b. Ten subjects labelled 1-10 to be measured by each examining team twice.

2. Materials Needed

- a. Ten sets of measuring devices.
- b. Individual Examining Team Recording Forms (Appendix A, pp. 1-6)

3. Procedure (See Diagram)

The procedure is divided into Cycle a (a_1 and a_2) and Cycle b (b_1 and b_2) to permit duplicate measurements of each subject by each examining team.

a. Cycle a (a_1 and a_2)

(1). Cycle a (a_1)

(a). Each examining team, A-I, receives his labelled recording strip cut from the Individual Examining Team Recording Form.

(b). Stations for teams and measuring equipment are allocated.

(c). Subjects 1-5 are sent to examiner teams (A-E); subjects 6-10 are sent to examiner teams (F-J).

(d). All measuring is done by one designated team member; all recording is done by one designated team member.

(e). Teams A-E perform the measurements on each of Subjects 1-5 with the measurer positioning the Subject and the recorder recording the measurement on the appropriate strips of their Individual Examining Team Recording Form.

likewise, for Cycle a (a_1), teams (F-J) measure each of Subjects 6-10.

(f). When Cycle a (a_1) measurements on Subjects 1-5 are completed by all examiner teams A thru E, the strips are given to the instructor.

(2). Cycle a (a_1)

(a). The Subjects 1-5 are then made available for Cycle a (a_1) measurements by examiner teams F thru J. Likewise Subjects 6-10 are then measured by examiner teams A thru E to complete Cycle a (a_2).

(b). At the completion of Cycle a (a_2) the remaining strips of Individual Examining Team Recording Forms are collected from each team instructor.

b. Cycle b (b_1 and b_2)

In Cycle b (b_1 and b_2) the same sequences for teams and subjects is followed as in Cycle a (a_1 and a_2) as indicated on the Individual Examining Team Recording Form strips given them for Cycle b (b_1 and b_2).

B. Recording of Results by the Instructor

1. Procedures for completing Work Sheet 1a and 1b

a. The data from the individual examining teams for the two cycles a and b for each subject are transcribed to the appropriate columns of Worksheet 1a and 1b.

b. Calculations and Entries

(1). For each examining team, Cycle b values (b) are subtracted from Cycle a values (a) for each subject to give within-observer difference " d ".

$$a-b=d$$

The sign of the equation is preserved.

(2). For each remaining team, Cycle a and Cycle b values are added for each subject to give "s".

ations

(3). All measurements for each child are listed. The instructor eliminates the team measurements on a child if an obvious error such as a transposition of numbers or a-b difference of greater than 10 units exists. The instructor sums the "s" (ab) values for the remaining teams and divides by the number of remaining teams to obtain the average "s" value. This value is considered "truth" for further calculations and is denoted by "S".

(4). D is the difference between the sum of the two measurements obtained on a child by a team and the calculated mean, or true measurements, S, for that child.

(r-S-D)

2. Use of "d" and "D" values of Worksheets 1a and 1b

a. d values are used in devising estimates of precision.

(within team variation).

b. D values are used in devising estimates of accuracy

(between team variation).

c. d^2 and D^2 values express the sensitivity of estimates of precision and accuracy, respectively. These values can be

calculated from the worksheets 1a and 1b or approximated from the right side values on the grid scale of these sheets when d and D values are plotted on the Worksheets 2a and 2b.

3. Procedures for completed Worksheet 2a

Within-team differences-precision (reproducibility)

For each examining team, the calculated d values for each of the ten subjects are plotted (within the appropriate column) as subject numbers marked on the appropriate grid lines according to the scale to the left of the grid. The d^2 value is read from the scale to the right of the grid.

4. Procedures for completing Worksheet 2b

Between-team differences-accuracy

For each examining team, the calculated D values for each of the ten subjects are plotted within the appropriate column and identified by subject number on the appropriate grid lines according to the scale to the left of the grid.

D values of plus or minus one or two are recorded as zero on the grid line noted as (0-2). The D^2 value is read from the scale to the right of the area.

Extremes of greater than 4 or -15 for d and D cannot be recorded on the grid of worksheets a and b. The extreme d and D values and their squared values are recorded in the space provided beyond line 4 or -15.

5. Interpretation of Worksheets 2a and 2b

- a. The grid display of data for individual teams allows the instructor to quickly recognize extreme d and D values requiring explanation.
- b. Large d values suggest carelessness or failure in precision of the team or some major change in the subject related to poor positioning or poor respiration.
- c. D and D^2 values around the calculated mean measurement for the subject as mean. D values differing greatly from the calculated measurement suggests a flaw in accuracy.
- d. Display of d and D values of all teams quickly identifies teams requiring further instruction in reading measurements and the subject number quickly identifies subjects who have been particularly difficult to measure by several or all of the teams.
- e. The summation of d^2 and D^2 values for all subjects for each team identifies the teams with an overall tendency to performing inaccurate and/or imprecise measurement. The lower the summed value of d^2 for a team the better its precision. Likewise, the lower the summed value of D^2 for a team the better its accuracy. Teams with high summed values of d^2 and/or D^2 (i.e. increased imprecision and/or inaccuracy of measurements) receive further training and practice in measuring. Then, the standardization procedure

is repeated to provide for the reevaluation of each team. This evaluation identifies teams requiring further training or replacement.

f. The tabulating of signs of d and D.

For any one team, a fraction is devised consisting of a denominator equal to the total number of subjects measured (not including subjects with values between 0 and $\frac{1}{2}$), a numerator equal to the subtotal (+ or -) which is the larger of the two, and the sign of this subtotal.

(3). Interpretation of signs of d and D values.

(a). d Values

The closer a positive fraction is to unity, the stronger the suggestion that a team tends to read smaller on its second set of measurements.

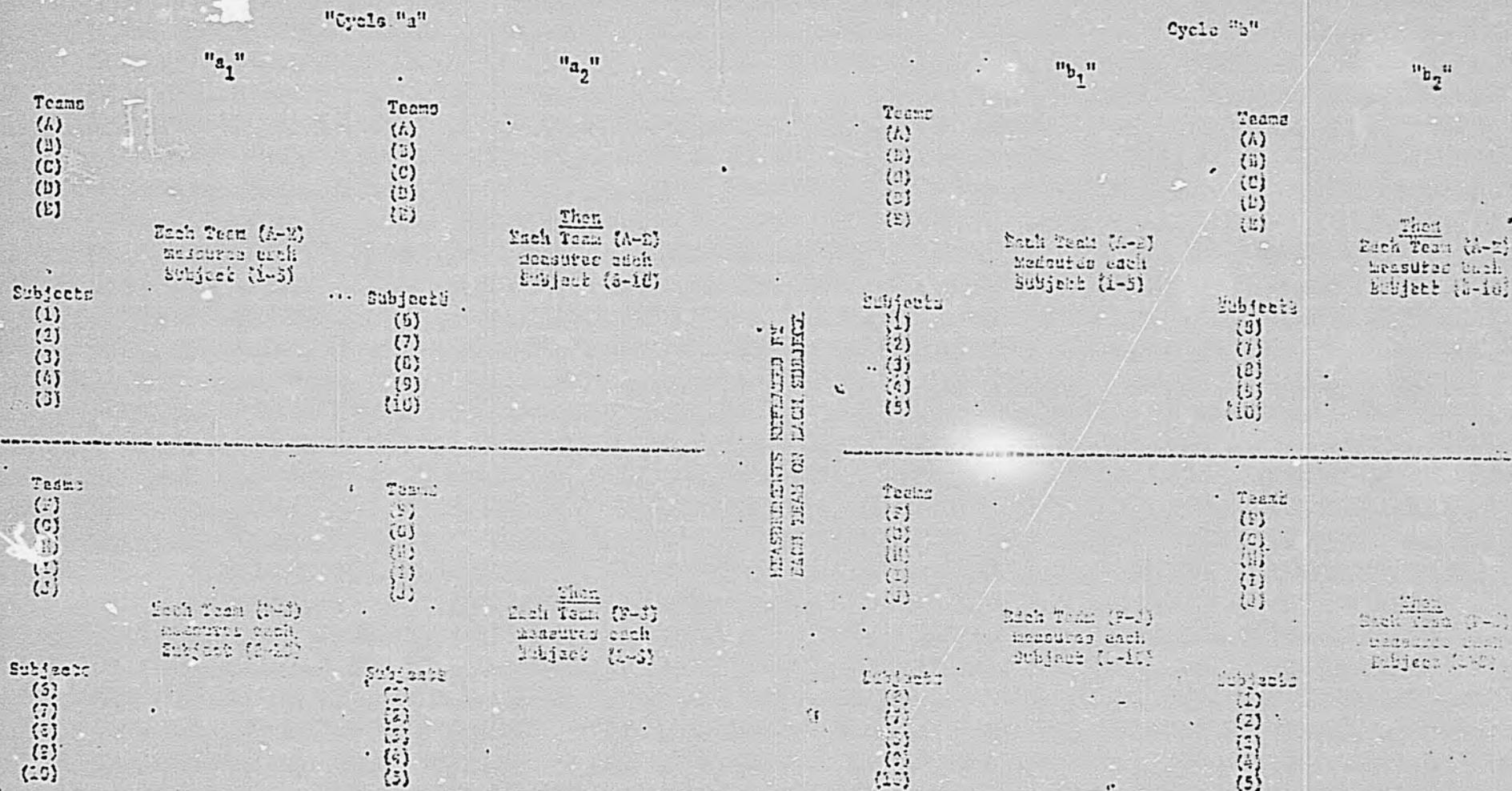
The closer a negative fraction is to negative unity, the stronger the suggestion that a team tends to read larger on its second set of measurements.

(b). D Values

The closer a positive fraction is to unity, the stronger the suggestion that a team tends to read larger than the group mean.

The closer a negative fraction is to negative unity, the stronger the suggestion that a team tends to read smaller than the group mean.

DIAGRAM OF STANDARDIZATION OF MEASUREMENTS
PROCEDURE



MEASUREMENTS REPEATED BY
EACH TEAM ON EACH SUBJECT

INDIVIDUAL TEST RECORDING FORM

TEAM A (cycle no.)	TEAM B (cycle no.)	TEAM C (cycle no.)	TEAM D (cycle no.)	TEAM E (cycle no.)
SUBJECT 1 _____				
SUBJECT 2 _____				
SUBJECT 3 _____				
SUBJECT 4 _____				
SUBJECT 5 _____				

STANDARDIZATION OF BOARD OF SUPERVISORS
INTER-EXAMINER DIFFERENCES; ACCURACY (D & D²)

	INDEX A B C D E F G H I J										D ²
15											225
14											196
13											169
12											144
11											121
10											100
9											81
8											64
7											49
6											36
5											25
4											16
3											9
2											4
1											1
0											0
1											1
2											4
3											9
4											16
5											25
6											36
7											49
8											64
9											81
10											100
11											121
12											144
13											169
14											196
15											225

D²

Annex VI

NORTHERN DEPARTMENT HEALTH DATA

NORTHERN DEPARTMENT

Malnutrition Reporting

January-May 1979

	<u>JAN</u>	<u>FEB.</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>TOTAL</u>
New Pediatrics	4308	3695	3457	2576	5123	19,159
Return Pediatrics	3371	3894	4356	2936	5101	19,658
TOTALS	7679	7589	7813	5512	10224	38,817

Malnutrition

1st Degree	564	451	1001	504	858	3,378
2nd Degree	388	389	763	478	369	2,387
3rd Degree	-	206	409	225	342	1,182
TOTALS	952	1046	2173	1207	1569	6,947

NUMBER OF DISPENSARIES
REPORTING

15	15	18	12	11
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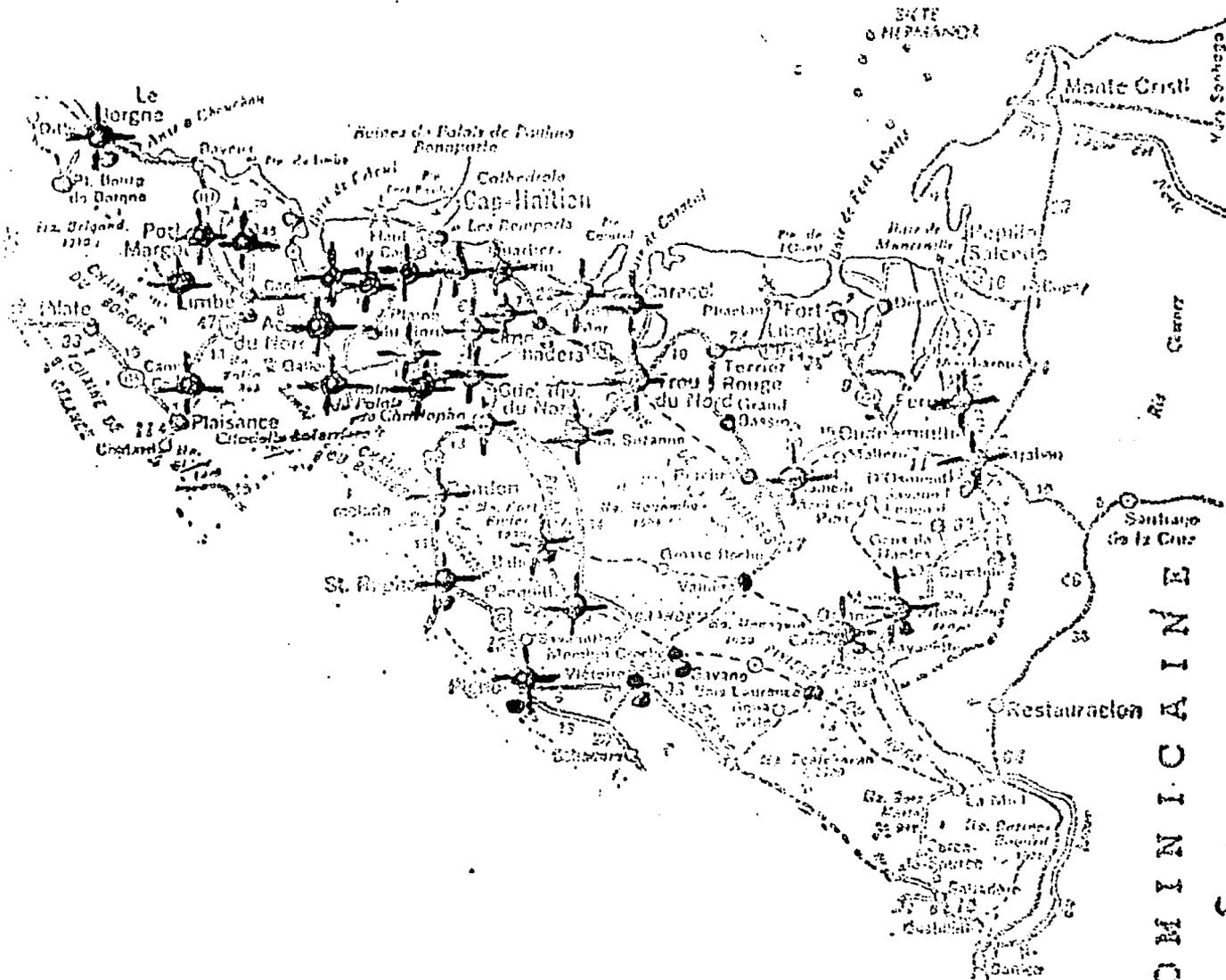
TOTAL DISPENSARIES IN
DEPARTMENT

62

HEALTH FACILITIES

(September, 1979)

A t l a n t i q u e



represents health facilities

with health agents

represents health facilities

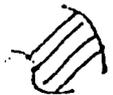
TOTAL INSTITUTIONS = 62

NORTHERN DEPARTMENT SHOWING
LOCATION OF CERN'S AND PROJECT
AREA OF ODN :

A I L A S I G W E



represents CERN's (Bureau of Nutrition)



represents project area of ODN (Regional Development Authority)

DOMINICANINE