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Memorandum

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Subject Foreign Trip Report (AID/RSSA): Family Health Survey, Sine-Saloum Region Senegal, April 5-23, 1982

To William H. Foege, M.D.
Director, Centers for Disease Control
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SUMMARY

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SUMMARY

The purpose of this trip was to provide technical assistance to the USAI Rural Health Care Project in designing a household survey to provide baselin data on family planning, maternal-child health and nutrition in the are served by the project. This task was carried out with considerable assistanc from the National Census Office of Senegal (BNR). The survey is to focus, i particular, on the specific aspects of health care which the project seeks t improve and on those aspects in which further project interventions may b appropriate.

The Sine-Saloum Rural Health Care Project has as its major objective t improve primary health care in the region through the establishment of 60 village "health huts" to be staffed by trained health workers. The projec began operations in 1978, and was scheduled for completion in December 1981 However, since implementation has not progressed as rapidly as scheduled an has not been initiated in all areas, USAID and project personnel have decide that a survey would be appropriate at this time to collect baseline data i some areas as well as evaluate program impact in other areas.

During the first week of our visit, a draft survey questionnaire was reviewe with BNR and USAID personnel and was modified based on these discussions. I conjunction with the BNR we carried out a pretest in three villages in th Sine-Saloum Region. During a 3-day period, April 14-16, 75 women o childbearing age were interviewed and health information gathered on all thei children born within 6 years of the interview.

Based on the pretest results, the questionnaire was further modified, and the time frames and logistics for the actual survey were established. In addition, we developed an administrative structure for the survey. Two survey co-directors were named--a BNR demographer with considerable survey experience and a medical epidemiologist from the University of Dakar School of Medicine. With BNR personnel we worked out a budget for the survey, which was submitted to USAID/Senegal for approval. We plan to return to Senegal in October of this year for 2 to 3 weeks for interviewer training and the start of the field work. We estimate that the training and field work will last 6 to 8 weeks in total.

During this TDY, sample selection was also initiated. It was estimated that a sample of 2,300 women of childbearing age, who we expect would have borne 3,000-4,000 children in the past 6 years, would be adequate for the purposes of the survey. The first stage of sample selection consisted of the selection of 80 census tracts from a list of all census tracts in Sine-Saloum with probability proportional to size. The second stage of sampling will consist of the selection of a cluster of 10 "concessions" (compounds) with a random starting point within each of the 80 districts. The size, structure, and number of interviewer teams to be used in the survey were also determined and are discussed in this report.

I. PLACES, DATES, AND PURPOSE OF TRAVEL

Dakar and Kaolack, Senegal, April 5-23, 1982, at the request of USAID/Senegal and AID/S&T/POP/FPSD, to conduct a pretest of a survey questionnaire, design a sampling plan, and generally plan for a health status survey in the Sine-Saloum Region to gather baseline data for a rural health care project. This travel was undertaken as part of the Resource Support Services Agreement between AID/POP/W and CDC/CHPE/FPED.

II. PRINCIPAL CONTACTS

A. USAID/Senegal
1. Dr. Michael White, Health, Nutrition, and Population Officer
2. Mary Diop

B. National Census Office
1. Ibrahim Lamine Diop, Director
2. Fara M'Bodji, Demographer

C. University of Dakar Medical School
1. Dr. Abdou Rahman Sow, Assistant Director, Infectious Disease Division

D. Sine-Saloum Rural Health Care Project
1. Aida Lo, Director
2. Peter Halpern, Management Advisor

E. Service des Grandes Endemies
1. Dr. Jean-Michel N'Diaye, Director

F. CESSI (Regional Nursing School)
1. Madame Pellegrin, Director

III. INTRODUCTION

A. Background

The Sine-Saloum Region of Senegal lies southeast of the capital, Dakar, and is the center of Senegal's main agricultural activity--peanut cultivation. With an estimated 1982 population of 1.2 million and an area of 23,620 square kilometers, Sine-Saloum contains 20 percent of Senegal's population and 12 percent of its area.

The USAID-sponsored Sine-Saloum Rural Health Care Project has been in operation since 1978. As set forth in the AID Project Impact Evaluation Report No. 9, the objectives of the project are: (a) to establish a network of 600 village health "huts" staffed and supported by community-level personnel throughout the region, and (b) to improve and strengthen the support infrastructure of the Government of Senegal for services to health centers.

The project was scheduled for completion in December 1981. However, its period of operation has been extended, since the implementation of the project has not progressed as rapidly as scheduled. It has not yet been initiated in several departments, so that USAID and project personnel have decided to conduct a survey, which would collect baseline data in those departments where the project has not yet been implemented, and program impact data in those departments where it has been implemented.

After preliminary discussions with USAID/Senegal and the National Census Office (BNR-Bureau National de Recensement) personnel in November 1981 (see Friedman AID/RSSA trip report dated November 16, 1981, and Goldberg AID/RSSA trip report dated January 18, 1982), USAID/Senegal requested technical assistance from FPED/CHPE in conducting this survey with Senegalese counterparts, including questionnaire content and pretest of questionnaire, sample design, logistics of field work, and budget plan. Field work costs are to be funded by USAID/Senegal.

The aim of the survey is to obtain information about family planning demand and use, maternal-child health status and services, and nutrition in the Sine-Saloum. In addition, it will focus on the specific health care factors which the project interventions seek to improve. These factors include birth spacing and breastfeeding, obstetric, prenatal and postnatal care, and prevention/treatment of diarrheal diseases and malaria as well as vaccine-preventable diseases. Physical access to and use of health care facilities should also be measured.

The goals of the trip covered by this report were to: (1) identify appropriate Senegalese organizations and/or individuals to collaborate in the planning, conduct, and analysis of the survey; (2) pretest the survey questionnaire and other survey procedures; (3) design the survey sample plan and complete the first stage of sample selection, and (4) draw up a survey budget and timetable. These tasks were accomplished during the period, April 5-23, 1982.

B. Senegalese Counterparts

The National Census Office of Senegal (BNR) was found to be the only Senegalese organization with the necessary technical expertise, survey experience, and resources to implement such a survey. The BNR agreed to collaborate with USAID/Senegal and CDC in designing and conducting the survey. As part of a contractual agreement with USAID/Senegal, they will: recruit interviewers; provide interview team supervisors, vehicles, and drivers; print questionnaires, provide a list of Sine-Saloum census tracts as a sampling frame for the first stage of sampling; provide reproductions of household lists, maps and other materials; and furnish professional technical direction through Mr. Fara M'Bodji, a demographer with extensive survey experience. Additional technical direction will be provided by Dr. Abdou Rahman Sow, Assistant Director of the Infectious Diseases Division of the University of Dakar School of Medicine (who has, incidentally, completed the annual CDC International Epidemiology Course). Mr. M'Bodji and Dr. Sow will act as co-directors of the survey.

IV. OBJECTIVES AND SPECIFICATIONS OF THE SURVEY

The Sine-Saloum Family Health Survey has three primary objectives. First, the survey is intended to gather information on children's health status and needs, children's nutritional indicators, maternal-child health services, and family planning and child-spacing in the Sine-Saloum region. These are the major areas in which the health project currently has interventions or may intervene in the future. Not only will such information give a good idea of health status and needs in the Sine-Saloum but, in combination with future surveys, will make possible a determination of changes in health status and, hopefully, program impact.

Second, the survey is aimed at helping to indicate the directions the health project should take. The survey results may help point out what types of interventions may be worthwhile to introduce into the project. Likewise, they may indicate which interventions should be expanded, reduced, or altered in some way(s). Information on public knowledge and use of the projects' facilities and services also may provide another means of evaluating the project and of increasing its impact on the health of the region. For instance, it is possible that the survey will show that it may be necessary to increase public awareness of the health huts and the services they provide.

A third objective is to establish the needs for health care delivery and education in rural Sine-Saloum. Two of the major areas in which we anticipate learning about these needs are maternal-child health (especially infant and

child health) and family planning. This objective includes the determination of the important health problems (especially among young children) of the population. It also includes an investigation into infant and child mortality, fertility, and child-spacing.

In order to achieve these objectives the survey will cover several subject areas. The largest single topic in the survey deals with the health status, health needs, and causes of death among Sine-Saloum children born less than 6 years prior to the date of interview. Information will be gathered on recent history and treatment of malaria and diarrhea, as well as the nutritional status and immunization status for living children. For each child no longer alive we will attempt to ascertain his or her age at time of death, cause of death, and the symptoms surrounding the fatal illness.

We will obtain indicators of children's nutritional status by weighing and measuring each child and checking for other indications of malnourishment. One motivation for obtaining this information is that USAID/Senegal is striving to help Senegal achieve self-sufficiency in food production and wishes to know the prevalence of health problems related to any shortage of food and to measure changes in this problem. USAID is interested in learning about both chronic and acute malnutrition, although initial indications are that the former is not of much significance in the Sine-Saloum.

The survey also includes a section on the knowledge and use of health facilities and the services they offer. The survey is to include considerable information on the use of maternal-child health services. Women are to be asked about prenatal, postpartum, and well-baby checkups, where their last delivery took place (including who performed the delivery), and where they would take their children in case of illness or injury. Data will be collected on breastfeeding, child-spacing, the level of unwanted fertility, fertility levels, and the knowledge of, use of, and demand for family planning. The section on breastfeeding practices and the postpartum period will be important not only in regard to child-spacing and fertility, but also in regard to the nutrition and health of infants. Lastly, the individual interview will include socioeconomic and demographic information concerning the respondent and her husband.

In addition to respondent information, we will obtain relevant information on the compound in which the respondent lives and on the village in which the compound is situated. This will include data on such things as population, water sources, and the presence of health facilities and schools. We are also considering the inclusion of several questions on agricultural topics which could be used to link agricultural practices and policies with health status.

The survey will be population-based with the universe being all ever-married women between the ages of 15 and 44 living in areas of Sine-Saloum not served by hospitals or large health centers. Therefore, we will exclude from the sampling frame nine cities and towns, whose combined population of about 200,000 represents from 15 to 20 percent of the Sine-Saloum Region. The region consists of six departments; the health project is currently operating in only four of them. By carrying out the survey in all six, some comparisons

between those areas with and without health huts and health posts may be made. It will also provide baseline data for any areas into which the project might move in the near future.

In order to get estimates of infant and childhood mortality by cause, with acceptable standard errors, we estimate that the interviewed women will have had to bear a total of about 3,500 live births in the past 6 years. This number is based on a preliminary estimate (obtained via discussions with a Senegalese infectious disease expert) of 1 percent of babies having neonatal tetanus at birth, with most of those dying as a result, and on an acceptable error of one-third in tetanus-specific mortality. Based on the pretest finding that interviewed women have had an average of about 1.5 live births over the past 6 years, it was estimated that interviews must be conducted with about 2,300 women.

We will attempt to obtain 30 interviews, on average, in each of 80 selected clusters in Sine-Saloum in order to obtain the requisite number of interviews. After the selection of the 80 clusters (see below), the procedure will consist of interviewing all ever-married women between the ages of 15 and 44 in each of 10 compounds in each cluster. This is based on an estimated average (according to the pretest and discussions with Senegalese Census officials) of three eligible respondents per compound.

The first stage of the sample selection was carried out at the BNR the week of April 19. The primary sampling units were all census tracts in Sine-Saloum, excluding tracts in cities and towns with large health facilities. Eighty census tracts (out of 957 in all of Sine-Saloum) were selected with probability of selection proportionate to the size of the population reported in the 1976 Census. For each of the selected districts, the BNR has provided a map showing its location as well as villages and roads within the district.

For each tract, the BNR is also providing a list of compounds or a detailed map showing the location of all compounds in each village. The lists and detailed maps will be the basis for the second stage of sampling. A compound will be randomly chosen as a starting point from the lists and/or maps from each selected census tract. We will systematically select nine other nearby compounds to form a cluster. Arrangements were made for the BNR to copy the materials needed for the second stage of sampling, which will be mailed to CDC shortly.

The coding of the completed questionnaires will take place at the BNR in Dakar. It is anticipated that tape editing, data processing, and data analysis will be done at CDC because of the BNR's limited access to computer facilities. However, some preliminary hand tabulations may be performed in Dakar. We are tentatively planning for the survey co-directors to travel to CDC to collaborate in the processing and analysis of the survey data.

V. PRETEST OF QUESTIONNAIRE

In designing the questionnaire, the FPED collaborated with epidemiologists from CDC's International Health Program Office (particularly Dr. David Heymann) and Nutrition Division. As previously mentioned, consultations with Mr. M'Bodji also resulted in improvements in the questionnaire.

The objectives of the pretest were to: (1) determine the appropriateness of the questionnaire's content and the wording of individual questions for use in rural Sine-Saloum; (2) find out what kinds of difficulties interviewers are likely to encounter so that an adequate training manual can be developed; and (3) determine the procedures and administrative structure for the logistics and general management of the actual survey field work.

The pretest was designed and implemented in collaboration with the BNR April 7-17. During this time we held discussions on the questionnaire with Senegalese counterparts and USAID officials. During daily meetings on April 7-9 with Mr. Fara M'Bodji, a demographer of the BNR, a number of modifications were made in the questionnaire. One hundred copies of the modified questionnaire were then printed at the BNR for use in the pretest.

For conducting the pretest the BNR recruited four experienced male interview team supervisors who are permanent employees of the BNR, and two experienced female interviewers who had previously worked on the 1978 World Fertility Survey. Pretest interviews were conducted by both male and female personnel, even though only female interviewers will be used in the full survey. During the pretest male interviewers felt they did not encounter any problems when asking potentially sensitive questions of rural Senegalese women, once consent for the interview was obtained from their husband or the head of the compound. Because of their previous survey experience, a one-half day training course was considered sufficient to instruct the supervisors and interviewers in the use of the questionnaire.

In Kaolack, the capital of the Sine-Saloum Region, we met with the director of the Rural Health Project, Mrs. Aida Lo, on April 13. From April 14-16, 75 interviews were conducted in apporoximately 25 concessions (compounds) chosen on an ad hoc basis in three villages (N'Diaye N'Diaye, Koutal Serere, Sate Waly), ranging from about 5 kilometers to about 50 kilometers away from Kaolack. The average duration of interviews decreased over the 3-day period. By the third day, when the interviewers had substantial practice, interviews generally lasted 20 to 25 minutes.

While interviews were being conducted in a compound, all young children (less than 6 years old) of respondents living in the compound were weighed and measured. A BNR driver was trained to use the CDC Nutrition Division designed height measuring instrument and scale. Using villagers as assistants, he gathered the children of already interviewed respondents, determined their heights and weights, and communicated the results to the interviewers who recorded the information. It is reasonable to expect that after 2-3 days training, interviewer team drivers with a similar educational level could be made responsible for measuring and weighing respondents' children at the time of the full survey.

Each evening during the pretest field work period, the survey co-director, the six persons conducting the interviews, and the CDC consultants met to discuss the results of each day's field work. The questionnaire was, as a result, further modified to the extent possible in the field and after discussions at

USAID/Senegal and CDC, a final draft of the questionnaire is to be prepared. After approval by the Senegalese co-directors of the survey, at least 3,000 copies will be printed by the BNR.

Although the questionnaire will be in French, the interviewers will have a booklet of the questions translated into Wolof and Serer, the languages in which all interviews will probably be conducted. After finalization of the questionnaire, a training manual will be written at CDC and edited by the co-directors in Senegal.

The field work will be carried out by four interview teams, each consisting of three interviewers, a supervisor, and a driver. In addition to the 12 interviewers, at least two other women will be trained as interviewers in case any of the 12 leave the survey for any reason. Selected villages will be notified in advance of the arrival of an interview team in order to increase the likelihood that a given woman will be at home and to decrease refusals. We estimate that each interviewer will be able to conduct at least 10 interviews per day. Each team will, therefore, be able to complete one cluster of 10 concessions, comprising approximately 30 women per day. Taking into account travel, holidays, revisits to some villages, and unforeseen logistics problems in the field, we estimate that a survey of 80 clusters should take 5 weeks. To ensure completion of all clusters, 6 weeks of field work have been provided for in the budget.

VI. TIMETABLE AND BUDGET

A. Timetable

We anticipate that interviewer training will begin in October of this year, with field work to last for 4 to 6 weeks, beginning in late October. Two considerations have dictated the timing of the survey. First, it is expected that health and nutrition are at their worst during summer and fall, the period longest after the last harvest and the wettest time of year. We would like to gauge health conditions at their worst. Second, travel within the Sine-Saloum is difficult during the summer rainy season Thus, October and November appear to be the months best suited for the field work.

8-9/81	CDC contacted by USAID/Senegal to discuss the possibility of CDC assistance in a Sine-Saloum Health Survey.
10/81	Discussions in Dakar between USAID, BNR, and CDC consultants, Howard Goldberg and Jay Friedman, regarding objectives, methodology, and feasibility of survey.
12/81	Meetings in Dakar between David Heymann (CDC epidemiologist), USAID, and Senegalese agencies to discuss the potential involvement of these agencies in the survey and to further define survey objectives and content.
1-3/82	Development of draft questionnaire.

4/82 Trip by CDC consultants Goldberg and Friedman to:
1) finalize arrangements for survey directors, coordinators, interviewers, survey methodology, field work, data processing, etc;
2) draw up a survey budget;
3) pretest the questionnaire;
4) determine the sampling methods to be employed and carry out the first stage of the sampling plan.

5-8/82 Finalization of questionnaire, writing of interviewers' training manual.

9/82 Printing of questionnaires and manuals.

10/82 Training of interviewers and supervisors.

10-11/82 Field work.

12/82 Coding of questionnaires.

1/83 Keypunching of forms.

2/83 Editing of data tape.

3-4/83 Preliminary data analysis with trips to CDC by Mr. Fara M'Bodji, BNR, Dakar, and Dr. Abdourahman Sow, University of Dakar Medical School.

B. Budget

1. Pretest (April 20-24)	CFA (310	=	U.S.$ 1)
a. Field work			
1) 4 supervisors (BNR employees) at 35,000 each	140,000		450
2) 2 interviewers (experienced free lance workers) at 40,000 each	80,000		260
3) 1 Driver (BNR employee) (also trained to take heights and weights of infants)	30,000		100
4) 1 Co-Director (BNR employee)	50,000		160
5) 180 liters fuel at 225	40,500		130
6) Maintenance BNR vehicle	7,971		26
b. Administration			
1) Secretary (BNR employee)	10,000		32
2) Clerk - stencil and collation	5,000		16
3) Questionnaire (paper and ink)	20,000		65
4) Copying of maps and household lists 10 rolls of Ozalide paper 8 bottles Ammonia photocopy paper	100,000		323
Total Pretest	483,471		1,560

	CFA (310	U.S.$ = 1)
2. Survey		
a. General Administration Supplies and Equipment		
1) Questionnaires printing at BNR		
Plates	45,000	150
Photo offset	100,000	320
100 reams paper	500,000	1,610
Ink	110,000	350
Labor	50,000	160
2) Translation of questionnaire to Wolof	155,000	500
3) Office supplies	120,000	390
4) Measuring instruments and scales	356,500	1,150
5) Vehicles	731,250	2.360
500 liters per vehicle at 225/liter repairs, maintenance, miscellaneous	387,500	1,250
6) Coding and key punching of completed questionnaires BNR	500,000	1,610
7) Medicines and candy for villagers	155,000	500
8) Field equipment	150,000	480
Total	3,360,250	10,840
b. Training		
1) 4 Supervisors at 40,000/month x 2.5 persons/month	100,000	320
2) 15 Interviewers at 70,000/month x 7.5 persons/month	525,000	1,690
Total	625,000	2,020
c. Field Work Salaries		
1) Co-Director-Demographer at $75/day x 60 days	1.395,000	4,500
2) A Co-Director-Epidemiologist at $100/day x 15 days	465,000	1,500
3) 12 Interviewers at 70,000/month x 18 persons/month	1,260,000	4,060
4) 4 Supervisors (BNR employees) at 40,000/month x 6 persons/month	240,000	770
5) 5 Drivers at 55,000/month	412,500	1,330
6) 100 Village Guides-Assistants	100,000	320
Total	3,872,500	12,490

d. Field Work-Per Diem

1) 2 Co-Directors at 10,000/day x 14 days each	280,000	900
2) 12 Interviewers	Included in salary	
3) 4 Supervisors at 5,000/day x 42 days each	840,000	2,710
4) 1 Driver Co-Director at 3,000 day x 28 days	84,000	270
5) 4 Drivers-teams	Included in Salary	
Total	1,204,000	3,880
Total Survey	9,061,750	29,230
GRAND TOTAL SURVEY	9,545,171	30,790

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