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WATER AND SANITATION FOR HEALTH PROJECT

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SCOPE OF WORK FOR THE HEALTH OUTCOME EVALUATION OF THE HEALTH SECTOR LOAN II PROJECT IN THE DOMINICAN REPUBLIC

WASH FIELD REPORT NO. 35

FEBRUARY 1982

Prepared For:
USAID Mission to the Dominican Republic
Order of Technical Direction No. 58

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11 February 1982

Mr. Phillip Schwab
Mission Director
U.S. Agency for International Development
Santo Domingo

Attn: Dr. Oscar Rivera-Rivera

Dear Mr. Schwab:

On behalf of the WASH Project I am pleased to provide you with fifteen copies of a report on the scope of and cost estimate for the proposed health outcome evaluation of the Health Sector Loan II project in the Dominican Republic. This is the final report by Mr. Kenneth McLeroy and is based on his trip to the Dominican Republic from December 14, 1981 to December 19, 1981.

This assistance is the result of a request by the Mission on September 30, 1981. The work was undertaken by the WASH Project on October 5, 1981 by means of Order of Technical Direction No. 58, authorized by the USAID Office of Health in Washington.

If you have any questions or comments regarding the findings or recommendations contained in this report we will be happy to discuss them.

Sincerely,

David Donaldson, P.E.
Acting Director
WASH Project

DD:PFH:mcl

cc: Mr. Victor W.R. Wehman, Jr.
S&T/HEA

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WASH FIELD REPORT NO. 35

DOMINICAN REPUBLIC

SCOPE OF WORK FOR THE HEALTH OUTCOME EVALUATION OF THE HEALTH SECTOR LOAN II PROJECT IN THE DOMINICAN REPUBLIC

Prepared for USAID Mission to the Dominican Republic
under Order of Technical Direction No. 58

Prepared by:

Kenneth R. McLeroy

February 1982

Water and Sanitation for Health Project
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TABLE OF CONTENTS

LIST OF ABBREVIATIONS USED

GODR	-	Government of the Dominican Republic
USAID or AID	-	United States Agency for International Development
HSL I	-	Health Sector Loan I
SESPAS	-	State Secretariate for Public Health and Social Assistance
HSL II	-	Health Sector Loan II
WASH	-	Water and Sanitation for Health Project
SBS	-	Basic Health Services program (began under Health Sector Loan I)
UAPODAN-SESPAS-		Unit for Potable Water and Disposal of Wastewater, which is the SESPAS coordinating and agency for Health Sector Loans I and II
UTOC-SESPAS	-	Technical Field Operations Unit
SES	-	Socio-Economic Status

REPORT SUMMARY

The following report presents a scope of work and cost estimate for a two and one-half year evaluation study of health outcomes of the ongoing Health Sector Loan II project in the Dominican Republic. The project proposes to provide water, latrines and health education in approximately 500 rural communities.

Mortality and anthropometry data for the evaluation will be gathered by the local health promoters in 100 communities. The promoters have been gathering these data for several years. The data will be summarized in the Dominican Republic and sent to the United States for analysis.

Monitoring activities will be carried out during the evaluation to ensure validity of the data collected and to provide information concerning the implementation and functioning of the water, latrine and health education interventions.

The evaluation contractor will be reponsible for the following tasks for which details are presented in Chapter 4:

Sample Selection
Forms Development and Revision
Data Monitoring
Data Processing
Data Analysis
Project Management

As discussed in Chapter 5, it is estimated that the evaluation will require approximately 62.4 person weeks of effort and will cost approximately $124,000, not including monitoring activities.

The principal personnel required for the evaluation, as discussed in Chapter 6, are:

Project Director
Sampling Statistician
Management System Analyst
Epidemiologist

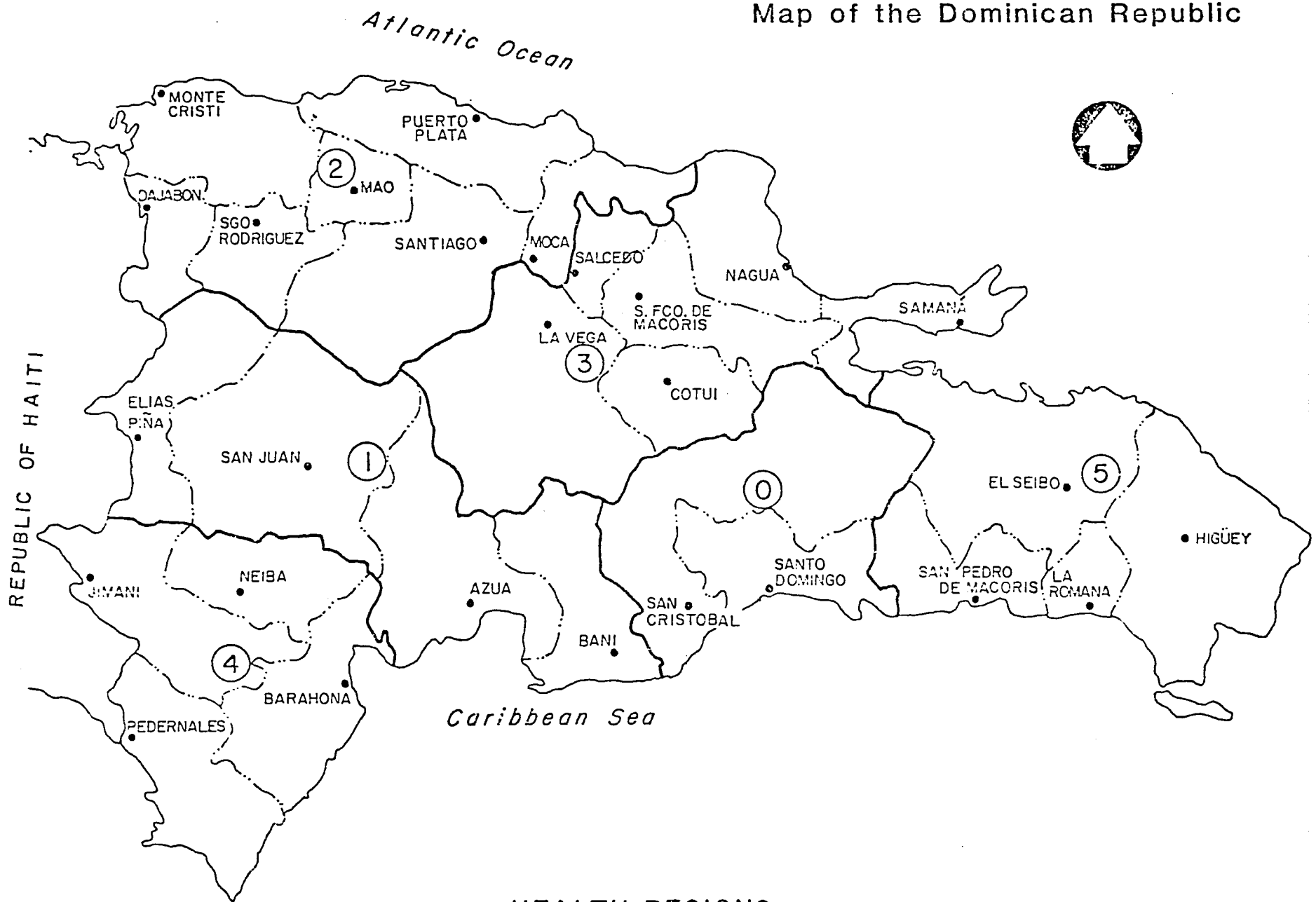
ACKNOWLEDGEMENTS

The author wishes to express his appreciation to the staff of the USAID Mission in Santo Domingo for their cooperation and assistance in the preparation of this report, especially Dr. Oscar Rivera-Rivera, Mr. John Henry Thomas, Ms. Dulce Jiminez, and Ms. Diana de Baez.

Research Triangle Institute staff who provided technical assistance in the preparation of this document included Dr. Jane Bergsten, Mr. Steven Garfinkel, Dr. Paul Moore, and Mr. James McCullough.

Mr. Paul Howard of the WASH office and Dr. Robert Struba provided most of the ideas on which this document is based and technical assistance in the preparation of this report.

Map of the Dominican Republic



HEALTH REGIONS

STATE SECRETARIAT OF PUBLIC HEALTH AND SOCIAL ASSISTANCE

DOMINICAN REPUBLIC

Chapter 1

INTRODUCTION

In 1975, the government of the Dominican Republic (GODR) was awarded a USAID loan (Health Sector Loan I, HSL I) in the amount of $4,725,000 which was supplemented by approximately $6,919,000 from the GODR (AID, 1975). The purposes of the project included: (1) administrative reform of the Secretariat of Health (SESPAS); (2) the establishment of a low cost health delivery system, utilizing local health workers (health promoters); and (3) the development and implementation of a nutrition education program.

Following the completion of the HSL I Project, the GODR requested a second loan (Health Sector Loan II, HSL II) to expand services offered under HSL I. HSL II, which was awarded by AID to GODR in 1978, would upgrade 100 rural clinics and 20 small hospitals by providing simple medical equipment and training. Additionally, the project would provide potable water, wastewater disposal, and health education services to approximately 500 villages (160,000 persons) in Health Regions I, II, and IV (AID, 1978). The amount of the loan was $7,980,000, which was to be supplemented by $3,154,000 in cash or in kind from GODR.

The project paper for HSL II (AID, 1978) specified an outcome evaluation of the project to determine its effect on infant mortality and age-specific death rates in the 1-4 year old age group. According to the project paper, the outcomes of the project were to be assessed using a random sample of approximately 25 villages included in the project, to be compared with a control group of villages from outside the target area of the project.

In January 1981, a formal request was submitted by the AID Mission in the Dominican Republic to the AID-funded Water and Sanitation for Health (WASH) Project for technical assistance in the design of the health education and evaluation components of the HSL II project. During April 1981 three WASH consultants visited the Dominican Republic. The results of this visit included two WASH reports. One of the reports provided an overview of a health education plan to be incorporated into the HSL II project. The second WASH report (Howard and Struba, 1981) provided a detailed evaluation design for the outcome evaluation of the HSL II project.

These Terms of Reference are for technical services and consultation in implementing the evaluation design as stated in

the WASH Field Report No. 23 (Howard and Struba, 1981). A summary of the project and evaluation designs and specific tasks to be accomplished are presented in the following sections.

A further request was made by the Mission for consulting services in September 1981 which resulted in the issuing of Order of Technical Direction No. 58 (see Appendix A).

The consultant was requested to review the current status of the evaluation phase with the USAID Mission and the Ministry of Health of the Dominican Republic and to assist in the development of a scope of work for performing the impact evaluation of the Health Sector II Loan.

Chapter 2

PROJECT BACKGROUND

The HSL II project continues the rural health improvement efforts that were begun under the HSL I project in 1975. The goals of the HSL I project, as stated in the project paper, were to reduce infant and pre-school mortality by 15 percent in three years and to reduce the crude birth rate by 15 percent in five years. The goals were to be met by improving the delivery of health services in rural communities with populations between 400 and 2,000 people through a Basic Health Services (Servicio Basico de Salud, SBS) program. The HSL I project, through the SBS program, operates in the country's six health regions. Before this project, a limited number of rural clinics and hospitals offered health services, but they were underutilized, in part due to their poor quality.

The HSL I SBS program trained auxiliary health workers, called promoters, who are residents of the communities where they work. Each promoter is charged with visiting the assigned families (usually 70 to 80 families per promoter) twice a month to record vital statistics (births, deaths, and migrations), immunize children against diptheria, pertussis, tetanus, polio and measles and provide basic orientations needed by the families in health, nutrition and family planning.

During their home visits the promoters distribute aspirin, cough medicine, antidiarrhetics, condoms and contraceptive pills as needed. They advise the family on the preparation and utilization of oral rehydration fluids, make referrals for IUD insertion and female sterilization and, if necessary, refer patients to the nearest clinic or hospital. In addition to recording vital statistics they record the weight, height, and at times, arm circumference of all children under five years old. The arm circumference measurements are now becoming a regular procedure for the promoters.

The promoter reports to a supervisor, who manages 10 promoters, and the supervisor reports to a supervising manager who is in charge of 20 supervisors. The SBS program is administered by the State Secretariat for Public Health and Social Assistance (Secretaria de Estado de Salud Publica Y Asistencia Social, SESPAS) of the GODR. To date about 5,350 promoters have been trained and are working in about 5,000 communities in the six health regions throughout the country. Each promoter was selected by a health committee formed by and composed of community residents. The committee is charged with reporting to the supervisors on the work of the promoters. The

promoters were trained for three weeks in the basic service which they provide, and for an additional week in nutrition.

The HSL II project will extend the work of the SBS program into additional communities to reach another 200,000 people and to provide three health-related interventions to 500 rural communities with populations between 400 and 2,000 people. The project is to operate in three of the country's six health regions. The three interventions include: (1) potable water systems; (2) sanitary latrines, i.e., pit privies; and (3) health education.

2.1 Water Supply Program

The potable water systems are being installed by mobile well drilling and installation teams managed either under contract to or managed directly by SESPAS. The sanitary latrines will be constructed by local villagers with supplies provided by SESPAS. The health education program will be established by SESPAS with support from the village level health promoters. These three interventions are described in further detail in the following sections.

Two types of potable water systems are being implemented as part of the HSL II project. The first system includes drilled wells with public handpumps; while the second system consists of gravity-fed supply (from capped springs) and public fountains.

The handpump system consists of an AID pump assembly mounted on top of a concrete apron. The pump uses a lever arm and fulcrum to move a piston rod up and down in suctioning water into the pump chamber. The gravity-fed system consists of a mountain spring which is capped and from which water is conducted to a tank down slope which serves as a storage and settling tank as well as a pressure equalization tank. From the storage tank, the water descends the hill and is distributed to smaller pipes in public fountains located throughout the villages served by the system. One well or one faucet is to be provided for every 10 houses.

Maintenance of the pumps and fountains and replacement of worn and broken parts is the responsibility of the health committee in each village. In order to fulfill this responsibility, the village committee collects 50 centavos (equivalent to $.50 US) from each family per month until 60 pesos have been collected to establish a fund to be used to purchase parts and materials. The committee also appoints a volunteer to be trained by a program maintenance crew.

In addition to providing a convenient source of potable water, the project also intends to provide each home with a 20-gallon covered plastic container with a faucet so that water can be stored in the homes in a sanitary manner. To transport the water from the source to the home, 5-gallon plastic containers with handles will be provided to each home.

2.2 Excreta Disposal (Latrine) Program

The excreta disposal program consists of constructing pit privies (latrines) at each house in the village to be served by the program. The project envisions the installation of 22,500 privies.

The privy system consists of a hole dug in the ground about one meter square and 1.8 meters deep. The hole is covered by a concrete slab, and a molded concrete stool with a wooden cover is set over a hole in the slab. On the slab is built an above-ground shelter which is 1.8 meters in height at the rear, and two meters in height at the front, where the door is.

2.3 Health Education Program

The health education component of the HSL II project is designed to maximize the health benefits to the community of the water and sanitation programs through educating rural communities in health-related aspects of the project. In order that an individual realize the health benefits of the project, he or she must have: (1) access to the water and latrines which are provided by the program; (2) information as to how to use these components most effectively; and (3) the motivation and organizational support to do so.

The health education component will provide the latter two elements to the individual and the community through the infrastructure of the health committee, the promoter, and the promoter's supervisor. A three-day workshop will be held in one of the communities for groups of five communities. The promoter and five members of the health committee, or other community members appointed by the committee, will attend the workshop.

The content of the workshop will center around technical information, methodology of transferring this information to the community, and methods of organizing, supporting, and motivating the individuals in the community to act on the information.

After the three-day workshop, a series of continuing one-day workshops will be held for groups of 10 communities every three months. The purpose of these one-day meetings will be for supplementary training, problem solving in the water supply and sanitation program and presentation of information on other health problems in the community, especially family planning and nutrition.

The health education program will be conducted by the Technical Field Operations Unit (UTOC) of SESPAS.

2.4 Other Aspects of the Project

The SBS program will also be expanded to cover 100 communities already served by rural clinics, and the 100 rural clinics and 20 small hospitals will be upgraded so that patients referred to them can receive adequate care.

Chapter 3

EVALUATION DESIGN

There will be two concurrent evaluations of the HSL II project. The first, an implementation (progress-to-target) assessment, will monitor the progress of the project in delivering the three interventions listed above during the project's five year duration. Five progress-to-target evaluations will be completed by the tenth, nineteenth, thirty-first, forty-first, and fiftieth months of the project. These evaluations will be designed and carried out by SESPAS, under the direction of the AID mission in the Dominican Republic, and are not the subject of these Terms of Reference. The second evaluation, an outcome assessment, is designed to measure the extent of the project's effect on: (1) infant mortality (age 0-1 year); (2) preschool mortality (age 1-4 years); (3) total mortality; and (4) preschool anthropometry measurements (age 1-4 years). The outcome assessment will also collect summary information at the village level on exposure to the HSL II project interventions.

The outcome evaluation design as specified in the WASH Field Report, No. 23 (Howard and Struba, 1981), represents a considerable expansion of the evaluation as described in the HSL II project paper. The following description, then, of the outcome evaluation design is based on the WASH field report.

3.1 Sample Design

As stated in Chapter 1 of these Terms of Reference the HSL II project is designed to provide water, sanitation, and health education services to approximately 500 communities in three health regions, or approximately 167 communities per region. Selection of communities has already begun, and 146 communities have been selected from Regions I, II, and IV. One hundred and fourteen communities have already received some form of water intervention. From the remaining communities, 100 communities are to be selected and then randomly assigned to one of four treatment conditions: (1) Group A composed of 25 communities with only wells or gravity-fed systems; (2) Group B composed of 25 communities with water systems and latrines; (3) Group C composed of 25 communities with water systems, latrines, and health education; and (4) Group D composed of 25 communities with none of the interventions. The overall evaluation design, then, consists of a prospective study with communities randomly assigned to treatment conditions.

3.2 Data Collection

Much of the data necessary for the evaluation of the HSL II project is currently being collected by the health promoters. As presented in the data-collection form (Appendix C), the health promoters record information each time a family is visited, with visits scheduled to each family at least twice a month. The data that are collected include, for each child in the family, the date of birth, the date of death, and/or the date the child left the community. The form also includes the date on which vaccinations were administered, including DPT, Polio, Measles, Tetanus Toxoid, and BCG.

In addition to the Family (green) Form described above, the health promoters submit monthly forms to the supervisors which contain birth and mortality information. These two forms--the Family and Monthly Report forms--contain most of the necessary information for the evaluation of the project. However, the forms do not currently allow for the recording of necessary anthropometric information and may have to revised.

Many of the health promoters have been previously trained in the collection of anthropometric information. They use methods which include the measurement of height, weight, and mid-arm circumference (King, et al., 1972). Briefly, height or length is obtained using a locally-manufactured measuring board following specifications availabe from the Center for Disease Control. The infant is measured lying down, and the young child is measured while standing, with the measuring board against a flat surface. Weight is estimated using a standard scale. Great practical use has been made of suspended spring balances to which a harness for the infant or child is attached. These are already available to the promoters. Mid-arm circumference is measured using fiberglass or laminated tapes with clear numbers printed along the axis of the tape.

Any study of environmental exposures and health outcomes should consider a number of covariables. These variables are of two basic types. The first group can be called sociodemographic variables. This category includes socioeconomic status (SES), size of the villages, type of occupation and economy, and other similar measures. The second group can be called "life style" variables. This includes life style as it relates to exposures (i.e., individual differences in the use of health interventions) and to outcomes (differences in proximity and availability of health clinics, aspects of behavior, occurrence of disease epidemics).

The control of covariates can occur in the design or the analysis stage of a project or at both of these points. In this

study, control is to be exercised in both the design and analysis stages. The use of a random or stratified random sample of villages and random assignment to treatment conditions may control, within some margin of error, for important differences between the various treatment and control groups. However, an interaction of treatment effects and initial conditions differing between the groups after random assignment many necessitate the use of statistical controls in the analysis phase of the evaluation.

Information on community level measures of some of the important covariates is currently available through SESPAS. Available information includes community size, demographic characteristics, birth rate, death rate, region, and province. It may be necessary, however, to supplement the available information with information from other sources in order to draw the sample of communities. Additionally, information needed in the anaylsis phase of the project will be collected during the implementation phase of the project.

3.3 Data Monitoring

Data monitoring activities in this evaluation are designed to serve two basic functions: (1) assure the reliability of the measures; and (2) to provide intermediate measures of project implementation.

Recent assessments of the data collected by the health promoters in the HSL I project suggest that the promoters can collect the necessary information in a timely and reliable manner. However, reliability checks of the data to be collected under the HSL II project are necessary in order to assure that high quality data continue to be produced. Therefore, periodic surveys of the 100 communities included in the evaluation design will be undertaken as part of the outcome evaluation. All 100 communities will be visited at the start of the project, and at least every six months thereafter. The purpose of the visits will be to interview members of every household in order to compare their responses to information collected by the health promoters and maintained on the Family Forms. Additional information required in the data analysis phase of the evaluation will also be collected during these surveys.

In addition to village level measures and validation of the health promoters' information, the periodic surveys will collect information on the degree of implementation of the interventions. The following list contains the minimum items that should be collected during the periodic resurveys of the study communities.

- The name of the community
- The population (the numbers of both persons and households)
- The health region in which it is located
- Whether there is a road for motor vehicle access
- Its distance and direction from the provincial capital
- Its distance to the nearest health clinic and/or hospital
- Its characteristic as coastal, plain or mountain (and its altitude)
- The number of SBS promoters
- Whether there is a functioning health committee
- The number of wells or faucets for public water supply
- The range of depths of the wells
- The range of depths of the water table
- The type of soil in which the wells are located
- The type of pump
- The distance of the spring source (for gravity-fed systems) from the nearest house and animal grazing area
- The dates the water systems were installed and began functioning
- Whether the water quality has been determined and/or re-checked
- The number of wells or faucets functioning at the time of each monitoring check
- The number of latrine slabs delivered
- The date the slabs were delivered

- The number of privies constructed at the time of each monitoring check

- The number of privies being used at the time of each monitoring check

- The number of water containers delivered

- The date the containers were delivered

- The number of health education workshops which have included participants from the community

- The dates of these workshops

- The names of the participants

- The locations of the workshops

The validation surveys will be conducted by SESPAS with assistance from the AID Mission. Technical support will be supplied by the evaluation contractor in the form of instrument design and planning for the validation surveys. Much of the information listed above is already on file at the SESPAS coordination office for the HSL II project (UAPODAN, Unidad de Agua Potable y Despecho de Aguos Negras - Potable Water and Sanitation Unit). Except for community-level measures, the contractor will not be responsible for processing or analyzing the validation survey data. The data will be available to the contractor to aid in interpreting the results of the study.

3.4 Data Processing

It is anticipated that all of the data collected by the health promoters will be processed in the United States. Therefore, procedures will have to be developed for: (1) previewing the data in the Dominican Republic at both the field and central office levels (SESPAS); (2) rectifying inconsistencies or obtaining missing data; (3) establishing files for use by SESPAS project officials; (4) forwarding the information to the U.S. in hard copy and/or summary form; (5) keypunching, coding, and entering the data on computer files in the U.S.; and (6) providing summary information to the AID mission staff.

3.5 Data Analysis

As implied in the preceding discussion of the evaluation design, the major outcomes of the study are community and group

measures; specifically, rates and proportions. For example, infant mortality, preschool mortality, and general mortality can all be expressed as proportions.

Anthropometry measures can be analyzied in a number of ways. Since the approach recommended here involves comparing the values obtained with those of a reference population, one analysis would compare percentage changes over time in the proportions of children above a given percentile rank on height ratios and mid-upper left-arm circumference. Another analysis would be to compare the mean anthropometric values for villages in each study group over time. In this case, the statistical test would determine the significance of differences in means.

While there are a number of comparisons that can be made between the five groups of study communities, at least the following should be performed:

- Before and after comparisons within each group for all health measures.

- Comparisons, at the end of the study, between Groups A, B, and C, and the control group D. However, simple comparisons of rates, proportions, and means can be made only if these groups do not differ on baseline data.

- If the four groups differ on pretest scores (before) then statistical adjustments will have to made on the data. Several such techniques are available in the literature, and include raw difference scores, difference scores adjusted for reliability, analysis of covariance, etc. Adjustments could also include the data collected during the validity check surveys.

Finally, there is one other type of analytic study approach that could be attempted for the four study groups. Since data are being gathered on individuals in each village, the study could also be viewed as a large epidemiologic cohort study. The water and latrine interventions could then be evaluated as exposures to a treatment. Obviously, adjustments in the variances would have to be made to account for the effects of the sample design. It is not anticipated, however, that this type of cohort analysis will be attempted, and it has not been included in the cost estimate presented in Chapter 5.

The relatively small sample size (N=100) indicates that the differences between groups would have to be relatively large to detect significant differences. Therefore, the consistency

of result--especially the indicative but nonsignificant ones--may be as important in assessing the overall project outcomes as the absolute values of the differences between groups, or the significance level of the statistical tests. The information gathered on the treatment variables should be examined to help support or reject a given hypothesis. For example, if infant mortality decreases (but not significantly) in study group C over time, yet measures on the treatment variables show little use of water and latrine interventions by villagers in these communities, the differences in mortality will be less likely to be attributable to the health interventions. Of course, this interpretation should be made in view of the changes that occurred in study group D communities (since such decreases may have occurred in the absence of water and latrine interventions).

Chapter 4

TASK REQUIREMENTS

As indicated in the preceding sections, the contractor selected to conduct the evaluation of the HSL II project will be responsible for the following tasks:

- Sample Selection
- Forms Development and Revision
- Data Monitoring
- Data Processing
- Data Analysis
- Project Management

Each of these tasks and key requirements are described below.

4.1 Sample Selection

The activities under this task involve: (a) an assessment of the goals of the evaluation effort and the program implementation characteristics in order to develop an optimum sample design and (b) the implementation of that design, which involves frame construction, sample selection, specification of estimation procedures, and calculation of sampling weights and adjustments in order to support parameter estimation and data analysis.

While some characteristics of a suggested evaluation design have been specified, the contractor is to make those modifications or embellishments necessary to develop an optimum design in the sense of maximizing precision while minimizing costs.

As indicated in Chapter 3, some sampling frame information describing the characteristics of villages located in the target area is available from SESPAS. Other information is available from other government ministries. It will be necessary for the contractor to compile the village level information available from the various sources in order to construct and stratify the sampling frame. The contractor should suggest the most appropriate stratification variables.

The contractor should describe the specific sampling procedures to be employed and may even wish to suggest alternative sampling schemes. Regardless of the methods proposed, the contractor must justify the sampling scheme relative to other potential methods, and must provide for estimation and data analysis procedures that reflect the complexities of the design.

It is estimated that the sample design, the collation of data, the frame construction and stratification, the sample selection, and the assignment of communities to treatment conditions should require approximately three weeks of effort.

4.2 Forms Development and Revision

Again as indicated in Chapter 3, the health promoters are currently using two separate forms for collecting and reporting the morbidity information necessary for the evaluation of the project. The green form, which stays with each promoter, is used to record immunizations and morbidity and demographic data. A second form, which is sent to the supervisors, is used to report the green form data as well as anthropometric data, which are not recorded on the green form. These forms must be modified to: (1) obtain the necessary information on anthropometric measuresments; and (2) allow for direct data entry through precoding, if the contractor thinks this is appropriate.

Specific modifications of the data collection forms currently being used by the health promoters are partially dependent on how the anthropometric measurements are to be collected. One method of collection would be to have the health promoters periodically collect data on each child under four years old (e.g., monthly), and to record the data periodically on a revised monthly report form. A second method of data collection of anthropometric measurements would be to collect the data periodically during the validation surveys.

The contractor must address the relative advantages of each data collection procedure, with particular attention to the proposed analysis plans.

The revised forms must be approved by both SESPAS and officials at the AID Mission, following pretesting by the contractor. It is estimated that the forms revision and pretest should take approximately three weeks of labor.

4.3 Data Monitoring

While the data monitoring will be primarily the responsibility of SESPAS and the AID mission, the contractor should specify the frequency of monitoring, whether a sample of the 100 communities or all 100 communities should be monitored, and other information that should be collected on the sample villages. Additionally, the contractor will be responsible for form development and design in the collection of additional data.

Form development for the data monitoring activities should require approximately one week of labor, with the form subject to the approval of the AID mission.

4.4 Data Processing

The data processing task consists of four subtasks: (1) development and implementation of a management system for use by SESPAS in data collection and review; (2) development of a system for forwarding the data to the U.S. for processing; (3) editing, keypunching, coding, and entering data on computer files in the U.S.; and (4) providing periodic summary information back to the AID mission in the Dominican Republic. The following description of the requirements for these subtasks assumes that a single individual with the requisite skills and training will be recruited and retained by SESPAS. This individual will not be paid out of contract funds, but will serve as the liaison and counterpart in SESPAS for the evaluation of the project. Thus, this individual will be primarily responsible for coordination of the data collection activities in-country.

4.4.1 Development of a Management System

The Ministry of Health in the Dominican Republic (SESPAS) is strongly supportive of the evaluation effort. It has tentively agreed to the hiring of a qualified individual to coordinate the data collection efforts, with the individual to be paid out of funds other than those of the HSL II project. The individual recruited for the data collection and coordination position will be paid out of other AID funds through a contract with SESPAS, and this individual will be stationed within the SESPAS office which is coordinating the HSL II project (UAPODAN).

However, it will be necessary for the contractor to provide technical assistance in-country in the establishment and maintenance of a data collection system. The system to be established should allow for both field and central office (SESPAS) review of the data for completeness and accuracy, and formal mechanisms or channels for obtaining missing data prior to forwarding the data to the U.S. for processing and analysis.

It is assumed that the establishment of and consultation in the maintenance of the data collection system will require approximately six weeks of contractor-supplied labor.

4.4.2 Forwarding the Data to the U.S.

The data provided by the health promoters will have to be either abstracted or copied at SESPAS by the data coordinator for shipment to the U.S. Additionally, the contractor will have to provide alternatives to the Dominican Republic mail service for such shipments. The contractor should specify the mechanisms for abstracting/copying the necessary data at SESPAS and the mechanisms for shipping the data to the U.S.

4.4.3 Editing, Keying and Coding

The contractor will be responsible for editing, coding, and keying the data, and the construction of the data files. The contractor should assume that precoded forms will be used. The cost of this subtask, including computer costs, is estimated at $5,000.

The contractor should specify the itemized costs for each of the components of this subtask and preliminary layouts of the data files.

4.4.4 Reporting Requirements

Apart from other deliverables, such as the revised data collection forms, the contractor will provide brief reports every three months on problems encountered in the data collection effort. The contractor will also submit semi-annual progress reports which summarize the data collected to date.

Six months prior to the expiration of the contract, the contractor will submit a draft outline of the final report to the AID mission in the Dominican Republic for approval. The final report will contain, at a minimum, summaries of the data by community and treatment group, final results of the study, problem areas that were encountered in the study, and suggested changes in the evaluation process or evaluation design for incorporation in future studies.

One day each of professional and support time have been allowed for the three-month reports. Two weeks of professional time and three days of support time have been allocated for the six-month report. Every other three-month report will be incorporated into the six month report and the time allocated adjusted accordingly.

4.5 Data Analysis

The contractor should specify a preliminary analysis plan, including a statement of the specific hypotheses to be tested and the statistical tests to be employed.

The preparation of the final report, including the final data analysis should require approximately six-months of professional time and three-weeks of support time.

4.6 Management

Independent of the costs of the specific tasks outlined above, the contractor should allocate approximately four and one-half person-months to supervise the evaluation effort. Included in this supervisory time is technical assistance to the AID Mission and SESPAS in the evaluation effort throughout the project.

Chapter 5

CONTRACT SCHEDULE AND ESTIMATED COSTS BY TASK

The HSL II project is scheduled to be completed in November 1983. For purposes of costing, the contractor should assume that the contract for the evaluation will be awarded in June 1982. The evaluation will continue for 30 months. However, the contractor should submit an addendum to its business proposal stating the costs for an additional twelve-month period, to end in November 1985.

The following figures and dates represent estimates of the timing and costs of conducting the evaluation. While these are only estimates, any variations in these costs or the time schedule for deliverables must be justified by the contractor. Additionally, mail and shipping costs, per diem costs, telephone expenses, and travel are treated as separate line items. The completion dates represent weeks or months from the date of the award of the contract.

TASK	COMPLETION DATE	LEVEL OF EFFORT	DOLLAR VALUE
A. Sample Selection			
1. Update MOH Files	5 weeks	1.5 weeks	$ 3,348
2. Sample Selection	6 weeks	1.5 weeks	3,348
B. Forms Development			
1. Family Form	4 weeks	1.0 week	1,720
2. Monthly Report Form	4 weeks	0.4 week	688
3. Abstraction Form	4 weeks	0.6 week	1,032
4. Validation Survey Form	4 weeks	1.0 week	1,720
5. Pretest	4 weeks	0.4 week	688
C. Periodic Data Monitoring			
D. Data Processing			
1. Development of Management System	6 weeks	2.0 weeks	3,444
2. Editing, Keypunch, Coding, Computer Costs	Continuous		5,000
3. 3-Month Reports	Every 3 mos.	2.0 weeks	3,444
4. 6-Month Reports	Every 6 mos.	12.0 weeks	10,640
E. Data Analysis			
1. Draft Final Report	28.5 months	22.0 weeks	37,840
2. Final Report	30 months	2.0 weeks	3,444
3. Computer Costs			5,000

F. Management	_____	16.0 weeks	27,520
G. Other Costs			
1. Travel			
a. Round Trip Dominican Republic	_____	11 Trips	3,368
b. In-country	_____	_____	1,500
2. Per Diem	_____	83 days	8,300
3. Shipping	_____	_____	1,000
4. Telephone	_____	_____	1,000
TOTAL			$124,044

Chapter 6

PERSONNEL REQUIREMENTS

The following are the personnel requirements for the proposed study. It is preferable that the personnel proposed by the contractor be currently permanent staff members. However, some substitution of consultants will be allowed.

6.1 Project Director

The proposed project director for this evaluation must have the following capabilities: (1) familiarity with water and sanitation projects in developing countries; (2) background and experience in evaluation and epidemiological research methods; (3) a knowledge of community development and health education programs, particularly in developing countries; (4) Spanish language skills; (5) knowledge of data processing routines and statistical analysis packages; and (6) previous work experience in Latin America or the Caribbean.

It is expected that the project director will devote approximately one-third of his/her time to the project during the 30 months.

6.2 Sampling Statistician

The sampling statistician, who will be primarily responsible for the statistical and sample design, for selecting the sample and for randomly assigning the villages to treatment conditions, must have previous design, selection, and estimation experience with large scale surveys, as well as previous experience in developing countries. It is preferable that he/she have familiarity with experimental design, epidemiological research methods, and the Spanish language. It is also expected that the sampling statistician will devote five to six weeks to the project, including the sample design and final data analysis.

6.3 Management System Analyst

The management system analyst must have broad practical experience in the establishment and operation of data collection systems, partcularly in developing countries. The analyst should also have familiarity with data analysis requirements, computer software and Spanish language capability. It is ex-

pected that the management system analyst will devote approximately five weeks to the project.

6.4 Epidemiologist

The epidemiologist will participate in both final study design (including choice and structure of health status indicators, project monitoring schemes, sampling approach, etc.) and in the analysis and interpretation of data gathered. In addition to professional training in epidemiology (and possibly in medicine) this individual should have the following qualifications:

1. Familiarity with health impact evaluations of water and sanitation projects in developing countries.

2. Work experience in Latin America or the Caribbean.

3. Knowledge of Spanish.

It is expected that the epidemiologist will devote approximately four weeks to the project.

REFERENCES

Agency for International Development, Capital Assistance Paper: Proposal and Recommendations for the Review of the Development Loan Committee, Dominican Republic - Health Sector Loan (AID-DLC/P-2089), Washington, DC., 1975.

Agency for International Development, Project Paper: Proposal and Recommendation for the Review of the Bilateral Assistance Subcommittee (AID/BAS-033), Washington, DC, 1978.

Howard, Paul F. and Robert J. Struba, Plan for Health Impact Evaluation of the Health Sector II Bilateral Assistance Project in the Dominican Republic, WASH Field Report No. 23, WASH Project, Arlington, VA, September, 1981.

King, M., F. King, D. Morley, L. burgess, and A. Burgess, Nutrition for Developing Countries, Oxford, London, 1972.

MEMORANDUM

October 5, 1981

WATER AND SANITATION FOR HEALTH (WASH) PROJECT
ORDER OF TECHNICAL DIRECTION NUMBER 58

TO: Dr. Dennis Warner, Ph.D., P.E.
WASH Project Director (Acting)

FROM: Mr. Victor W.R. Wehman, Jr., P.E., R.S.
AID WASH Project Manager

SUBJECT: Provision of Technical Assistance Under WASH Project Scope of Work for USAID/Dominican Republic.

REFS: A) Santo Domingo 6631

1. WASH contractor requested to provide technical assistance to USAID/ Dominican Republic as per para. 2-3 of Ref. A scope of work.

2. WASH contractor/sub-contractor/consultants authorized to expend up to 10 person days over a 2 month period to accomplish this scope of work.

3. Contractor to send WASH representative to Dominican Republic for a period of 5 working days to review with mission and MOH the current status of the evaluation plan and to develop in concert with the mission and MOH a realistic scope of work for performance of the impact evaluation of the Health Sector Loan II. At this point WASH contractor should not commit WASH resources to the actual implementation of the impact evaluation. Mission should have funds in the loan/grant to actually carry out the impact evaluation. WASH could be effectually utilized in helping mission size and develop the plan, and identify implementing personnel with experiences and qualifications that the mission could then contract with directly to obtain evaluation. WASH contractor should be careful not to carry out services planned under the loan/grant to be carried out with loan/grant funds. At the same time the WASH contractor should be as helpful and facilitative as possible.

4. Contractor to coordinate visit with USAID/Dominican Republic (Dr. Rivera), LAC desk officer, LAC/DR/ENGR (C. Mathews) and LAC/DR/HN (Linda Morse). Ensure above are informed of ETA's and progress.

5. Seven (7) person days of internaional and/or domestic per diem is hereby authorized.

6. One international trip from Washington, D.C. to Santo Domingo, Dominican Republic and return is authorized.

7. Local ground transportation - taxis, motorcycles, car, or animals authorized as necessary and appropriate.

8. Miscellaneous expenses authorized NTE $600.

9. Contractor to provide draft report to mission before departing. Final report due within 10 days of return from mission. (This is requested deviation from contract for this case only).

10. Mission should be contacted immediately and technical assistance initiated as soon as possible or convenient to USAID/Dominican Republic.

11. Appreciate your prompt attention to this matter. Good luck.

VWW:ja

ACTION COPY

Department of State

INCOMING TELEGRAM

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ACTION AID-35

ACTION OFFICE STHE-01
INFO LADP-03 LADR-03 PPCE-01 PDPR-01 PPPB-03 AAST-01 RELO-01
MAST-01 LACA-03 /018 A4 729

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TO SECSTATE WASHDC 1484

UNCLAS SANTO DOMINGO 6631

AIDAC

FOR VICTOR WEHMAN, DS/HEA

E.O. 12065: NA
SUBJECT: IMPACT EVALUATION HEALTH LOAN II

REF: TELCON WERNER/RIVERA, SEPT 21, 1981

1. MISSION APPRECIATES DS/H ASSISTANCE IN FACILITATING AND FINANCING TA RECEIVED THROUGH WASH PROJECT FOR THE DEVELOPMENT OF AN IMPACT EVALUATION PLAN, A PLAN FOR THE DEVELOPMENT OF HEALTH EDUCATION INTERVENTIONS AND THE QUALITY CONTROL OF THE HANDPUMP MANUFACTURED LOCALLY, UNDER HEALTH SECTOR LOAN II. REPORTS AND RECOMMENDATIONS FROM WASH HAVE BEEN RECEIVED AND FOUND EXTREMELY USEFUL.

2. MISSION IS LOOKING FORWARD TO OBTAIN ADDITIONAL ASSISTANCE FROM WASH TO PERFORM THE IMPACT EVALUATION OF HEALTH SECTOR LOAN II, FOLLOWING THE GUIDELINES AND RECOMMENDATIONS MADE BY HOWARD/STRUBA, AND ASSISTANCE FOR THE IMPLEMENTATION OF HEALTH EDUCATION INTERVENTIONS AS OUTLINED IN LLEWELLYN'S REPORT.

3. IN ORDER TO BE IN A POSITION TO FORMULATE A PROPOSAL OF THE NATURE AND EXTENT OF THE TECHNICAL ASSISTANCE NEEDED, MISSION WOULD APPRECIATE VISIT TO DR. DENNIS WERNER, FOR APPROXIMATELY FIVE WORKING DAYS. THIS WILL GIVE US THE OPPORTUNITY TO FULLY DISCUSS WITH HIM THE DIFFERENT ASPECTS INVOLVED.

4. THANKS AGAIN FOR YOUR ASSISTANCE.
BLAKEN

Rec'd S7/Hea (Wehman) 9/30/81
Passed to WASH 10/1/81

APPENDIX B

Itinerary

November 31 - Mr. McLeroy left Chapel Hill at 2:30 p.m. and arrived in Washington, DC at 3:30 p.m. for a meeting with Mr. Paul Howard of the WASH staff.

December 14 - Departed Chapel Hill, NC at 10:30 a.m. and arrived Santo Domingo 2:30 p.m. Met at the airport by a USAID Mission driver and arrived at Hotel Lina at 6:00 p.m.

December 15 - Met at Hotel Lina at 8:00 a.m. by USAID Mission driver and arrived USAID Mission at 8:15 a.m. Met with the follwing USAID Mission staff to discuss the task requirements and the need for a prospective evaluation.

Mr. Oscar Rivera-Rivera, Health Officer
Mr. Jack Francis, Program Officer
Mr. John Henry Thomas, Public Health Advisor

Prepared outline of the task report for review by Dr. Oscar Rivera and Mr. John Henry Thomas.

December 16 & 17 - Prepared draft reports and cost estimates for review by Dr. Oscar Rivera and Mr. John Henry Thomas.

Met with Dr. Jose M. Herrera, SESPAS Coordinator for Health Sector Loans I and II

Met with Ms. Dulce Jiminez, Program Assistant, USAID Mission

December 18 - Presented draft report to Dr. Oscar Rivera for his review and comment.

December 19 - Departed Dominican Republic at 10:00 a.m. and arrived Chapel Hill, NC at 2:30 p.m.