

# **Operations Research Training and Technical Assistance in El Salvador**

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## SUMMARY

The objectives of this project were to: a) conduct a workshop on operations research and develop between three and six project proposals; b) provide technical assistance for the implementation of operations research projects designed at the workshop; and c) conduct other activities to help institutionalize the use of operations research in El Salvador.

Four one-half day workshops on definition of problems and development of solutions were held and the staff of 18 Health Departments prepared 18 mini-proposals. Next, representatives of each health Department attended a one-week OR workshop in which five project proposals were developed. A dengue epidemic prevented launching the projects, so a second series of OR workshops were implemented in late 2000 and early 2001 to re-launch the projects. Unfortunately, in January and February 2001, two earthquakes devastated El Salvador and halted the project. It was later concluded that the lack of continuity of representatives of the different Departments would impede implementation of the OR projects, and the attempt at project implementation was abandoned. Other institution building activities included a one-week workshop on qualitative methods.

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## TRAINING AND TECHNICAL ASSISTANCE IN OPERATIONS RESEARCH AT EL SALVADOR

### I. INTRODUCTION

This is the final report of the project “Training and Technical Assistance in Operations Research in El Salvador,” conducted at the request of the USAID/El Salvador Mission. The implementing institution was the Ministry of Health of El Salvador. All activities were funded and coordinated by PRIME through the USAID-funded Salsa Project. FRONTIERS provided technical assistance for project activities.

In 1999, the USAID Mission in El Salvador requested that FRONTIERS conduct a workshop to develop proposals for small operations research projects to be implemented by Departmental health staff, and to provide technical assistance to the projects. FRONTIERS was asked to coordinate activities with PRIME. The objectives of the project were:

- a) To conduct an operations research workshop and develop between 3-6 project proposals;
- b) To provide technical assistance to implement the projects designed at the workshop;
- c) To conduct other activities to help El Salvador institutionalize the use of operations research in reproductive health programs.

To help conduct the operations research projects, USAID assigned funds to the Salsa Project. In addition, it budgeted funds to conduct the workshops. This report presents the activities conducted during the period 1999-2001 as part of this project.

### II. ACTIVITIES CONDUCTED

#### 2.1 Development of Operations Research Topics

As a first step, members of the USAID Mission, PRIME, Population Council and the Ministry of Health developed a list of relevant problems susceptible to solutions by means of operations research studies. The list included the following topics:

- Strategies to increase access and use of under-utilized methods, especially the IUD.
- Elimination of medical barriers to improve service quality and access to family planning.
- Strategies to improve the availability and quality of postpartum/postabortion contraceptive services, including services for special populations, such as adolescents.

- Elimination of missed opportunities to provide family planning and reproductive health services, and strategies to increase the comprehensiveness of care.
- Strategies to increase the use of reproductive health services by adolescents: prenatal care, child spacing, and prevention of STDs including HIV/AIDS.
- Strategies to improve the Ministry of Health contraceptive logistic system.
- Strategies to increase male involvement in reproductive health care and child rearing.
- Strategies to improve family planning and reproductive health training and supervision.
- Strategies to improve community referrals to family planning and reproductive health services.

## 2.2 Promotion of the Workshop

An invitation to participate in the operations research workshop was circulated within the MOH. The list of topics was included in the invitation, and potential participants were invited to explore the possibilities of conducting an OR study in their Departments. They were also advised to collect data and discuss ideas for two or three projects with other Departments or staff.

## 2.3 Problem Selection Meetings

During January 31-February 3, 2000, four regional meetings were conducted in different Departments to help potential project participants identify and define research problems and solutions for testing, as well as further data needed to refine the research questions. The meetings were attended by four participants from each Department. The staff of four or five Departments participated in each regional workshop. Mean attendance at the meetings was 20 persons. During the meetings, each team wrote a problem statement and a potential solution. The participants were instructed to discuss the problem and solution with the staff of their Departments and to collect data to further specify the research problem. Finally, participants were given one month to complete a three-page mini-proposal and send it to the national MOH office. Meeting participants were advised that only about four project proposals would be funded and that projects implemented in two or more Departments would be given funding priority.

## 2.4 Review of Proposals

Participants in the workshops prepared project proposals during the following month and sent them to the national headquarters of the MOH. The Operations Research Committee received eighteen proposals for review. Table 1 lists the proposals and the Departments proposing the projects.

TABLE 1  
LIST OF MINI-PROPOSALS PRESENTED BY THE DIFFERENT DEPARTMENTS

| DEPARTMENT                    | TITLE   |
|-------------------------------|---|
| Ahuachapán                    | Testing a strategy to increase IUD use.   |
| Chalatenango                  | Training of traditional birth attendants in contraception.  |
| Cuscatlán                     | A strategy to conduct an IEC campaign to increase contraceptive use by adolescents.   |
| La Libertad                   | A study to assess acceptance of the IUD by adolescents in the postpartum period.  |
| La Paz                        | Factors contributing to low prenatal coverage among adolescents in San Juan Nonoalco, La Paz during January-December 1999.  |
| La Unión                      | A diagnostic study to explain the low use of the IUD.   |
| Morazán                       | Contributing factors to high incidence of HIV/AIDS cases in Delicias de Concepción, Morazán, 2000.  |
| San Salvador, Central Zone    | Strengthening prenatal, postpartum and postabortion services.   |
| San Salvador, E. Z (Ilopango) | Lack of references to the family planning program from health promoters and traditional birth attendants  |
| San Salvador, North Zone      | High incidence of adolescent pregnancies in the municipality of Apopa.  |
| San Salvador, South Zone      | Low attendance of pregnant adolescents to pre- and post-natal care in the Panchimalco and Santo Tomás Health Centers.   |
| San Salvador, West Zone       | A study to explain lack of IUD use.   |
| San Miguel                    | Early evaluation of the impact of new family planning norms.  |
| San Vicente                   | Sex education for rural adolescents aged 14-19 years from the municipalities of San Vicente, San Sebastián and Tecoluca, Department of San Vicente, March 2000- March 2001. |
| Santa Ana                     | Low concentration of prenatal care visits by pregnant adolescents.  |
| Sonsonate                     | Strategies to increase the use of reproductive health services by adolescents at Sonsonate.   |
| Usulután                      | A strategy to test supervision strategies using checklists.   |

As can be seen in Table 1, the most popular theme for participants was adolescent programming. No Department presented a joint proposal.

Although it had been agreed that only four or five proposals would be funded, the MOH and PRIME expressed interest in having all Health Departments in the country participate in the operations research workshop and all Departments conduct an OR project. This posed a problem, since FRONTIERS did not have the resources to provide technical assistance to 18 different projects. In the end, the OR Committee agreed that we would invite staff from all the Departments to the OR workshop, and that we would try to develop proposals, each of which involved participation of more than one department.

## 2.5 OR Workshop

A five-day OR workshop took place in Coatepeque, El Salvador, March 13-18, 2000. One administrator and one researcher from each Department attended the workshop, for a total of 36 participants. The instructors for the workshop were FRONTIERS' staff members Jim Foreit, Carlos Brambila and Ricardo Vernon. Appendix 1 presents the agenda for the workshop. Basic OR themes were presented, and presentations were followed by group work to develop the proposals.

Table 2 lists the five proposals developed during the workshop. For each project, a general project coordinator and a coordinator for activities in each Department was appointed. It was agreed the proposals would be polished in the next months and that in June FRONTIERS staff would meet with coordinators to launch project activities.

TABLE 2  
LIST OF OR PROJECT PROPOSALS DEVELOPED  
DURING THE OR WORKSHOP

| DEPARTMENTS  | TITLE OF OR PROJECT  |
|--|--|
| Chalatenango and San Miguel  | Early evaluation of the impact of the new family planning norm.  |
| Santa Ana, La Paz, Usulután and San Salvador South Zone                      | Operations research on prenatal care for adolescents.  |
| Cuscatlán, San Salvador East Zone, San Salvador North, Morazán and Sonsonate | Community promotion of reproductive health services for adolescents. An experimental study in five Departments of El Salvador. |
| Cabañas, La Libertad, San Vicente y San Salvador Central Zone                | Acceptance of postpartum/postabortion contraceptive services in four Departments of El Salvador.                               |
| Ahuachapán, La Unión and San Salvador West Zone                              | Acceptance of the IUD in the context of a balanced presentation of contraceptive options.                                      |

## 2.6 Dengue Epidemic and Follow-up of Activities

Although project launch was supposed to take place three months after the OR workshop, in June 2000 there was a Dengue epidemic in El Salvador and the Minister of Health cancelled all workshops and training courses to concentrate on controlling the epidemic.

During these months, the MOH OR coordinator and the staff of PRIME in El Salvador maintained contact with the different teams and assessed needs and planned further activities. They also presented the projects and plans to the Deputy Minister of Health, who decided that the scope of the project should be reduced and that each project should be implemented in only one Department. He himself selected the Department where the activity would be implemented. Unfortunately, except for one case, the Department selected for implementing was not the

Department that originally proposed the research, and the decision was made without considering the research experience and training of the project coordinators in each Department.

During these months, the MOH and PRIME also requested that FRONTIERS teach a workshop on qualitative research methods. It was agreed that a new OR workshop would be held for the new teams designated to implement the OR projects. In October 2000, the restrictions on workshops and meetings were lifted by the MOH and these workshops were planned for November and December 2000, respectively.

## 2.7 Workshop on Qualitative Methods

The first workshop on qualitative methods was conducted during November 2000. Two consultants (Gloria Bodnar, from El Salvador, and María Elena Collado, from Mexico) served as instructors for theoretical sessions. They were assisted in practical exercises by three other consultants (Ruth Medina, from Honduras, and José David Morán and Rubí Arana from El Salvador). A strong effort to identify local consultants was made to provide on-site technical assistance for the projects. All three local consultants were professionals with considerable experience in social research.

Four staff members attended the workshop from each participating Department. The workshop emphasized three different qualitative methods (in-depth individual interviews, focus groups and simulated clients). Other topics presented at the workshop included observation techniques and other ethnographic techniques. Participants evaluated the qualitative methods workshop very highly.

## 2.8 Second Operations Research Workshop and Follow-up Budget Session

The second operations research workshop was conducted during December 10 - 15, 2000. As in the qualitative methods workshop, four participants from each of the five Departments where the OR projects were to be conducted attended the workshop. The purpose of the workshop was to help each participating team to adjust their project proposals to the conditions of their Departments, and to develop the questionnaires and data collection instruments to be used in them. However, since few participants had attended the original OR workshop, daily one hour sessions on OR topics were also included.

Although the project proposals were already in the final stages during this workshop, the team working on postpartum/postabortion withdrew the proposal because the Hospital and OB/GYN Directors felt that the conditions at their hospital did not allow the project to take place. A new project proposal entitled “Effects of Systematic Supply on the Demand for Reproductive Health Services at San Vicente” was developed. This proposal is presented in Appendix 2. The products of these workshops were the final proposals and data collection instruments for the five selected projects.

A second obstacle that arose in this workshop had to do with budgeting. Although sufficient funds had been assigned by the USAID Mission to conduct the projects, new MOH regulations demanded that all activities for the following year specify the expenditures that would be incurred every week, as well as a description of each item. In order to comply with this requirement, a

follow-up session for budgeting took place in January 2001. Project launch was scheduled for March 2001.

## 2.9 Two Earthquakes Devastate El Salvador

On January 13, 2001, El Salvador was affected by one of the worst earthquakes in its history, with an intensity of 7.6 on the Richter scale. This earthquake left 844 dead, 4,723 injured, 68,777 evacuated, 1,329,806 people affected, 102,366 houses destroyed, 20 hospitals damaged and 75 health centers damaged. One month later, on February 13, 2001, a second earthquake hit El Salvador, this time with an intensity of 6.6 on the Richter scale. This new earthquake killed 315 people, injured 3,399 people, affected 252,622 people, destroyed 41,302 houses, and damaged 3 hospitals and 22 health centers. In all, more than 20 percent of the population was left homeless and an even greater proportion of the health infrastructure was heavily damaged. Among the most heavily affected Departments in the country were four where the operations research projects were to be conducted. Implementation of the operations research projects was made impossible by this catastrophe, and it was not possible to begin discussions of a new program of activities until late June 2001.

## 2.10 Follow-up Activities

On June 20, 2001, Ricardo Vernon, a FRONTIERS staff member, met Haydée de Escobar, the MOH's General Director for the Care of Women, Maricarmen de Estrada, from the USAID Mission, and a representative of PRIME. The previous experiences were reviewed. It was agreed that the lack of continuity of participants from the Departments made it very difficult to implement operations research projects, an endeavor requiring persistence over a long period by the same individuals. Different alternatives were discussed. Given the small size of the country it was suggested that centrally controlled operations research projects be conducted, especially since the MOH had just appointed a research Department, to which FRONTIERS would provide technical assistance. However, this suggestion was not accepted. It was also proposed to conduct a program to incorporate OR lessons into the Reproductive Health Program of El Salvador, but this was also rejected. The proposal that was finally accepted was a series of three research methodology workshops.

Three topics were selected for the workshops: evaluation of reproductive health programs, methods to estimate the costs and efficiency of reproductive health services, and use of Epi-Info to process data. The first of these workshops was programmed for February 4-8, 2002. However, a few days before the first workshop, the consultant advised that he would not be able to attend. Although FRONTIERS staff members offered to replace the consultant, the USAID Mission advised that the MOH had several other on-going activities and had planned to cancel this activity. However, during the next few days, the Mission reevaluated its portfolio and requested that FRONTIERS funds remaining for these activities be reimbursed to the Mission, a request that was agreeable to FRONTIERS.

### III. LESSONS LEARNED

This project had three objectives:

- a) To conduct a workshop on operations research and develop between three and six project proposals;
- b) To provide technical assistance for the implementation of operations research projects designed at the workshop;
- c) To conduct other activities to help institutionalize the use of operations research in El Salvador as a decision making tool in reproductive health programs.

Of these objectives, two were achieved, and one, to implement operations research projects, was not. Unfortunately, it was the most important of the three. Implementation of these projects was strongly affected by natural disasters (one dengue epidemic and two earthquakes). However, beyond these uncontrollable events, we should look into the process that was followed and try to extract lessons that can help achieve better results in the future.

- a) *There needs to be continuity of participants to achieve results:* One of the main problems in this project was the lack of continuity of participants between events. Besides the need to repeat training for new members, lack of continuity affected familiarity with the ideas developed and the motivation to implement the project. Organizations wanting to conduct OR projects need to insure that the person in charge of the project will have enough time to devote to project activities, including attending technical assistance meetings.
- b) *Institutionalization of research capabilities should be a goal from the beginning:* Perhaps in a small country like El Salvador it would have been easier to institutionalize operations research if activities had concentrated in a small group in the central headquarters that could benefit from daily practice and technical assistance. In fact, the MOH had just established a research department and had appointed a director who had an MPH and some research experience, but the MOH was seeking to strengthen its decentralization process by providing research training so that local programs had the tools to respond to local initiatives and perceived needs. However, this requires much more technical assistance, and perhaps there was an over-optimistic view that this could be achieved.

## APPENDIX 1

### AGENDA FOR THE FIRST OR WORKSHOP

#### TALLER DE INVESTIGACIÓN OPERATIVA EL SALVADOR, MARZO 13 A 18, 2000

##### LUNES 13 DE MARZO

|               |  |
|---------------|--|
| 8:30 a 8:45   | Bienvenida (Douglas Jarquín, María E. de Villalobos y Ricardo Vernon)              |
| 8:45 a 9:15   | Introducción de participantes (MEV)  |
| 9:15 a 9:30   | Expectativas del curso (MEV)   |
| 9:30 a 9:45   | Objetivos del curso y revisión de contenidos (Carlos Brambila)                     |
| 9:45 a 10:45  | ¿Qué es la investigación operativa? (Ricardo Vernon)                               |
| 10:45 a 12:00 | Presentación inicial de ideas de proyectos y formación de grupos (PARTICIPANTES)   |
| 12:00 a 13:30 | Almuerzo   |
| 13:30 A 14:30 | Planteamiento del problema, pregunta de investigación y objetivos (Ricardo Vernon) |
| 14:30 a 16:30 | Trabajo en grupo con asesores: introducción y planteamiento del problema.          |
| 16:30 a 16:45 | Receso   |
| 16:45 a 17:45 | Diseños de Investigación (Jim Foreit)  |
| 17:45 a 18:00 | Evaluación de actividades del día y propuestas de cambio                           |

##### MARTES 14 DE MARZO

|               |   |
|---------------|---|
| 8:30 a 9:30   | Diseño de la investigación (Jim Foreit) (continúa)  |
| 9:30 a 11:00  | Trabajo en grupo con asesores: redacción de la propuesta  |
| 11:15 a 11:30 | Receso  |
| 11:30 a 12:30 | Desarrollo de la solución (Jim Foreit)  |
| 12:30 a 14:00 | Almuerzo  |
| 14:00 a 16:00 | Trabajo en grupos: Identificación de variables dependientes y desarrollo de la solución o estrategia a ser probada: ¿qué proponen hacer para solucionar el problema, mejorar la situación o alcanzar un nuevo objetivo, cómo lo proponen hacer, cuándo, dónde, con quién? ¿Qué capacitación, recursos, supervisión, etc. se necesita? |
| 16:00 a 17:15 | Medición; variables dependientes y variables independientes; definiciones operacionales; validez y confiabilidad (Carlos Brambila)  |
| 17:15 a 17:45 | Preguntas sobre contenidos vistos   |
| 17:45 a 18:00 | Evaluación de actividades del día y propuestas de cambio  |

## MIÉRCOLES 15 DE MARZO

|               |  |
|---------------|--|
| 8:30 a 9:30   | Muestra y selección de unidades (Carlos Brambila)  |
| 9:30 a 11:30  | Trabajo grupal: selección de unidades de estudio y especificación del diseño experimental a ser usado.                         |
| 11:30 a 12:30 | Recolección de datos y uso apropiado de métodos cuantitativos en investigación operativa y análisis de datos (Carlos Brambila) |
| 12:30 a 14:00 | Almuerzo   |
| 14:00 a 15:30 | Recolección de datos y uso apropiado de métodos cuantitativos en investigación operativa y análisis de datos (Continúa CB)     |
| 15:30 a 17:45 | Trabajo en grupo: diseño, variables dependientes e independientes  |
| 17:45 a 18:00 | Evaluación de las actividades del día  |

## JUEVES 16 DE MARZO

|               |   |
|---------------|---|
| 8:30 a 10:00  | Uso apropiado de métodos cualitativos en la investigación operativa (Ricardo Vernon)  |
| 10:00 a 12:30 | Trabajo en grupo: definición operacional de variables; definición de métodos de recolección de datos, desarrollo de instrumentos de recolección de datos. |
| 12:30 a 14:00 | Almuerzo  |
| 14:00 a 15:00 | Replicación, extensión y diseminación de la estrategia (Ricardo Vernon)   |
| 15:00 a 18:00 | Trabajo en grupo: medición e instrumentos (PARTICIPANTES)   |

## VIERNES 17 DE MARZO

|               |   |
|---------------|---|
| 8:30 A 11:00  | Trabajo individual en grupo con asesores: finalización del protocolo y de instrumentos                  |
| 11:00 a 12:30 | Presentación de proyectos por grupos y comentarios (PARTICIPANTES)                                      |
| 12:30 a 13:30 | Almuerzo  |
| 13:30 a 16:00 | Trabajo en grupol acuerdos finales, plan de trabajo y últimas correcciones al protocolo (PARTICIPANTES) |
| 16:00 a 16:30 | Comentarios a presentaciones  |
| 16:30 a 16:45 | Clausura  |