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The Multi-purpose Household Survey

of

El Salvador

by

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FOREWORD

The Multipurpose Household Survey project in El Salvador was begun in late 1975 as a joint project of GOES, USAID, and the U.S. Bureau of the Census. The effort went through a preparatory period, a design and start-up period, and an operational period which culminated in late September 1978 with the successful close-out of field data collection for Survey I, the initial round of what is expected to be a semi-annual survey for the foreseeable future. The second round, Survey II, entered the field in mid-October 1978 with a planned completion date of April 1979.

In mounting this project, GOES did not start without pertinent experience in survey work. Indeed, many household, industrial, and agricultural sample surveys had been carried out in El Salvador in the past; but all of them were ad hoc efforts, after which the survey organizations were essentially disbanded and the experienced personnel assigned to other duties. What distinguishes the present effort from past ones is its stated aim of creating a permanent organization and capability to conduct sample surveys on a continuing, periodic basis. By September 1978, that had largely been accomplished. The single major problem area that continued after that date is in having ready access to computer hardware with which to process the data in timely fashion.

A project of this kind is quite complex in that a large number of technical and managerial activities have to be started more or less together and kept moving at rates that keep them together. In El Salvador, responsible

GOES officials demonstrated a finesse in this matter little short of astounding. To be sure, problems were encountered which required improvised solutions which were not always the best; but the important thing was that momentum was not lost and that the project overall continued to advance toward its goals.

A project of this kind generates voluminous paper and records if it is documented as it goes along. The basic documentation is, of course, the 10 unit set of reports that comprise the Atlantida series, which is a written generalization of the experience of the U.S. Bureau of the Census in developing and perfecting, over perhaps 35 years, the multipurpose household survey of the U.S.A., called the Current Population Survey. The El Salvador project was a practical application of those excellent Atlantida materials. In applying them, a substantial collection of permanent record material resulted covering official, technical, and administrative matters. The more important of these records have been brought together as Annexes to this report. Aside from documenting significant events that happened in El Salvador, these Annexes should be of value to other countries planning such a survey by providing illustrative, if not model, materials for a survey project of this type. For researchers and others interested in methodology, practical as well as theoretical, the collection will prove to be a valuable source of information and experience.

An extraordinary number of people were involved one way or another in this project - easily more than 150 - and it is not possible to list them

all or describe their contributions. However, special mention should be made of the contributions of some of them.

In the GOES, three Ministers of Planning gave the project their unqualified support: Lic. Atilio Vieytez, Lic. Roberto Chico Duarte, and Lic. Eduardo Reyes. Strong support was also provided by Lic. Jorge Escobar and Lic. Fausto Betaucourt. The persons most-directly responsible for translation of plans into accomplished action were the personnel of the Sample Survey Research Section of the Ministry of Planning. Deserving of special mention are Lic. Francisco Aleman, Lic. Salvador Centeno, Lic. Froilan Fernandez, Lic. Enernesto Nunez, Lic. Jose Alvarenga, Lic. Salvador Melgar, and Srta. Susanna Maribel Lopez Gomez.

In USAID, three Directors of the Mission to El Salvador also gave the project their unqualified support: Messrs. Edwin A. Anderson, Phillip Schwab, and Aldelmo Ruiz. Strong support was also provided by Messrs. Sidney Chernenkoff and Jesse Snyder.

From the U.S. Bureau of the Census, excellent technical assistance was provided by Mr. Henry Woltman, Sampling Specialist, Dr. Robert Durland, Geographer, and Dr. Leon Bouvier, Demographer. Mr. Floyd O'Quinn, formerly Census Bureau and presently with USAID, provided invaluable technical assistance in sampling and other aspects of survey work.

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The Multi-purpose Household Survey of
El Salvador
August 1975-April 1979

This report is organized into six major parts as follows:

1. This introduction which includes a statement of the goals and objectives of the project
2. Chronology of the project presenting the activities of the project as they occurred
3. Discussion of the management aspects of the project, including suggestions for future design of projects of this type
4. Description of the contents of 35 annexes to this report
5. Footnotes to the above
6. Copies of 35 annexes of permanent record material

Introduction

The project to be described in this report began formally as a joint venture of GOES, USAID, and BUCEN in November 1976 and is scheduled to end in October 1979. It would be a mistake, however, not to include in the report some account of activities that preceded the formal beginning of the effort and some that might be expected to follow in the future.

The project undertaken was the implementation of a continuing Multi-purpose Household Survey in El Salvador, C.A.-i.e., a permanent periodic survey of a sample of households from which estimates of various characteristics of the population could be made for fairly small sub-national areas. The project had

several management and technical goals over and above the production of data and/or reports. Most important among these were:

1. the creation of a permanent household survey capability, an organization of trained employees with the skill and knowledge to operate, improve, expand, and adapt a multi-purpose household survey to the changing needs of the Government of El Salvador.
2. the technical design and implementation of a sample of households capable of yielding small area estimates and the development of survey materials such as questionnaires, manuals, table outlines, etc., for use in collecting, processing, and publishing the many types of data needed by the Government of El Salvador.

Achievement of both these goals together with the actual conduct of data collection, processing, and publication on some regular periodic basis is intended to lead to institutionalization of the survey in GOES. The creation of a permanent survey capability of this type is really the major thrust of the whole project.

Chronology of the Project

In the following presentation, all footnotes are shown on pages 43 to 47

Pre-project activities

This project began in August 1975 with the preparation of a written description (PID)¹ of the kind of Multi-purpose Household Survey that could be developed in El Salvador and the presentation of this paper to the AID Mission Director

and the Minister of Planning. After approval by both detailed budgets, staffing patterns, organizational suggestions, a logistical plan, and a timetable for the project were prepared. These were incorporated into PRP² and PP³ documents which were considered at DAEC⁴ meetings in AID/W. Approval of the PP by the DAEC was received in January 1976.

The initial plan was to begin the project on July 1, 1976, but the starting date was postponed because of the change in the U.S. Federal Government's fiscal year--end from June 30 to September 30 and the AID moratorium on starting new projects during the 5th or interim quarter of that year.

In May 1975 there was delivered to the Ministry of Planning a long list of decisions and actions that would have to be taken by GOES prior to or immediately after the preparation and negotiation of the formal PROAG.⁵ Between May and September the Ministry of Planning leased a building and began to assemble a staff by obtaining, first on loan and later through reassignment, permanent professional staff from the Salvadoran Census Bureau, the Central Bank, and the Labor Ministry. By mid-summer, 1976, there were five such permanent professionals on the staff with previous experience in ad hoc labor force, fertility, and other types of surveys. A group of temporary employees was transferred to the new unit from DIGESTYC⁶ during the summer along with their workload of three ad hoc surveys that were in progress at the time.

By late September 1976 a secretarial/administrative staff was in place, two vehicles had been assigned with chauffeurs and the staff of SIM⁷ had grown to 19 permanent and about 86 temporary employees, 15 of whom were new and hired directly for this project. In September 1976 the Project Agreement between the two governments had been negotiated and was ready for signature by mid-October 1976. Signature was delayed due to the resignation of the then-Ministry of Planning; but it was signed by the new Minister of Planning on October 21, 1976, and by the USAID Mission Director on the following day. AID-BUCEN participation in the project commenced with the release of allotments by AID/W late in October 1976. The Ministry of Planning continued improvising until January 1, 1977, the beginning of its fiscal year at which time it entered the project fully with additional financial and other support.

This "pre-project period" should be regarded as an important integral part of the project itself. The activities carried out set the stage for later events that would directly affect the likelihood of mounting a successful project. During this period, many meetings were held with Ministers, senior officials, and working staff members in many Ministries which had expressed interest in a Multi-purpose Household Survey. These included Education, Health, Agriculture, Treasury, Labor, Economics and Planning, and semi-autonomous agencies such as the Demographic Association and the Central Bank. These meetings provided an opportunity to explain multi-purpose surveys, to gauge the level of interest on the parts of potential users, and to estimate the managements will to proceed. During this time, a short management survey was made of

conditions in El Salvador that might influence the likelihood of success should such a project be undertaken, and a report was submitted to the Director, U.S. Census Bureau and Director, USAID in favor of such a project and recommending Bureau and AID participation. These were all very successful meetings which generated a great deal of enthusiasm and support for the project which continues to the date of this writing. These pre-project activities climaxed when, in April 1976, the Minister of Planning and El Salvador's Ambassador to the U.S. visited the Director of the Census to reinforce personally their interest in and commitment to this project and to stress its importance to their country.

The enlistment of this kind of wide support throughout GOES at the outset undoubtedly contributed to the project's ability to survive, over the ensuing two years, a change in government, three changes in the Minister of Planning, two changes in Sub-Minister of Planning, three changes in U.S. Ambassador, two changes in the Deputy Chief of the U.S. Mission, three changes in AID Mission Director, two changes in Deputy AID Mission Director, and a host of changes in senior and working level officials in both the USIAD Mission and GOES.

Project Design and Start-up Activities

With the activation of the project work began with intensive self-study of Atlántida materials by SIM personnel according to a written plan of assignments and supplemented by extensive group discussion. A comprehensive statistical and narrative description of El Salvador was compiled, which recast the best data available to put them on a consistent temporal and geographical

basis, for later use by the sampling specialists. Available map resources were identified for later analysis by the geographer. Agreement was reached with key personnel of SIM and the Ministry on basic subject-matter content of the survey, organization of the office, and a detailed work plan and timetable for the first year's work. Arrangements were begun for short and long term participant training and for short-term assistance from specialists from the U.S. Bureau of the Census in the fields of sampling, geography, demography, and data processing.

In January 1977, two Sampling Specialists and a Geographer arrived and jumping off from the above compilation, were quickly able to settle on a sample size and design that would yield the desired estimates with the desired level of quality and which would be based on a careful mapping of the segments selected in the sample. The Geographer evaluated the cartographic resources available in the country and wrote a report outlining a mapping procedure which could be followed. Portions of the Geographer's report, the statistical compilation, a written sample selection procedure, and a written theoretical paper were then blended together in "A Sample Design for the Multi-purpose Household Survey in El Salvador."⁸ This important report, translated into Spanish, guided the technical work of the first year. It is a model application of the Atlantida case study to this particular country.

Recognizing the size and complexity of the mapping job facing the project, attempts were made with IGN⁹ and USIAGS¹⁰ to have IGN do the special kind

of mapping required by the Unit. Press of their regular work prevented their participation. Likewise, the IAGS aerial photographs and MAG's¹¹ mosaics proved useless to the project because, among other things, grass-roofed dwelling units and dwelling units hidden by trees did not show on the photos. Neither did the mosaics show power lines, small streams, paths, ravines, and secondary/tertiary roads and similar natural features that would be useful for delimiting sample segments and enumerator assignments. The Cadaster¹² maps of the Ministry of Hacienda¹² would have been useful for they were based on recent field surveys, their scale was large and they were very professionally drawn; but as of that date, the Cadaster covered only about ½ of the country. Excellent cooperation and assistance was provided by the Ministry of Health's Malaria Eradification Program which supplied hand-drawn sketches of every community in the country which had been treated against malaria. These sketches were crude, not done to scale, and showed no directional orientation; but they showed an approximate location for every dwelling unit in the country. It became obvious that SIM would have to do the mapping in-house. The Ministry of Planning purchased from all the above sources about 2500 maps and the Sub-Minister of Planning personally negotiated with the Minister of Defense to gain access to maps of the defense-sensitive area along the Honduras border. DIGESTYC supplied old (1971) maps of some urban places. Few of these proved usable. A team of 15 employees, a supervisor, and four chauffeurs worked full time from mid-March until August mapping the selected PSU's (Municipios) into smaller areas defined by natural boundaries such as rivers, roads, etc., and obtaining an associated measure

of size (# dwelling units and size of population) for these segments-- principally from the Malaria sketches. There are 105 Municipios in sample. This was a big, difficult job because the source materials did not always agree with each other, for example, on which cantones or caserios were inside or outside a particular municipio and even where some municipio boundaries fell.¹³ Many trips were made to the field to verify maps and solve boundary problems either on the basis of local custom or statistical convenience. Some questions were referred to IGN's Boundary Dispute Section for rulings, especially in cases where litigation was in process between adjacent municipios, both of which claimed jurisdiction over a canton.

As fast as the maps for each of the Municipios could be readied, the sample selection procedure was applied and ultimately 1164 segments were selected to be the second stage units of the sample. These were expected to average out at about 50 dwelling units per segment--five clusters of ten households.¹⁴ One of the five would be selected as the third stage cluster of households to be interviewed. See Woltman and O'Quinn for a detailed description of the procedure.

Field listing of the selected households began in July 1977 and continued through early January 1978. Twenty to twenty-five employees were occupied more or less full time in the field-listing operation, which was beset by numerous vehicle problems, accidents involving injuries to staff members, and delays due to the difficult terrain in rural El Salvador. Ultimately,

more than 75,000 households were listed from among which approximately 10,000 were chosen as the final households to be interviewed. During this period, USAID granted-in-aid an additional ten passenger vehicle to SIM to help speed the listing and for other uses on the project.

Throughout this time period, a portion of SIM's staff completed the manual review, coding, correction, and key punching of the 1976 Mano de Obra, the Family Budgets survey, and a small survey of commercial/industrial establishments. These three jobs came to SIM with the transfer of the employees cited earlier.

The period also saw final decisions made on content and layout of two basic and five supplementary questionnaires, preparation and/or updating of enumerator and coder manuals, listing instructions written, segment folders designed and printed and segment maps reproduced. A 14-drawer map cabinet was constructed and the map files were systematized.

By July of 1977 one Salvadoran staff member had begun a 1½-year course of study at the U.S. Census Bureau, and three others had completed a 3-week observational training visit to the U.S. during which visits were made to Washington, D.C., Jeffersonville, Indiana, and Kansas City, Missouri, and meetings were held with more than 60 people in 28 units of Census, AID, and NCHS. Attention focussed on the Current Population Survey, the U.S.'s Multi-purpose Household Survey.

During the period, numerous meetings were held on related subjects in San Salvador and Guatemala City, such as Rural Poverty Indicators, Social Indicators, the AID-Michigan State "Standard Package" questionnaires, preparation of population estimates, a proposed survey of rural poverty, El Salvador's consumer price index, demographic projections, and similar subjects. Numerous meetings were also held with personnel of the U.N., OAS, SIECA, and other Central American organizations relating to possible future uses of the sample frame or the survey organization.

A questionnaire and table outlines for a sixth supplement covering dropouts from school were drafted. Seven papers were written proposing solutions to the data processing problem in GOES. A short course in Decision Logic Tables was organized and DLT specifications were written for legality edits of the Housing Control Card and the Labor Force Questionnaire. Meanwhile, field listing of sample households continued. An introductory course in English was taught to proposed becarios. Arrangements were made with the Ministry of Education to release to SIM a superior data processing specialist. A paper describing the project was presented to an OECD conference on Multi-purpose Surveys in Paris, France.

Operational Activities: Survey I

The original project design and timetable called for a nine-month startup period followed by the initiation of Survey I in October 1977. Due to slippage in the mapping and field listing, caused mostly by motor vehicle problems and SIM's consequent inability to field a full staff of listing personnel, Survey I was not ready to begin until late January 1978, three months behind schedule.

In view of this schedule slippage, the fact that the MPHS was almost twice as large as and more widely dispersed than any sample survey ever attempted in El Salvador, the newness of the staff and some of the procedures, the large number of supplements which Survey I was to carry, and other considerations, numerous planning meetings were held during the period November 1977 and January 1978. The most significant decision taken during this period-- a decision shared unanimously--was to change the time span of Survey I so as not to try to complete the field/office work in 12 weeks (3 months) as originally planned but rather to spread this work over 20 weeks (5 months) and to put Survey II back-to-back with Survey I if it proved feasible to do so. The over-riding concern was the feeling, shared by all, that to attempt to do Survey I in 3 months would require more money, manpower, vehicles, and facilities than would likely be authorized and than SIM could readily absorb even if they were authorized. So the field work load was planned in such a way as to spread it over 20 weeks, beginning February 13, 1978, and running through July 7, 1978.

Recruitment began in January 1978 and 37 applicants were selected for training either as interviewers or coders. Twenty-seven of these were hired and 10 were "held in reserve" -- i.e., given promises of future employment depending on personnel turnover or the possible initiation of special surveys using SIM's sample frame and human or other resources.

Thirteen of the 27 new hires were interviewers, seven of whom had previous interviewing experience. The remainder were office coding, quality control, and administrative personnel. Seven days of concentrated training were

scheduled, beginning February 2. Portable videotape equipment was borrowed from the AID Mission and selected portions of the classroom training were recorded, mostly the "nuts-and-bolts" lectures and some 14 or 15 mock interviews. Later, the videotape equipment was taken to the field to record interviews in respondents' households. Over the ensuing 4 months, a total of 22 one-half hour reels of black and white videotape were made and about 100 pages of notes on their contents were prepared. While there are problems with some of the tapes, there is much good footage that can be used directly for training of new SIM personnel or which could be edited for documentary or public relations purposes. Some of these tapes ought to be re-done perhaps in a studio with proper lighting and better control over sound recording and background noise. In addition, a few more tapes ought to be made in the field to round out the presentation of interviewing conditions in El Salvador--particularly: a few more urban interviews in the capitol and one or two of the other cities; and a few interviews should be recorded in the eastern departamentos of Morazan, San Miguel, La Union, and Usulután. These tapes are an unexpected and unplanned by-product of this project.

During this same period, after Survey I had gone into the field, a mid project evaluation was made at the request of the Sub-Minister of Planning which resulted in 18 recommendations for management consideration by the Ministry during the last half of the project. Most of these were ultimately

adopted by the Ministry. In addition, a training plan was written for SIM for the latter half of the project and two more papers were written proposing solutions to the data processing problems of GOES.

Survey I actually took 30 weeks to complete, finishing up in the field September 16, 1978. The delay was caused by some interviewer turnover and illness, the drafting of one team of interviewers for a short period by the GOES committee to revise the Consumer Price Index, the ubiquitous vehicle problems, and the fact that interviewer production never did reach the hoped-for level of 7-per-day, especially in the metropolitan San Salvador area. Even so, the qualitative production statistics for Survey I are quite good as follows:

| | | |
|--------------------------------------|------|-------|
| No. Interviews Attempted | 9871 | 100% |
| Successful Interviews | 9167 | 92.9% |
| Non-response-all types ¹⁵ | 704 | 7.1% |
| Type A | 30 | 0.3% |
| Type B | 553 | 5.6% |
| Type C | 121 | 1.2% |

The low, almost non-existent Type A rate is cause for jubilation and indicates the great energy put into call-backs by the field staff. Near the end of October 1978, the office coding and transcription, which had been deliberately lagged about 2 weeks behind the field effort, was being closed out and questionnaires were going to key punch on a flow basis: two punchers

were working two shifts per day. The programmers, using the first 30 percent of the file as a test deck, had seen output from the edits and were satisfied that the necessary computer programs were ready or would be ready shortly. They intended to edit the entire 9871 household records at one time, try to make all corrections at one time, and produce the most important tables by November's end. Because of problems in obtaining computer time, (SIM does not have its own machine and must purchase time over on another government agency's computer) the tabulation schedule has fallen behind and the latest hoped-for date for delivery of tabulations was April 1979.

Survey II

Survey II went into the field on October 16, 1978, a month after closeout of field work on Survey I. Like Survey I, it was planned to be spread over 20 weeks. It covered the same panel of households as was used for Survey I and employed the same Housing Control Card and Labor Force questionnaire. Survey II carried three supplements: worker mobility, environmental sanitation and nutrition, and medical services. The same permanent staff carried out the field and office work.

A Sampling Specialist should visit El Salvador in mid 1979 to advise SIM on the establishment of rotation groups, a re-check procedure, and calculation of variances. These are the last major tasks confronting the Samplers at this time.

Beyond Survey II

As the week-by-week progress on Survey I revealed the problems encountered and the unexpected delays, numerous discussions were held within SIM on the question of whether or not to try to shift the timing of MPHS to a quarterly basis after Survey II. This was the original plan and is still written into the Project Agreement.

SIM's staffing level has been hovering around 90 employees, more or less, of which 25 are employed as field interviewers and supervisors. This size organization was able to deliver the 10,000 interviews of Survey I in 30 weeks of field work. It is not unreasonable to suppose that twice as large a field staff, 50 persons, could deliver the same products, 10,000 interviews, in half the time, about 15 weeks. To service such a field effort would probably require an additional ten or more coders, two or three more control and quality control clerks, at least two additional key punchers, four additional drivers (and four vehicles), two or three additional analysts, two or three experienced programmers, and perhaps, three additional secretarial/administrative support personnel—perhaps as many as 53 additional people in all. A larger building would be required, plus an increase in the logistical support service level. In all, what will be required is a significant increase in the GOES investment in the survey if it is to be shifted from semi-annual to quarterly timing.

SIM's staff members are not optimistic that an increase of the magnitude required will come all at once or at this time. Rather, they believe the prudent course lies in consolidating what has been done. It will not be a disaster if the survey is kept on a 2-a-year basis for another year or so. By that time, many of its end-products should be in print, which should excite some of the potential sponsors who are waiting to add their supplements and who are also excited by the prospects of paying only the incremental costs of adding their supplements to the basic CONAPLAN¹⁶ financed vehicle. There are many such potential sponsors. The resources necessary for growth may come more quickly through the sponsor/supplement route than through what the Ministry of Planning will probably regard as a fairly massive infusion of funds into a survey that has yet to produce its first products.

Management Aspects of the Project

A project of this kind involves both technical and management considerations, of which the latter are harder to deal with because there are so many things to be done and they are of a diverse, hard to define character. Yet, unless the management problems be solved there is little chance that the technical work can be successfully advanced. Of the possible topics that could be singled out for comment, eight have been selected. The basis for selection is that these areas were problem areas - or remain problems, they generated experience worthy of comment, or were simply important in and of themselves, as, for example, in the case of financing the project.

Financing of the Project

This project was initially proposed as a 3 year effort. The PROAG contains budget detail which, projected over the 3-year period, estimates costs at \$1.7 million (US) dollars, divided between GOES and AID as follows:

| | | |
|-------|----------------|------------------|
| GOES | \$1,350,000 | US |
| USAID | <u>380,000</u> | US |
| | \$1,730,000 | US ¹⁸ |

Of the USAID contribution, \$80,000 was for participant training. The balance, \$300,000 was for costs of a long term resident adviser and a scatteration of short consultation visits by samplers, a geographer, a demographer, and data processing personnel. The \$380,000 consists entirely of grant funds and, technically, the grant was made to Bucen under a PASA. It includes customary Bucen overheads.

It can be seen from this division of costs that the commitment of GOES to this project is quite strong, 3 or 4 to 1 in dollar terms. This commitment was re-stated and re-inforced by the Sub-Minister of Planning at the end of the second year of the project. Similar expressions of commitment and support were made by officials of CONAPLAN's Demographic and Human Resources Unit, the Demographic Society, and the Ministry of Education.

Needless to say, personnel of SIM are absolutely committed to the survey. This commitment has been strengthened by the widespread recognition in GOES of the enlargement of SIM's role in the GOES planning process and the responsibilities SIM has assumed for providing good and timely data for multiple purposes. It would be useful if the U.S. Census Bureau and USAID could arrange for a continuing connection with SIM as the multipurpose survey matures over future years. This need not cost a great deal of additional money and it would go a long way toward increasing SIM's visibility and strengthening confidence in their organization and products.

The Sample Frame

The 10,000 household sample frame was put in place at a cost of about \$120,000 or \$12.00 per household. These costs include personal services of U.S. advisers (only those costs related to designing and installing the frame) and SIM's costs for the mapping and listing and related operations (but excluding all other costs such as those for questionnaire design, writing manuals, etc.). In the Spring of 1978, USAID wished to mount

2 small surveys, one of about 1500 and the other of 3000 households. Had custom-tailored samples been designed, de novo, for these surveys it is estimated that \$52,000 and \$64,000, respectively, would have been incurred to put those samples in place. Instead, SIM drew subsamples from the 10,000 MPHS frame at costs of \$4400 and \$8800, respectively, -- a total cost avoidance of almost \$103,000. Another use or two of the sample frame in this manner and it will be fair to say that the implementation of this sample frame will have paid back its costs of installation through cost avoidance.

Quite apart from the above, the mere existence of the sample frame itself is cause for considerable interest and enthusiasm among potential sponsors of surveys or impact studies. To date, 8 supplements have been carried out in two rounds of the survey using the entire 10,000 frame. Survey I carried 5 supplements for the Demographic Society (fertility), the Population and Human Resources Unit (deaths, migration), Labor Department (worker training), and the Central Bank (cottage industries). Survey II carried supplements for Department of Health (environmental cleanliness and nutrition), Department of Labor (migrant workers during the harvests), and Department of Health (health care delivery). Survey III is tentatively scheduled to carry Department of Education's "Drop-outs and Repeaters" supplement. All three rounds of survey, of course, include the basic inquiries on population, labor force, and housing.

There seems to be no lack for sponsors of supplements. The appearance of this sample frame operated by a permanent, trained organization such as SIM and the possibility of obtaining estimates for frequently encountered characteristics at the Departamento level has opened up a whole new world of socio-economic research possibilities for El Salvador.

By almost any standard, the creation of the frame is a major event in survey work in El Salvador. It is, perhaps, the most important single contribution that can emerge from this project.

The Maps

To its everlasting credit, the GOES gave proper weight and attention to the mapping exercise. This was a large, expensive, time-consuming job that was absolutely necessary if later statistical operations were to succeed but which produced no immediate products of practical value to GOES in and of itself. SIM made excellent maps of the segment for use in defining enumerators' field assignments. The maps will be updated each time the segments are visited by the field staff. Master copies are maintained in the office and working copies are included in the segment folders. These maps, periodically updated, lend permanency to the sample. They constitute an important planning resource.

The Survey Materials

Agreement was reached early-on in the project that the first Survey would follow the Atlantida model, would consist of labor force-housing content,

would be as simple as possible, and would use materials (questionnaires, manuals, etc.) with which at least some of SIM's staff members had some familiarity. The ultimate publication of data, while certainly an important goal, was secondary to finding out whether it would be possible to design a sample, map it and list it; recruit, organize, train, and supervise a large staff; adopt orderly office procedures; etc. In many ways, Survey I was regarded as a proving ground or a dress rehearsal. This was a good attitude with which to approach Survey I which, as noted earlier, was twice as large as any sample survey ever attempted in El Salvador and was proposed to be carried out in 1/2 to 1/3 the time required in the past for surveys half its size. In about July 1978 while Survey I was in the field, a serious effort was begun in SIM to re-do the format and layout of the questionnaires (but not the content, definitions, or classifications) to make them more self-coding, which would reduce greatly the manual processing of these materials in the office. These revised materials were to be used in Survey II or III, depending on how soon they could be ready and printed. SIM is fully aware that improvement in the forms is possible and desirable and was moving on this matter by the end of the second year.

Publications Planning, Design, Layout

In past years, it has been common practice in El Salvador to put all tables derived from a survey between two covers with no narrative treatment of any kind. The result is usually a thick, heavy, rather intimidating

book of tables that the user must study carefully in search of what he needs. Usually, this book has been accompanied by a technical report describing the methodology of the survey and related matters. There is nothing wrong with the practice except that it needs to be supplemented by various smaller series of reports dealing with one subject or at best a few related subjects at a time. These should include, at a minimum, factual and objective narrative presentations of obvious relationships in key numbers and statements of the sources and limitations of the data.

One can easily envision specialized series on: (1) Population Characteristics; (2) Housing Characteristics; (3) Employment, unemployment and the economically active population; (4) Occupations and Industries; (5) Literacy, etc. Such reports would gain wider readership than the above-described bulky compendia of tables. Development of one or two model reports of this type is a task that should be undertaken in the very near future.

Data Processing

SIM has made substantial progress in this area since the project began, enough so that the data processing staff was predicting, as of late October 1978, that "the most important tables from Survey I would be ready for review by analysts in late November. . . ." That may be so; but, nonetheless, data processing, in every aspect, remains the largest, gravest problem area confronting this project.

SIM is not alone with this problem. It is a problem for every public sector agency of El Salvador that uses computers for any purpose. The general problem, however, is beyond the scope of this report except to observe that in SIM, as is true in other Ministries, the root of the problem is the scarcity of trained manpower, the absence of GOES-sponsored training programs to produce new skilled manpower, and payment of salaries to data processing personnel which, while comparable to or even above those paid to public service professionals in other disciplines, are too low to retain the data processors in public service. It is a seller's market in El Salvador and the private sector consistently outbids GOES for these people, particularly programmers. In SIM's specific case, there is the added problem of not having computer hardware assigned to it. This forces SIM into the unsatisfactory situation of having to purchase time on other agencies' machinery.

SIM had, in October 1978, 12 employees in its Data Processing group: 6 programmers, 2 key punchers, and 4 quality control clerks. SIM had no computer of its own and operates by purchasing time from the Social Security Administration. This is not a satisfactory arrangement because not enough time is available and the scheduling is at undesirable periods, either late at night, very early in the morning, or on weekends.

One of the six programmers is very well qualified, two are qualified and experienced, and 3 are somewhat less qualified but are beyond raw

trainee status. Several other staff members have taken a COBOL course which was offered in June 1978.

Since December 1977, the group has had, and has largely disposed of, a large programming workload -- the complete editing and tabulation of the 1976 Labor Force, Family Budgets, and Commercial/Industrial Establishment Surveys in addition to the design and execution of a complete processing system for Survey I of the Multipurpose Household Survey of 1978.

Several ways of augmenting the programming staff were tried -- borrowing from Costa Rica, Colombia, Peace Corps volunteers with programming training, and short-term visits by programmers from the U.S. Local private firms and Central America-wide non-profit firms were contacted to see if they could or would assist in the work. For one reason or another, none of these avenues proved fruitful. The issues were presented to the Sub-Minister of Planning in late Spring 1978, whose decision was to authorize additional hiring, if suitable new hires could be found, and to continue to try to build up SIM's internal capacity for data processing rather than to go in any of the other directions.

The entire data processing problem is documented in: (1) the Krall Management Consultants Report, dated August 1975, which shows how widespread and serious the problem is and how long ago it was recognized as a problem, and;

(2) a memorandum to the files prepared in April/May 1978, which shows that despite considerable effort, the situation has not improved in recent years. These materials can be found in the files of the USAID Mission as well as in those of SIM.

Notwithstanding, the group has pushed through an extraordinary amount of programming in the second year of the project and expected the first output tables from Survey I in late 1978.

SIM's Staff and Organization

As noted earlier, SIM's staff has been hovering at about 90 employees, sometimes more, sometimes less. One hundred would be a better figure.

The organization has evolved from the highly fluid structure of the first year to a more formal division of labor which consists of:

- Chief's Office
- Administrative Group (including Motor Pool)
- Methods Group (including Mapping Group)
- Surveys Group (including Field and Office Groups)
- Reports Group (including Analysts and Report Writers)
- Data Processing Group (all aspects)

This is satisfactory during the near term; but some changes should be made for the future. These are detailed in the mid-project management recommendations to the Sub-Minister, cited earlier (paper is in the files of the Mission and SIM).

The oldest employee of SIM is about 37. The average age of SIM employees appears to be about 25-26. Turnover has been far less than one might have expected in an organization of this size and had occurred principally in the Administrative Group.

Looking upward, organizationally, CONAPLAN has agreed to designate a high official to carry out a "referee" function, in the person of the Sub-Minister, himself, to deal with user-Ministries desiring to add supplements to the Survey. This will take the negotiating pressure off SIM, which really doesn't have the organizational stature or power to negotiate these matters, and permit SIM to concentrate on its technical survey responsibilities.

Looking horizontally, organizationally, SIM has close professional ties with UPYRH.¹⁹ SIM continues to maintain its separate status and identity from DIGESTYC, which continues to appear desirable. If SIM were a part of DIGESTYC it is likely that SIM's resources, human and otherwise, would be diverted to the 3 major Censuses which are upcoming between now and 1981 (Agriculture, Economic, and Population/Housing). That could happen, anyway; but, undoubtedly, it is less likely to happen with the two organizations in different Ministries (Planning and Economy).

Also, horizontally, it remains as a future task for SIM to regularize and formalize somewhat its dealings with approved sponsors in the working out of technical details of supplements. Certainly this will come about as a matter of course. At present, SIM and MPHS are still new and a manner of dealing with user-clients still has to evolve. It is very informal at present.

General Summary Statement

Many important things have happened or have been made to happen in El Salvador in 2 years. Large steps have been taken toward the realization of the goals set out on page 1 of this report.

The GOES' policies and behavior in the area of statistics seem not to have changed in the past 3-5 years: they are grounded very firmly in a recognition of the need for and utility of data and one may reasonably expect this recognition will continue. For this reason, it is likely that support for SIM and the MPHS survey will continue.

On the other hand, periods of major change in key personnel, such as Ministers, are always worrisome and filled with uncertainty. One worries about a change in policy that might de-emphasize a program such as SIM/MPHS in favor of some other, more preferred development activity, with consequent damage to what has been accomplished to date. As mentioned earlier, SIM/MPHS have weathered a number of major changes of this type since the project's start. With interest running high in many Ministries as it presently is, SIM/MPHS can be expected to prosper. Evidence to support this lies in the fact that on the first 2 rounds of survey no less than 8 supplements - all on different subjects and supported by different user groups - have been carried out. As noted earlier, there seems to be no lack for sponsors of supplements.

Suggestions for Design of Future Projects of This General Type

The El Salvador MPHS project, as designed and carried through, was successful. It accomplished what it was supposed to accomplish at the approximate costs and in the approximate time originally set out. However, in retrospect, analysis of how certain parts of the project design fitted together or were carried out can yield some constructive and sensible suggestions for other projects of this general type, should any be started in the future.

The following areas merit some consideration:

1. Overall time required for the project
2. Participant training
4. Participation of local agencies
5. Miscellaneous, unexpected, etc.

1. Overall time required for the project

Thirty-six months is too short a time in which to bring a survey of this type into existence. This observation is connected in part with the observations below on Participant training and in part to the almost bewildering (to inexperienced personnel) technical and managerial nature of the project. A review of the Annexes to this report should give some idea of what this latter point entails. Thirty-six months is a U.S.-style timetable. It is the shortest time in which one can go from no survey at all to a semi-annual survey, from zero employees to 100 employees, etc. Such a schedule, which would be considered, perhaps, hurried in a developed country, is hurried, even headlong, in a developing country. It assumes

pretty fair depth and experience in technical management and at least a thin line of experience at the specialist level among the nationals who must play important specific roles in the project. These assumptions were largely met in El Salvador, but they could not be met in full for a wide variety of reasons. It is likely that other developing countries would experience similar or even more serious lacks in this area. There simply is not enough trained and experienced executive, professional, and technical manpower of the type needed to satisfy the assumptions.

The problem of scarcity of trained personnel and a bureaucracy which, like most, cannot move rapidly, decisively, or responsively, can be surmounted in part by a participant training program and sidestepped in part by providing technical assistance from a more developed country. The former should be, of course, an integral part of any development project of this type. However, because of the lead time and expense involved and the importance of this training to project success, it should be scheduled differently than it was in the El Salvador project. The latter, technical assistance, must be handled very carefully or it will result in flying squads of specialists visiting a country, doing something for it or to it, and departing, leaving behind very little in the way of enhanced local capability for continued operation and further development of such a survey.

The mere rescheduling of needed participant training in the manner suggested below, would alone lengthen the overall project time to about 50 months.

If all other estimates of time required for specific tasks (e.g., mapping and field listing) were accurate, and in El Salvador's case they were too conservative, then 4 to 5 years is a better time frame than 3 years for a project of this type. Mapping was estimated to require 4 months but took 6 months to complete. Listing of households was estimated at 3 months and required 6½ months. The delays were not due to lack of understanding, organization, or motivation on the part of El Salvador's survey research staff (SIM). They were due, rather, to the failure of expected resources (e.g., vehicles to transport field personnel) to materialize, from whatever source, on schedule.

Contingencies should be built in to the time tables for future projects of this type to allow for situations such as those cited and others, such as data processing which is dealt with later as a specific problem area.

2. Participant Training

Participant training should be a substantial part of the project design and as much of it as possible should be completed very early in the project before the design stage of the project begins. A project such as this divides itself into 4 recognizable stages:

1. Preparation - an early period, about 12 months of sales and persuasion; of educating various potential users and sponsors; and of arranging for financial and other types of support.

2. Early administrative - a period of advance planning and arranging for space, equipment, personnel needs; services such as computer access and mapping, etc., about 9 months.

3. Design - recruit and train personnel in mapping of the country, design and selection of a sample of households, listing of households, verification of maps, writing questionnaires, manuals, and other survey materials - about 12 months.

4. Operational - recruit, train, and supervise the full organization in conduct of the initial survey(s) - 9-12 months, depending on size of field workload.

In El Salvador, stages 1, 2, and 3 flowed smoothly into each other and it was not until deep into stage 3 that serious participant training activities began. During the design period, one key Salvadoran departed for what would prove to be 1½ years of training abroad. Three went on a short training trip abroad and, with three others, began intensive English language training locally on an extra curricular basis. Another, who should have begun earlier his training in sampling was disapproved for reasons not related to him or the project and could not begin his studies in this important area until much later. Three others had their

training postponed for a variety of reasons, including difficulties in learning English.

There was only a small budget for participant training to begin with (\$26,300) per year and, after 2½ years of the project's 3-year life, only 2 participants have been exposed to long-term training of 1 year or more duration, 3 have had a 3-week observational training experience in the U.S., 1 has had 6 weeks of training in Santiago, Chile, and 5 were exposed to 4 weeks of computer training in San Salvador. The carefully thought out overall training plan stands in danger of not being achieved in its main outlines and some of it may not be achieved at all.

Participant training, the upgrading of the local counterparts skills, is an important part of a project like this one. Future projects should include a larger budget for this item and it should all be scheduled to happen at the same time, at the very outset of the preparatory/early administrative stages of the project -- certainly before the design stage begins. In this way, the situations can be avoided in which (1) participant training is not given the attention it merits, and (2) key employees miss the practical experience of the design and operational stages, which experience is also important, because they are away from the project when they are needed most and stand most to learn practical skills for their future assignments.

3. Participation of Local Agencies

The original design pictured a project in which participation was confined to 3 parties: the Ministry of Planning, the USAID, and the US Bureau of the Census. This had obvious advantages in the reduction of the number of decisionmaking points. It also tended to minimize problems of coordination and to strengthen control and management. It assumed, however, that all skills and services necessary to the project were available or could somehow be negotiated by one or the other of the above. This did not always happen in El Salvador and when it did it did not always come about in the best of ways. Three prime examples should suffice to illustrate that the project design should probably have been somewhat broader with respect to parties who should have been written into it in a formal way. These examples relate to (1) maps and mapping, (2) motor vehicles, and (3) data processing.

(1) Maps and Mapping

About 1200 segment maps had to be created for this project to show field interviewers the boundaries of their assignments and to help them locate exactly the households in the sample. The type of map needed is one not normally produced in any country because they are very specialized, not useful as tourist maps or road maps. In order to create them, SIM had to acquire more than 2500 other kinds of maps, on varying scales and with varying detail, and combine the essential information from them.

into a new set of maps. SIM also tried to work with other source materials: aerial photographs, orthophoto maps, mosaics, and a geographic dictionary. The Instituto Geografico Nacional (IGN), the GOES national mapping agency, is large, well-equipped and staffed and has all the wherewithall necessary to do the job SIM needed done, including solving boundary problems for the primary sampling units. IGN declined to do the mapping on grounds that it had too much of its own work to do and SIM was asking for too much in a short time. And so, SIM had to do the mapping itself -- an effort of about 126 person-months.

Future projects of this kind should include the national mapping agency to make the maps, should include the budget to cover the costs, should include a timetable, and should include a provision for field verification of the maps and the provision of official solutions to problems of imaginary or disputed boundaries (of departments, municipios, urban places, etc.). The national mapping agency should be a signatory of the convenio (ProAg) or one of its Annexes to assure commitment to the project.

(2) Motor Vehicles

Reaching remote rural areas, especially, is a real problem in household survey work. Sufficient vehicles is an absolute requirement if field personnel are to reach staging areas from

which they can walk to or rent horses to ride to their assigned sample segments.

In a developed country like the U.S. or Canada, the transportation problem is avoided by recruiting only field interviewers who own automobiles. In developing countries, automobile ownership is less common and transportation must be provided somehow by the project.

This suggests that the central motorpool either of the Government (Ministry of Public Works or the central administrative agency) or of the lead Ministry (in El Salvador's case, the Ministry of Planning) commit itself to the transportation problem in the same way as the mapping agency above.

(3) Data Processing

This is and has been the most serious problem in the El Salvador project and by all hearsay accounts, it will prove to be a serious problem in most, if not all, developing countries.

The problem is two-fold: (1) hardware; and (2) trained personnel.

The files of USAID, El Salvador, SIM, and Bucen's ISPC contain many plaintive memoranda, proposals, etc., on this subject.

A survey of the size and complexity of El Salvador's cannot be tabulated by hand or by desktop calculators. It needs either

a sizeable conventional EAM processing facility or an electronic digital computing machine of considerable power. Developing countries are not completely bereft of these resources; but hardware and human resources are usually so thin as to be almost non-existent -- certainly, capability does not even approach the demands that are created by a project like MPHS, regardless of the scale on which it is designed.

The situation can result in a country's having mastered the really difficult and important part of survey work; the sampling, mapping, subject matter, and field work, and find itself unable to tabulate data collected in the field with great effort and expense.

Each future project should include at a minimum: (1) a signed agreement, as in the case of mapping and motor vehicles above, which is part of the official project agreement, to provide sufficient access to hardware; and (2) a full-blown training program, especially in computer programming, conducted in the host country. The latter (training) should begin on or before the Project Agreement is signed and should continue on a permanent basis.

Description of Annexes to This Report

It seldom happens that a survey such as the El Salvador Multipurpose Household Survey is undertaken as a discrete project -- i.e., with a recognizable beginning, a middle, and a point which, while not the end, can be considered the point when the survey more or less is functioning as it was supposed to be. Mostly new surveys have their beginnings in or are mixed with other work in ways that make it difficult to separate the new work from the other. In the case of El Salvador, the effort had more of a free-standing quality and its processes of incubation, birth, and growth were more readily visible. This provided a fairly rare opportunity to document the project as it was carried forward. Early on a decision was made to do so and the result was a sizable collection of records, in either Spanish or English, sometimes in both. This collection has been reviewed and some of the more important materials have been organized under six broad headings and 36 minor headings called Annexes to this report. Apologies are made for the bulk of these annexes. A considerably larger bulk has been withheld from the annexes for various reasons.

The materials included in the annexes are illustrative of kinds of events and documents one should expect to encounter in a project like this one. They also illustrate the diversity of the project.

One or two important documents were not available at the time of assembling these annexes. They include the final versions of computer and punch card record layouts and final versions of end-product tables to be produced

from Surveys I and II. These materials will be added at a later date when they are available.

In addition to the written materials in the annexes, a number of video-tapes were made in El Salvador. These recorded the "nuts and bolts" classroom training given to field interviewers, some live urban and rural interviews in the field, and some of the physical problems encountered in the rural areas, such as poor roads, which influence costs, of doing survey work in El Salvador. There are two sets of these tapes:

- (1) 20 raw tapes, $\frac{1}{2}$ inch one-half hour reels, black and white. These are the original tapes made in the field.
- (2) 22 "edited" tapes, same specifications, which were made by reorganizing parts of the material on the above raw tapes.

There is one set of raw tapes, with accompanying notes in English and Spanish in the USAID Reference Center, Main State Bldg., Washington, DC.

There are 2 sets of the edited tapes located in the USAID mission to El Salvador and the International Statistical Programs Center, U.S. Bureau of the Census, Suitland, MD.

It is suggested that developing countries or parts of USAID which are considering beginning a project of this type assign some individual to review this report and its annexes at the outset. The materials do not provide a step-by-step "cookbook"; but they will provide much valuable guidance to those charged with carrying through the work and they will save time and expense.

Group I. Official Papers

This group includes 6 annexes which contain the written descriptions of the project at the various review stages it went through from the initial idea paper (PID) through a formal agreement (ProAg) between the two governments, U.S. and El Salvador. Annex 6 includes the first 15 Project Implementation Letters which, under AID's "new" system (effective October 1976), put into effect or make a matter of record certain project activities or decisions.

Group II. Matters Relating to Management, Organization, Staffing, Administration, Etc.

This group has 8 annexes which contain a variety of materials bearing on: the likelihood of success of such a project (Annex II.1); a schedule of work for the first year (Annex II.2); delegations of authority and organizational matters (Annex II.3); 18-, 24-, and 26-month assessments of the status of the project (Annex II.4). This last annex also contains some miscellaneous materials dealing with granting an automobile to the project, publicity clips from newspapers, and memoranda on costs avoided

by using the MPHS sample frame for sub-samples for special surveys.

Group III. Participant Training Materials

This group contains 3 annexes. The first introduces the subject of participant training and opportunities available, the second consists of reports in English and Spanish on one training visit to the U.S., and the third sets a master training plan for 1978/79.

Group IV. Sampling, Geographic, and Demographic Materials

This very important group contains 8 annexes. Annex IV.1 is the single most important written product of the project. It contains the theoretical and practical description of the sample design. Annex IV.2 is the Spanish translation of IV.1. Annex IV.3 is the demographers assessment of El Salvador's methods of estimating the population(s)--which figures are used as the independent population controls used in ratio-estimating as spelled out in Annex IV.1 and 2 and in the Atlantida series, Unit III.

Annex IV.4 describes the maps that had to be obtained, with grid coordinates of the maps and identification and the self-representing and non-self-representing municipio primary sampling units selected in the survey.

Annex IV.5 further breaks down the list from IV.4 into second stage units by name, urban/rural location, and number of households selected. Annex IV.6 organizes the IV.5 sample selection into workable field assignments for 4 working parties of interviewers over a 5 month (20 week) time frame.

These lists in IV.4-6 are important to anybody wishing to select subsamples of less than 10,000 households from the master sample frame. Annex IV.7 contains such a subsample, of 1395 households, drawn for a special survey. (See Cost Avoidance Note 2 in Annex II.4). Annex IV.8 contains written consideration of a number of specific sampling-related problems that arose during the project.

Group V. Data Processing Materials

This group contains data processing specifications of two types: decision logic tables and "tree" or flowchart. They are two different approaches to computer processing.

The DLT approach shows a generalized systems level flowchart, provides a narrative description (not completed) of system and coding conventions, a check-in procedure, a legality edit for both the Housing Control Card (TRH) and Labor Force Questionnaires (Mano de Obra), and coders' guides for correcting fail-edits from the TRH Edit (the Coders' Guide for Mano de Obra is incomplete). This system provides internally (in the DLT's) for handling multiple questionnaires of a given type for any given household.

The second "tree" type specifications will work just as well. Written by trained computer programmers their use and interpretation, as well as updating, are somewhat more dependent on the availability of programming personnel.

Note: The final end-product table designs were not available at the time of preparation of this report. They will be added at a later date. The same is true of the final card punch and computer record layouts.

Group VI. Field and Office Survey Materials

This group includes the basic and supplementary questionnaires, field and office interviewing and coding manuals; various papers showing how the sample fell for field purposes and subsample purposes; some production reports; enumerator training materials and schedule, including notes on videotapes made both in the classroom and in the field.

Also "included" in Group VI, but housed separately because of bulk and because only one set exists, is a set of 20 half-hour videotapes (reels) containing recorded classroom lectures, mock interviews, and urban and rural field interviews. These tapes are stored in the AID Reference Center, USAID, Main State Bldg., Washington, DC.

- (1) Project Identification (PID) is a rough initial idea paper proposing some kind of development activity. It is the first stage in AID's system for identifying, developing, evaluating, and approving proposed projects.
- (2) Project Review Paper (PRP) is a more fully developed idea paper containing enough detail that the proposed project can be discussed and evaluated by a specially convened committee in AID (W). It is the second stage in AID's system.
- (3) Project Paper (PP) is a fully developed description of the projected development activity including budgets, staffing, commodities, training, timing, etc. It is the third and final stage of AID's system. It will be formally considered by a meeting of the DAEC (see (4) below).
- (4) Development Action Executive Committee (DAEC) is a formal body convened to discuss and evaluate, approve or disapprove finally the proposed development activity which, by this time, is thought of as a "project."
- (5) Project Agreement (PROAG) is a formal contractual agreement, in 3 parts, between two governments jointly to carry out a development activity. Part I is the contract, stated in legal terms, spelling out the responsibilities of both parties, funding levels, time span, and any special conditions. Once signed, Part I may be amended only with consultation

and guidance of legal counsel representing both parties (i.e., may not be amended "in the field"). Part III consists of AID's "Standard Provisions" which are part of every AID contract. Part III may not be altered in the field. Part II, "Project Description," is the heart of the PROAG. It is a detailed description of what is to be done. In practice it resembles largely the PP minus the justification and analytical material. It may be amended in the field in order to facilitate the practical prosecution of the project; but amendments to Part II may not change the basics spelled out in Parts I and III.

- (6) Direccion General de Estadistica y Censo (DIGESTYC) is the Bureau of the Census of El Salvador.

- (7) La Seccion de Investigaciones Muestrales (literally the Sample Research Section) is the name given to the new organization being established in the Ministry of Planning. Sometimes the word "Unit" is substituted for "Section" and the acronym used, then, is UIM. In the early stages of formulating this project, it was GOES intention to centralize all sample survey work of the GOES in this organization regardless of subject matter. This sensitive subject has not come up since the creation of SIM, for which all were thankful for the time being.

- (8) The Spanish version of this report shows Woltman, O'Quinn, and Fernandez as authors. The English shows only Woltman and O'Quinn. This was a very difficult report to translate and Fernandez, a very talented mathematical statistician, contributed much to making it intelligible in Spanish.
- (9) Instituto Geografico Nacional is the GOES Agency charged with making all official maps. It is also the official repository of all cartographic source materials.
- (10) Inter American Geodetic Survey, a US Government Agency, has one US Technical Adviser assigned to IGN and residing in El Salvador.
- (11) Ministerio de Agricultura y Ganaderia is the Ministry of Agriculture and Livestock. MAG had, a year earlier, mapped an area frame for sample surveys of crop production in collaboration with USDA. This frame is excellent for its intended purpose but had no value for SIM for many reasons.
- (12) Ministry of Hacienda is the equivalent of the Treasury Department in the US. The National Cadaster is a project to map and describe real property by parcel in anticipation of valuation for a (presently non-existent) property tax.

- (13) The administrative subdivision of El Salvador is into Departamentos (equivalent to States in the US), Municipios (equivalent to Counties in the US), Cantones (equivalent to Municipalities in the US), and Caserios (literally, "rivers of houses") usually thought of as extensions of and belonging to the nearest Canton.
- (14) The actual average was between 42 and 43 dwelling units per segment or 5 clusters of 8 + d.u.'s. For the 1164 segments this yielded a final sample size of 9871 households, slightly smaller than the anticipated 10,000.
- (15) Type A includes "no one home at time of call; respondents temporarily absent; refusal; interview not obtained because of quarantine, illness, impassable roads; no qualified respondent available." Type B includes "unit temporarily vacant; temporarily occupied by persons with usual residence elsewhere. Type C includes "units no longer in existence such as demolitions; units converted from residential to business use, and; units outside the boundaries of the listing area."
- (16) CONAPLAN - Committee for National Planning. The original name of the Ministry of Planning. In 1976 CONAPLAN was officially re-named the Ministry of Planning and given Cabinet status and membership. Nonetheless, names die hard. The Ministry is still known widely as CONAPLAN.

- (17) These amounts have changed upwards slightly for both parties through the addition of a commodities budget for USAID and an increased payroll both for regular and overtime on GOES' part. The proportional inputs probably remain unchanged at about 3 or 4 to 1 in favor of GOES.
- (18) Unidad de Poblacion y Recursos Humanos - (Population and Human Resources Unit) is a demographic group which produces GOES' official population data. This Unit will provide SIM with the independent population controls required by the MPHS estimating procedure.