

PD-AAJ-100

931-0236.05 1501

CLASSIFICATION PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U-447

1. PROJECT TITLE <b>Social Progress Indicators - El Salvador</b>	2. PROJECT NUMBER <b>931-0236.05</b>	3. MISSION/AID/W OFFICE <b>S&amp;T/AGR/EPP</b>
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4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) <b>81-52</b> <i>10/19/81</i>
Team <input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION

5. KEY PROJECT IMPLEMENTATION DATES	6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY <u>79</u>	A. Total \$ <u>1,192,400</u> B. U.S. \$ <u>800,000</u>	From (month/yr.) <u>5/79</u> To (month/yr.) <u>12/80</u>
B. Final Obligation Expected FY <u>82</u>		Date of Evaluation Review <u>2/17/81</u>
C. Final Input Delivery FY <u>83</u>		

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
Modify project developed indicators to reflect a greater consistency with scientific data management and analysis procedures. *	G. Leiva SEICA/ECID	9/30/81
Provide third tranche of project funding to grantee.	T. O'Hare	6/30/81
* The major outputs of the project are a set of indicators which will be used by the Government of El Salvador to plan its development program. The team report indicates how these indicators should be modified.		

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan e.g., CPI Network	<input checked="" type="checkbox"/> Other (Specify) <u>Various Indicators</u>
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PIO/T	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C	
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P	

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

A.	<input checked="" type="checkbox"/> Continue Project Without Change
B.	<input type="checkbox"/> Change Project Design and/or <input type="checkbox"/> Change Implementation Plan
C.	<input type="checkbox"/> Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

T. O'Hare, S&T/AGR/EPP  
Project Manager  
G. Leiva, SEICA/ECID  
Project Coordinator

R. Suttor S&T/AGR/EPP  
M. Mozynski S&T/AGR  
A. Silver S&T/PO

12. Mission/AID/W Office Director Approval

Signature: *[Signature]*  
Typed Name: A. K. McDermott  
Date: 10/19/81

### 13. Summary

This project is in its second year of implementation. The SPT project has defined seven areas of social interest, five of which are in the realm of government action (education, health, housing, employment, and food consumption) and two in the private or individual sector (clothing and social communication). The five public--sector indicators have been the main focus of the project so far, the clothing and social communications indicators remain to be developed.

The goals of the project are achieved to the extent that the methods and results are "intuitively obvious," that is, simple, basic, and realistic.

The SPT project is achieving its aim of reducing reams of computer output to a select set of pertinent tables.

The project has received support from many people and organizations. The Salvadorean support has been large and constant: The GOES has provided personnel and facilities for the project whenever necessary. In turn, the project team has been able to define indicator variables for each domain in a very short period of time. At the same time, it has meant that the quality of individual indicators is very uneven.

The use of available data is a disadvantage where the data are poor or inappropriate. Questionnaires contain many inappropriate items, as well as inappropriate phrasing of items. The questionnaires were mostly adaptations from models that had proven useful elsewhere, and do not appear to have been pretested very well.

### 14. Evaluation Methodology

Three project related issues had arisen that required the attention of an evaluation at this time. First, is the timely evaluation of project development in keeping with the one scheduled in the project grant agreement. That document calls for a project evaluation at the completion of the project's third phase of activities and, as project development activities were approaching that stage, an evaluation at this time was consistent with that schedule. Another issue adding to the need for an evaluation at this time is the commitment on the part of GOES to incorporate Social Progress Indicators into its planning program. While this represents an action consistent with project assumptions, it also represents a critical juncture in project development and all project development entities are insistent that the project be evaluated with respect to its design, hypothesis, methodology, technical soundness, and internal consistency prior to incorporating it into a national planning program. The third and final issue requiring the attention of an evaluation is that raised by activities associated with the Economic Commission for Latin America's (E.C.L.A.) Study of Critical Poverty in Central America. That study was commissioned to systematically expand the information base about poverty in the Central American region. That study, as well as the SPT project, has received AID funding. To avoid duplication of critically short analytical

efforts, a comparative analysis of the two projects was incorporated into the evaluation.

To gain a familiarity with project goals, purposes, objectives, assumptions, inputs, and outputs, the evaluation team members reviewed documents pertinent to project development: project proposal, project paper, project grant agreement, contract documents, management reports, and the actual indicators. Prior to initiating their evaluation activities, the team attended a coordination meeting with S&T/AGR/EPP project management in Washington. Using AID evaluation procedures, the team summarized the current project situation, describing progress relative to design, prospects of achieving purpose and goal, and problems encountered. It identified and discussed major changes in project setting (including socio-economic conditions and the cooperating government priorities), measured actual progress against projected output targets in current project design or implementation plan, and identified any problems with respect to project inputs as to quality, quantity, and timeliness. Using the same evaluation procedures, the team assessed project outputs, i.e., the indicators, to determine that they were consistent with the available data base. As was previously mentioned, the team conducted a comparative analysis of the SPI project and the Critical Poverty in Central America Study.

#### 15. External Factors

Data collection activities were suspended in the countryside late last year. As project activities during the past year and a half have concentrated on indicator design, on-going data collection was not of critical concern during this exercise. The ability to collect data will become a critical implementation issue when the project enters the indicator verification phase.

#### 16. Inputs

- A. Long Term Personnel
- B. Short Term Personnel

The project will also provide funds for:

1. Computer time & supplies
2. Equipment such as typewriter and small calculators
3. Communications and publications
4. Sample survey costs for the additional information to be obtained on municipalities
5. Travel and per diem, both local and international, by the project team and consultants as well as some travel and per diem expenses for participants in major project seminars
6. Shipment of goods and housing allowances for long term staff

in El Salvador

7. The purchase of one automobile and operating expenses.
8. Miscellaneous supplies and contingencies

While not addressed in any great detail, the evaluation does document the timely provision of high quality inputs in the form of personnel, supplies, and computer time on the part of both the contractor and the Government of El Salvador's (GORS) Ministry of Planning (MTP/LAM).

## 17. Outputs

1. To this point the five public sector indicators have been developed while the clothing and social communications indicators remain to be developed.

A. Given the difficulties of the available data base and the insistence of Salvadorean officials for speedy results, it is not surprising that several of the indicators are less than ideal.

The sociological control variables define who has or gets particular social services. For the most part, the variables are straightforward.

The economic control variables, however, are not as good. The income variable is defined as cash income, which necessarily biases analysis toward the urban formal sector. The definition of economic activity or occupation also appears imprecise. Like the estimates of income, the occupational classification is weighted toward the urban sector.

The sociological control variables have yet to be run against each other in order to determine the intercorrelation between pairs of variables.

### B. The Indicators

#### 1. The Employment Indicator

The project team recognized the inadequacy of the employment questions in the context of El Salvador, and tried out various solutions. In the end, the team separated the economically inactive population from the economically active population. The economically active population was then subdivided into the fully employed, the underemployed by wage, the underemployed by hours of work, the underemployed by wages and hours of work, and the unemployed.

#### 2. The Education Indicator

The education indicator presents literacy, level of schooling completed, and attendance by school session (morning, afternoon, evening) against the sociological control variables. The definition of these three indicator variables is straightforward.

An average indicator would complement the present set of indicators without complicating the analysis or presentation.

### 3. The Health Indicator

The health indicator includes incidence of illness (morbidity), medical attention, hospitalization, disability, vaccination for those under five years of age, and alcoholism for males over 15 years of age, run against the basic set of sociological control variables.

Weak spots are that, the respondent is asked to describe symptoms rather than name diseases. Further, the six-month recall period is too long. People are apt not to remember, or be able to date minor illnesses that occurred more than two months earlier.

The recall period should be shortened to two months and the alcoholism questions asked of both men and women.

### 4. The Food Consumption Indicator

The validity of the SPI food consumption indicator is not documented fully. The document reports that the indicator was constructed using primary data from a seven-day food recall survey, in combination with data from the National Household Consumption Survey.

Questions asking for recall data about food consumption have several weaknesses. Recall questions may elicit optimum quantities rather than actual quantities. The questionnaire used did not distinguish types of food, e.g., cuts of beef. Measurements are in pounds, and the women surveyed may not deal with amounts of food in those terms.

### 5. The Housing Indicator

The housing indicator, which is still being developed, not only describes housing conditions in El Salvador by sector and area but also attempts a summary housing index for comparative analysis overtime.

Several of the individual indicator variables suffer from the attempt to group particular characteristics into a single measure through the use of arbitrary weights.

Acceptable indicators must reduce the number variables presented without creating methodological problems over the assignment of arbitrary weights. One means to those ends is to select as indicators those variables that have demonstrable associations with other phenomena. The source of potable water and the type of sanitary facility are two such variables for water services. These two can therefore be presented separately, with the same methodology and in the same format as the indicators in other domains. The other items included in the water service indicator can then be eliminated.

House type is the only indicator where a single, specific characteristic will not suffice.

Beds and cots should be included in the list of household possessions.

#### 6. Other Indicators

The clothing and social communication indicators have yet to be developed. These two indicators have been left till last in part because there is as yet little demand for this information on the part of policy makers in El Salvador.

#### 18. Project Purpose

"to develop and utilize measures of levels of living in order to improve the ability of national agricultural and rural development planning units GOES and ultimately in other CA countries to better define rural development problems, and to evaluate rural development activities."

#### Objectively Verifiable Indicators

The purpose will be achieved when the concerned agencies assign officers to progress indicators (PI) activities and when disaggregated PI information is available and used in agricultural sector assessments and project evaluations.

#### Purpose

Progress has been made since the project's initiation in developing a methodology consisting of socio-economic indicators. This can be seen in the completion of Phases I, II and III of the program.

The initial set of indicators have been selected and includes employment, education, domestic food consumption, housing, health, and social communication components. Appropriate data have been collected and base-line indicators have been presented.

One important assumption is that better information on the characteristics and problems of the rural population will affect the form, location and magnitude of rural development programs.

#### 19. Project Goal

"to improve the quality of life of the rural poor".

Changes in incomes, consumption and access to services can be verified by special surveys and through the improved information systems the project is designed to promote.

#### 20. Beneficiaries

Direct beneficiaries from the project will be SIFCA/ECID and the Government of El Salvador with the development of the social indicator.

Indirect beneficiaries from the project will be the rural poor of El Salvador.

21. Unplanned Effects.

Project design did not anticipate that the GOES would incorporate the project developed indicators into its planning process as quickly as it has. However, because of the demands placed upon the Ministry of Planning to provide analytical inputs to the National Emergency Plan, the indicators have been used extensively to plan and target public sector investments as well as assess proposed changes in public policy.

22. Lessons Learned.

Lessons learned are well documented throughout the evaluation. One that deserves special attention, and is not unique to this project, is the problem associated with the transfer of systems that work well in the United States, e.g., the Atlantida model of multi-purpose household Survey, to LDC environments. The problem identified in the evaluation is not so much the transfer of methodology as it is the methodology transfer without full field testing and modification to take account of the recipient countries environment.

PROJECT DESIGN SUMMARY  
LOGICAL FRAMEWORK

Life of Project:  
From FY 79 to FY 83  
Total U.S. Funding 800,000  
Date Prepared: Dec. 20, 1978

Project Title & Number: Progress Indicators

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><b>Program or Sector Goal:</b> The broader objective to which this project contributes:</p> <p>To improve the quality of life of the rural poor.</p>	<p><b>Measures of Goal Achievement:</b></p> <p>a) increased net incomes of small farmer; b) higher real wages of farm and non-farm workers; and c) greater access of rural poor population to social services.</p>	<p>a) published income estimates of rural people; b) special surveys, including household surveys, designed to procure information concerning levels of living of rural population; c) informational systems generated by this project to measure changes in the levels of living of the poorest; d) increased expenditures on rural development activities and improvement in health, education and community service facilities.</p>	<p>Assumptions for achieving goal targets:</p> <p>A) That greater awareness of the problems of the rural poor will influence the design of rural development programs and policies; B) That the Government of El Salvador (GOES) and other CA Governments can alter income flows through rural development programs and policies; C) That statistical data in LICs will continue to improve; D) That LICs will provide political and financial support for rural and agricultural development programs.</p>
<p><b>Project Purpose:</b></p> <p>To develop and utilize measures of level of living in order to improve the ability of national agricultural and rural development planning units in the government of El Salvador and ultimately in other CA countries to better define rural development problems, to design programs and policies to solve these problems and to evaluate rural development activities.</p>	<p><b>Conditions that will indicate purpose has been achieved:</b> End of project status.</p> <p>a) concerned agencies assign officers to progress indicators (PI) activities; and b) disaggregated PI information is available and used in agricultural sector assessments and project evaluations.</p>	<p>a) survey of involved government agencies to determine if individuals have been assigned to work with progress indicators (PI) activities; and b) Review of agricultural sector assessments, project designs and evaluations to determine the usage of disaggregated PI information.</p>	<p>Assumptions for achieving purpose:</p> <p>A) That better information on the characteristics and problems of the rural population will be utilized and will affect the form, location and magnitude of rural development programs.</p>
<p><b>Outputs:</b></p> <p>A) A set of socio-economic progress indicators which would accurately describe differences in the levels-of-living between departments in El Salvador and between the rural poor and other groups. B) A number of technical reports on the methodologies used to construct the selected progress indicators and the results of statistical studies investigating the relationships between the indicators and measures of government development activities. C) 2 major seminars will be held to provide information about approach used and results obtained from work.</p>	<p><b>Magnitude of Outputs:</b></p> <p>A) Availability of progress indicators to relevant ministries in the GOES and other CA countries; B) Degree to which PI information systems are institutionalized in El Salvador; and C) Nine technical and methodological reports concerning the development of the project indicators.</p>	<p>A) Contractor technical reports and annual reports; B) Annual project evaluations; C) Survey of government agencies to determine utilization of PI data systems; and D) Routine project monitoring.</p>	<p>Assumptions for achieving outputs:</p> <p>A) That the selected progress indicators will be useful for project, program and policy planning purposes and should be sensitive to changes in government development activities; B) Cooperation and assistance will be provided to project team by GOES ministries, particularly agriculture planning, health and education; C) Necessary information will be available from multipurpose household survey and area frame sampling work; D) Government development activities can be measured and statistically related to selected PI.</p>
<p><b>INPUTS: AID:</b></p> <p>A) Long-term personnel 1. Sociologist, 2. Agricultural Economist, 3. Statistician/Prog., and 4. Secretary. B) Short-term personnel 1. CA and third country, 2. US</p>	<p><b>Implementation Target (Type and Quantity)</b></p> <p>AID</p> <p>A) Personnel (LT) 1. 4 yrs 2. 4 yrs 3. 4 yrs 4. 4 yrs B) Personnel (ST) 1. 240 da. 2. 480 da.</p>	<p>A) Contractor technical reports and annual reports; B) Annual project evaluations; and C) Routine project monitoring</p>	<p><b>ASSUMPTIONS FOR PROVIDING INPUTS:</b></p> <p>A) Contractor can provide necessary skills and experience; B) Reports will be prepared; and C) Seminars will be held.</p>
<p><b>GOES:</b></p> <p>A) Personnel 1. Part-time advisors-Ministry of Planning. 2. Part-time assistants-Ministry of Planning. 3. Part-time counterparts-SIM-Ministry of Planning. B) Operating costs of SIM (sample survey unit in the Ministry of Planning).</p>			

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SOCIAL PROGRESS INDICATORS, EL SALVADOR:

PROJECT EVALUATION

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USAID/W  
February 17-19, 1981

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## Social Progress Indicators, El Salvador: Background

The Social Progress Indicators (SPI) project in El Salvador aims to develop a set of measures that both reflects social and economic conditions in that country at one point in time and tracks changes in those conditions over time. The SPI project is entirely an analytic endeavor. The project uses a data base provided by the Unidad de Investigaciones Muestrales (UIM), a section of the Salvadorean census bureau. From these data, the project team selects items that provide simple, basic indicators of socio-economic conditions for use in the Salvadorean planning process. Because the sample was drawn, the topic areas selected, and the questionnaire items defined long before the SPI project began, none of these basic components of survey research is strictly pertinent to this evaluation. Even so, these matters are germane to the general consideration of social indicator systems based on periodic survey research, and they will be treated separately throughout this report.

Of the Central American countries, only El Salvador has the requisite system for the periodic collection of survey data. A permanent household sample ( $n=10,000$ ) had been defined during an earlier A.I.D. project. The government of El Salvador had established and maintains a permanent staff of enumerators, coding personnel, and computer programmers. And, a set of questionnaires had been constructed, but did not undergo appropriate testing; this has proved a continuing source of difficulty. In operation, the Salvadorean government conducts semi-annual labor force surveys among its sample of 10,000 households. (Data collection activities were suspended in the countryside late last year; some data collection activities continue in the metropolitan area of San Salvador.) Each survey consists of a basic questionnaire about labor force characteristics and one or two supplements, which cover different areas

of interest to the government, including education, health and housing. Completed questionnaires are then coded, edited, and tabulated by the UIM.

The SPI project has defined seven areas of social interest, five of which are in the realm of government action (education, health, housing, employment, and food consumption) and two in the private or individual sector (clothing and social communication). The five public-sector indicators have been the main focus of the project so far; the clothing and social communications indicators remain to be developed. In each domain, the project team has selected a number of characteristics or variables, items that it believes capture pertinent aspects of social progress, such as literacy in the area of education and medical services in the area of health. Each indicator variable is run against a standard set of sociological control variables--age, sex, occupation, income, residence (urban vs. rural), and geographic region-- in order to determine the distribution of each indicator variable throughout society and across space. In some cases, the actual distribution of services is compared to an equitable goal, which helps define for planning purposes the present gap in basic services to specific sectors and regions.

The guiding rules for the development of these social indicators are relevance to policy and simplicity. The characteristics chosen are to be basic, and their methodology simple, on the premise that the relationship between diagnosis and prescription in the planning process becomes more obscure as variables are combined into aggregate measures. Moreover, sophisticated analytic procedures outstrip available data bases and technical expertise in most Third World countries. In other words, the goals of the project are achieved to the extent that the methods and results are "intuitively obvious," that is, simple, basic, and realistic.

The SPI project is achieving its aim of reducing reams of computer output to a select set of pertinent tables. Heretofore in El Salvador, as in other developing countries, every item on every questionnaire was run against almost all other variables, and the output presented to the minister, who could not possibly have the time to analyze such detailed results. Now, a manageable and very basic set of indicator variables is presented to each minister. Equally importantly, the results have been incorporated into the Salvadorean planning process. The clear, well-organized presentations to government officials by the SIECA project coordinator will be just as critical for the success of this project as the advances of the technical team.

The project has received support from many people and organizations, particularly from individuals associated with the project in AID/W, ROCAP, SIECA, and the Salvadorean ministries. The Salvadorean support has been large and constant: the GOES has provided personnel and facilities for the project whenever necessary. In turn, the project team, with the assistance of the oversight agencies, has been able to define indicator variables for each domain in a very short period of time. On average, each set of indicators has been developed in less than six weeks. The short turn-around time has provided timely results for the Salvadorean ministries, which are presently obliged to develop effective social programs quickly. At the same time, it has meant that the quality of individual indicators is very uneven.

The SPI system must be refined before it is offered to other governments, which have already expressed interest in such a project. This evaluation therefore has two aims: first, to assess the progress of the SPI project after slightly more than a year of work; and second, more generally, to consider the use of survey research in the definition and monitoring of social conditions. The strict assessment of the SPI

project presents a summary of the progress to date before turning to a detailed examination of the individual indicators. The second half of this report considers survey research in social indicator systems, treating the sensitivity of questionnaires and the periodicity of change in basic indicators in relation to the costs of survey research. In essence, this part of the report asks to what extent the conditions in El Salvador that led to success are special, that is, to what extent social indicator systems based on survey research can be developed elsewhere. It must be understood at the outset that these two aims are distinct. Whether this project has met its contractual terms is at this time independent of whether social indicator systems based on survey research more than repay their costs.

#### The SPI Project: General Observations

The SPI project team has taken a progressive approach toward the development of a social indicators system. That is, once the indicator domains, and, within those, the individual characteristics or variables, were selected from the available data base, the SPI technical team focused on the construction of simple tabular results. These tables provide a synoptic view of social and economic conditions throughout El Salvador. Once the sets of indicator variables for each domain have been worked out, the team can begin work on the next step, the construction through more sophisticated analysis of indicators for diachronic analysis.

The use of an available data base is at once an advantage and a disadvantage. Limited to what was available, the project team could not waste time imagining all possible questions relevant for all possible users. Fortunately also, the available data base contains mostly basic items; there are few sequential, closed-probe questions for detail. The technical team has consequently developed a basic set of fundamental

indicators, without trying to work out more elaborate, hierarchical indicator subsystems, which would have less applicability across countries. The present set of basic indicator domains and variables should apply to most countries, with little adjustment for special circumstances.

The use of available data is a disadvantage where the data are poor or inappropriate. Although the household sample in El Salvador is carefully drawn and the data collection process is rigorous, the questionnaires contain many inappropriate items, as well as inappropriate phrasings of items. The questionnaires were mostly adaptations from models that had proven useful elsewhere, and do not appear to have been pretested very well. This procedure evaded the difficulties of questionnaire construction at the risk of later analytic difficulties. For example, the employment questionnaire, which is perhaps more site-specific than other domains, presents a host of complications. The definition of employment includes all people who worked at least one hour in the past week, effectively masking the level of underemployment, which is a known major problem in the Third World. The definition of economically active excludes all housewives, even though women in developing countries in general--and rural women in particular--contribute significantly to household income. The definition of income excludes subsistence activities, which surely distorts estimates of rural income and thus of the rural condition. Moreover, small farmers, whose income is seasonal, are asked how much they made in the past week from usual and occasional activities, a phrasing clearly more appropriate for urban employees than for rural farmers. Finally, the occupational classification elaborates urban activities in the so-called formal sector, but condenses rural activities into landed and landless small

farmer, which overlooks major differences within the generalized rural economy. Such definitions and phrasings naturally bias analysis toward the formal urban sector. They also very much complicate analysis of socio-economic conditions in developing countries, such as El Salvador.

Although the technical team has made a sincere and largely successful effort to overcome these deficiencies in the data collection process, they have not in all cases checked the levels of social and economic conditions as measured by their indicators against the levels reported in other available studies. The lack of independent verification raises the chances of bizarre results. This possibility, which has been realized in several of the indicators, is especially dangerous in El Salvador, where social and economic programs must be developed rapidly. Precisely because the reports of the SPI project are apt to be used as the basis for the program development, the results of the SPI analysis must be as reliable as possible.

Finally, the construction of a single numerical index for each domain--a "true" indicator--is problematic at best. Aggregate measures that summarize across individual variables in each domain can be seriously misleading because they mask so many different combinations of basic conditions. They create intractable methodological problems, particularly in the arbitrary weighting of items. And, they are useful only for comparative analysis between groups or areas and across time. Inasmuch as the basic tabular format already permits simple synchronic comparison, aggregate summary measures offer few advantages, and these mostly in diachronic analysis. Yet diachronic results can be analyzed in the same way as synchronic results, that is, through cross tabulations of each indicator variable against the control variables, with additional tables for changes over time. Overlay maps can then be used in those instances where a summary is necessary or desirable. These visual aids

provide a clear picture of social and economic conditions in a place at one point in time or over time, without raising the methodological difficulties in aggregate quantitative indices.

### Recommendations

#### Questionnaire:

1. Review and revise the questionnaires in light of the analytic difficulties encountered by the project technical team, and recommend to the UIM, which is now redrafting its survey instruments, appropriate changes in items and phrasings.

#### Analysis:

2. Define each indicator variable in such a way that it taps but one aspect in the domain. Combine distinct variables into a single indicator only where each variable covers but part of a characteristic, e. g., combine floor, wall, and ceiling materials into an indicator of house type.

3. Present each indicator variable in the finest degree of disaggregation possible, given the constraints of sample size, as is now done.

4. Use the simplest statistical procedures possible; for summary measures, use visual aids instead of sophisticated analytical techniques.

5. Assign lowest priorities to the development of composite indicators on the grounds that these will not be immediately useful and must undergo much testing.

6. Provide a measure of sampling error for the most important variables in each table.

7. Verify the results in each domain against all available independent reports, and pinpoint the sources of error in the indicator system or in the other studies when results are divergent.

8. For each indicator, consult available experts before defining variables and establish a technical review team composed of national and international experts to assess the indicator and its accompanying report before the indicator is presented to the government ministry.

### The SPI Project: Indicator Domains and Variables

Given the difficulties of the available data base and the insistence of Salvadorean officials for speedy results, it is not surprising that various of the indicators are less than ideal. The following discussion of each indicator domain and its variables is intended to assist the project technical team to refine further what is appreciated to be a worthwhile but difficult indicator system.

#### A. The Sociological Control Variables

The sociological control variables define who has or gets particular social services. For the most part, the variables are straightforward. Age and sex present no definitional problems. Geographic regions are usually already delimited by the government.\* Residence glosses rural and urban; where, as in El Salvador, a primate city exists, it is necessary to separate the metropolitan area from all other urban centers, as the project team has done.

The economic control variables, however, are not as clean. The income variable is defined as cash income, which necessarily biases analysis toward the urban formal sector. As long as work-in-kind and subsistence activities are excluded, both the urban informal sector and the rural sector--which groups essentially define the poor majority--will

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\* The division of El Salvador into nine regions permits analysis at the department level because similar small departments are combined into a single region. The GOES desires a more aggregate geographic division that distinguishes only among the eastern, central, and western areas. This regional classification can be developed and presented because the sample was originally designed by the department.

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appear much poorer than the urban formal sector. Insofar as informal and subsistence activities are not included on the original questionnaires, this imbalance will have to be corrected through arbitrary procedures.

The definition of economic activity or occupation also appears imprecise. The economically active population is categorized by employment status (self-employed vs. employee), sector (agriculture, industry, commerce, and services), and formality (formal vs. informal). The imprecision arises because formal is defined by size of firm: formal includes all firms with four or more paid employees, and informal includes all firms with three or less paid employees. Consequently, the weaver of 'typical' cloth with four paid employees falls in the formal sector while the auto mechanic with two paid employees falls in the informal sector. This definitional problem, which can occasion an orgy of debate, is important less in itself than for the confusion it engenders in other tables. Because the entrepreneurial weaver and the owner of an auto assembly plant are classed together, as are the local wholesaler who supplies petty marketers and the international importer, there are no clear breaks by economic activity or by sector (other than agriculture vs. all other occupations) in the other indicators, such as education or health.

Like the estimates of income, the occupational classification is weighted toward the urban sector. Although the project agreement clearly states that the project will focus on the rural sector, there are at least nine predominantly urban occupational classes, against only two rural occupational classes (minifundista and jornalero, that is, landed farmer and landless farm worker). Inasmuch as the rural sector in El Salvador is almost as populous as the urban sector, it would be worthwhile to distinguish not only between the landed and the landless countryside, but also, within them, among different combinations of

economic activities, such as, perhaps, the farmer-wage laborer, the farmer-merchant, the farmer-artisan. The point here is not an endless categorization of rural endeavors but a meaningful classification that permits statistical manipulation. Otherwise, government attention will be focused on job creation for a carefully defined urban sector but an amorphous--and presumably homogeneous--rural sector.

Similarly, unpaid employees are treated in the analysis as a homogeneous mass. This procedure confounds possible differences between rural and urban unpaid labor, which may distort analysis of employment conditions.

The sociological control variables have yet to be run against each other in order to determine the intercorrelation between pairs of variables. This is an important analytic step: if two variables are closely correlated, one or the other should be eliminated from the set of sociological control variables. According to the original work plan, this step would be undertaken in phase three. The progressive approach of the project technical team, however, requires intercorrelation of the control variables before further analysis.

### Recommendations

#### Questionnaire:

1. Include measures of in-kind and subsistence income for a more realistic figure of rural income.
2. Include a classification of rural occupations that represents the generalized nature of the rural economy.

#### Analysis:

1. Include a proxy variable, such as size of landholding, for in-kind earnings and subsistence production in the determination of family income.

Alternatively, reanalyze the income classification of the rural sector with a distinction between those families with land and those without.

2. Retitle the "formal"- "informal" dimension in the definition of economic activity "size of firm," which precisely captures this dimension. Also, intercorrelate size-of-firm with degree of formality (capital intensiveness) in order to demonstrate that size of firm is as accurate a measure of cost of job creation as the more difficult to define concept of formality.

3. Elaborate the classification of rural occupations, distinguishing among artisans, small farmers, and small farmers who engage in other activities. Use this finer classification only if it proves empirically useful.

4. Distinguish between rural and urban unpaid labor in the analysis.

5. Intercorrelate the control variables in order to eliminate redundant variables, if any.

## B. The Indicators

### 1. The Employment Indicator

The elegant simplicity of the employment indicator was achieved through much trial and error. The project team recognized the inadequacy of the employment questions in the context of El Salvador, and tried out various solutions. In the end, the team separated the economically inactive population (including housewives) from the economically active population. The economically active population was then subdivided into the fully employed, the underemployed by wage, the underemployed by hours of work, the underemployed by wage and hours of work, and the unemployed. The definitions of underemployment were determined by the questionnaire items: whether the individual had received the minimum

wage, and whether the individual had worked at least one hour or more than 35 hours in the previous week.

By these definitions, one-half of the working age population (over ten years of age) is economically active and one-half is economically inactive, of which a large proportion may be productive housewives. Of the 1,500,000 economically active persons, 44 per cent (622,000) were fully employed in the first half of 1978. Surprisingly, an equally large number--689,701 or 48 per cent--were underemployed by the wage measure. Wage underemployment was most severe in the agricultural sector (200%), but also extremely high (100%) in both in industrial manufacturing and commercial sectors.

These figures depict a bleak situation, which cannot be painted over through the redefinition of categories. Nonetheless, the definitions used in the present study may exaggerate the situation. Wage underemployment considers only regular and occasional cash income; non-cash income is not considered. Moreover, the data were collected during the off-season of the agricultural year. Consequently, by the wage criterion, only 45,000 minifundistas were fully employed while 110,000 were underemployed. Were subsistence production included, the numbers might just turn around, which would still indicate a serious rural problem.

The periodicity of the employment indicator is shorter than the six month period of a survey round. Depending on economic conditions, employment statistics may change weekly; in an agrarian economy, they will certainly change seasonally. The shortest time-frame for survey research, however, depends on sample size. With the Salvadorean household survey, there is enough sample size for a quarterly report on employment. There may be enough cases for monthly reports. The

employment indicator should therefore be recalculated on at least a quarterly basis in order to reflect the shorter periodicity of this indicator. Monthly estimates should be developed also, but tested for reliability before being promulgated.\*

The employment indicator has not been run by income class because income is used as part of the very definition of employment. Nonetheless, the table would be useful, with this caveat.

The employment report, which discusses the evolution of this indicator and presents the analytic results, poses a nettlesome problem for a project that is premised on the careful manipulation of quantitative data. Table 1 (below; p. 11 in the original report) purports to present employment goals by subcategory on the basis of employment data for the boom year of 1978 and the difficult year of 1980. If the 'gap' and 'goal' (columns 4 and 5) had been determined in this way, the goal for each category of employment conditions in 1980, would be identical to the percentage of the work force in that category in 1978. The absolute number would differ because the the work force was more numerous in 1980, than in 1978. The employment gap (brecha, column 4) would then be the difference between the goal (column 5) and the reality in 1980 (column 2). Instead of this simple algebraic procedure, an arbitrary and unrealistic level of open unemployment (7 per cent, which was 30 percent below the 1978 level) was exogenously fixed in order to set the overall employment goal (1,480,000) and gap (1,000,000). Other 'gap' figures

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\* The labor force information is available on a weekly basis because each sample cluster is surveyed within one week or two. Weekly statistics, however, would be based on too few cases to be reliable. (The date of each interview was not originally archived in the data set, an oversight that has now been corrected.)

Table 1:

GENERAL EMPLOYMENT TABLE<sup>2</sup>:  
CUADRO GLOBAL SOBRE EMPLEO

CONDICIONES DE EMPLEO	EFECTIVO		CAMBIO (3) = (2) - (1)	BRECHA (4)	META (5) = (4) - (2)
	1978 (1)	1980 (2)			
1. PEA (Población Económica- mente Activa)	1 500	1 600	100	-	1 600
2. EMPLEO	<u>1 350</u>	<u>1 380</u>	<u>30</u>	<u>100</u>	<u>1 420</u>
2.1 Ocupación Plena	750	550	- 200	130	630
2.2 Sub-empleo	600	830	230	- 30	800
i) Asalariado	200	380	180	-	230
ii) No asalariado	400	450	50	- 30	420
3. DESEMPLEO	<u>350</u>	<u>500</u>	<u>150</u>	- <u>130</u>	<u>370</u>
3.1 Abierto	150	220	70	- 100	120
3.2 Equivalente**	200	280	80	- 30	250
i) Asalariado	70	130	60	-	130
ii) No asalariado	130	150	20	- 30	120
4. TASAS (%)					
4.1 Desempleo Abierto	10	14	-	-	7
4.2 Desempleo Equivalente**	<u>13</u>	<u>17</u>	-	-	<u>16</u>
4.3 Desempleo Total	23	31	-	-	23

\* This table is presented in the Propuesta Evaluativa de las Condiciones de Empleo en El Salvador (p. 11), the discussion paper on the employment indicator prepared by the project technical team (June 30, 1980).

\*\* This term, desempleo equivalente or equivalent unemployment, is not precisely defined in the text of the discussion paper.

were then also arbitrarily fixed (note the paired converses in column 4) in order to suggest an economic policy for the government. This procedure, even where it accords with official Salvadorean policy, negates the very purpose of careful data collection and analysis for policy determination.

Further, the presentation of a table of employment goals, with a set of elaborate tables for each subsector, raises a thorny question over the nature of social indicator projects. Such projects are designed to monitor socio-economic conditions. Implicitly, unconscionable conditions or deleterious changes require government programs, which are shaped in part by the type and severity of the problem. Yet social indicator systems do not predict future conditions or goals. To venture into this political area of policy determination would require far more data and analysis than indicator systems projects possess. For this reason, SPI must refrain from setting future goals, which are properly the realm of host government ministries themselves.

### Recommendations

#### Analysis:

1. Include a proxy variable for non-cash income in the calculation of rural wage underemployment.
2. Compute the employment indicator on a quarterly basis, in order to capture seasonal variation in employment conditions. Recalculate this indicator on a monthly basis also. Test both quarterly and monthly results for level of reliability.
3. Run the employment indicator by the entire set of control variables.

4. Recalculate Table 1 (p. 11 of the employment report) in a manner that accords with the hypotheses and algebraic procedures mentioned in that text. Moreover, explain these hypotheses and procedures fully.

5. Present only those tables that depict actual conditions at one or more points in time; do not predict future conditions.

## 2. The Education Indicator

The education indicator presents literacy, level of schooling completed,\* and attendance by school session (morning, afternoon, evening) against the sociological control variables. The definition of these three indicator variables is straightforward.

It is clear from the tables that two-thirds of the population do not complete more than three years of schooling, that men go to school longer than women, and that the urban population is better educated than the rural population. (This last result has not been controlled for the in-migration of better educated rural persons.) There is also a clear and expected correlation between level of educational attainment and cash income (Table B-8). However, there are no clear differences in educational attainment by sector or economic activity, which may be due in part to the definitional problems in those variables.

An overage indicator would complement the present set of indicators without complicating the analysis or presentation. In its simplest form, this indicator records the number of students who are two or more years

\* The categories are: sin escolaridad, without schooling; parvulos, kindergarden; I ciclo, years 1-3; II ciclo, years 4-6; III ciclo, year 7-9; secundaria, years 10 and up, vocational training; bachillerato, years 10 and up, pre-university; superior no univer., technological institutes; universitaria, university. Otros, other, is an empty class.

older than the norm for each grade. In developed countries, this indicator helps spot areas with large number of potential drop-outs; in developing countries, an overage indicator helps identify areas where educational services are incomplete, so that children must re-enroll in lower grades in order to continue their education.

### Recommendations

#### Analysis:

1. Add an overage indicator to the present set of indicator variables.

3. The Health Indicator

The health indicator includes incidence of illness (morbidity), medical attention, hospitalization, disability, vaccination for those under five years of age, and alcoholism for males over 15 years of age, run against the basic set of sociological control variables.

The items and codes for this indicator, like the others, are determined by those on the original questionnaire, and the analysis can be no finer than the available data. Happily, these are primary, self-report data rather than secondary hospital-admission or medical-assistance record data, which largely eliminates the problem of multiple visits. Still there are several weak spots in the questionnaire. Specifically, the respondent is asked to describe symptoms rather name diseases. Though sensible where medical services are scant, this procedure makes the classification of illnesses quite broad (infectious and parasitic diseases; respiratory problems; all other). Moreover, this classification is slightly different from the hospitalization

classification (infectious and parasitic diseases; accidents, poisoning, and violence; other).\* Further, the six-month recall period is too long. People are apt not to remember, or be able to date, minor illnesses that occurred more than two months earlier. (The shorter periodicity, however, raises the problems of measuring what may be a rare event.) Finally, the six-month recall period, given the six-month period for a complete survey round, means that data are analyzed over the course of an entire year, without regard to seasonality. The tabulations for the health indicator report, which show some curious results in the incidence of illnesses when done by month, should be redone by seasons, which in El Salvador are two, the wet season and the dry season.

The alcohol questions are limited to adult males only. The questions should be asked of women also, for even if the true incidence of female alcoholism cannot be determined, a comparative analysis of female alcoholism with the basic sociological variables would indicate whether and where there may be a problem, and would permit later assessment of any increase in female alcoholism. Regardless of sex, the analysis of alcoholism must take into account its long gestation period. As now presented, the alcoholism table implies that this disease is as prevalent among young adults males (ages 15-49) as among older adult males (ages 50 or more). Since it normally takes about ten years of constant heavy drinking in order to ruin one's liver and require hospitalization, the analysis should be broken down more finely, probably by cohorts of a decade.

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\* These two items should be run against each other to verify that all people who reported having been hospitalized in the last six months also reported having been ill sometime in that period.

The original questionnaire, and thus this analysis, includes no items on mental illness, mental retardation, or physical handicaps, which groups surely demand the particular attention of health authorities. It may be, however, that mental health concerns can be captured only indirectly, through secondary indicators such as suicide and murder rates.

### Recommendations

#### Questionnaire:

1. Shorten recall period to two months, if particular types of illness do not then become rare events with high rates of sampling error.
2. Ask the alcoholism questions of both men and women.
3. Experiment with questions on mental retardation and physical handicaps.

#### Analysis:

1. Make the classification of illnesses parallel on all items.
2. Control the analysis of illnesses for seasonality.
3. Calculate the alcoholism indicator by cohorts of a decade.
4. Develop a dental indicator, as proposed by the project technical team.
5. Verify all health indicators with independent information from the Ministry of Health, and include this information in the health report for comparative purposes.

#### 4. The Food Consumption Indicator

The food consumption indicator has been termed by the SPI team a "food/nutrition indicator." A food consumption indicator, however, is distinct from a nutritional status indicator, and this difference should

clearly be made in the SPI report. Nutrition status is an outcome indicator that can be evaluated using anthropometric measurements of height, weight, and age. A food-consumption indicator measures food intake, which is only one of several factors that influence nutritional status. Calculations about percent calorie and protein adequacy can be made using food consumption data and are sometimes used as proxies for "nutritional well-being",\* but are not measures of nutritional status.

Food consumption is an important indicator in its own right because it is sensitive to changes in income, food availability, and price brought about by agricultural policies, agrarian reform, or rural development projects. Moreover, food consumption patterns are a reliable measure of the quality of living, better than just income, which can be distorted by factors such as inflation. In other words, food-consumption patterns can provide a critical and sensitive measure of changes in household or individual living standards. But the reason for using a food consumption indicator instead of a nutritional status indicator should be discussed in the accompanying text.

The validity of the SPI food consumption indicator is not documented fully. The document reports that the indicator was constructed using primary data from a seven-day food recall survey, in combination with data from the National Household Consumption Survey. This approach was necessary because the food recall survey included only 15 food items and left out some of the most important caloric protein sources for the rural poor: breads, pastas, potatoes, and yucca. When the team realized these

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\* The food-consumption indicator defines five levels of diet in terms of the presumed adequacy of caloric and protein intake. The adequacy of the Salvadorean diet is then described in terms of differences by age, sex, income, occupation, residence, and geographic region.

omissions, which were revealed by very low calorie intake of most groups, data were extrapolated for the missing food items from the National Household Consumption Survey. This procedure, although an expedient means of filling large holes in the data base, is decidedly not a desirable way of constructing an indicator.

Questions asking for recall data about food consumption have several weaknesses also. Recall questions may elicit optimum quantities rather than actual quantities, even from responsible female adults. (These data were presumably obtained from the adult female responsible for the family; however, no instruction or validation code for adult female respondent was included on the questionnaire.) The questionnaire used did not distinguish types of food, e.g., cuts of beef. Measurements are in pounds, and the women surveyed may not deal with amounts of food in those terms. Finally, the validity of seven-day recall data remains unproven.

The technical team used a number of conversion procedures in order to develop the food-consumption index. First, the quantity of each commodity reportedly consumed is converted into a standard measure of grams. Second, the grams of each commodity consumed are converted to calories and grams of protein, according to a standard table that takes into account average amount of waste. (For those commodities not included in the original survey, an estimate of protein and carbohydrate intake by income class is added to the family total. These estimates are based on an earlier study of income and food consumption in El Salvador.) Third, the total number of calories and grams of protein is divided by seven in order to determine the daily family intake of each of these elements. Fourth, the total daily family intake is then apportioned to individual family members. Using a comparative physio-

logical standard wherein an adult male equals 1, an adult female equals 0.8, and so on, the total 'human equivalence units' for each family is divided into that family's total daily intake. In this way each individual is assigned a value for his or her average daily consumption of calories and of protein. Individuals are then classified as well-fed, lacking calories, lacking protein, or lacking calories and protein, according to recommended levels. The presumption of food allocation within the family according to a formula may--or may not--reflect actual intra-familial food distribution. This is always a difficult problem to deal with and should be addressed in the final document describing the indicator. Also the final document should define what the recommended levels are based on--minimum requirements, recommended allowances, or some other standard--and identify the source.

The results of the food-consumption indicator do not accord with the findings of other studies on dietary patterns in El Salvador and elsewhere. According to calculations based on this indicator, 86 per cent of all children under 15 years of age are severely malnourished. Other studies set this proportion between 25 and 33 percent. Further, despite numerous studies that demonstrate preschoolers and women to be the groups most at risk in terms of caloric intake, the indicator study shows older children and men to be most at risk. The results show that 89 percent of children between seven and 14 years of age, and 89 per cent of men between 15 and 49--but 84 percent of the children under six years of age, 63 per cent of women between 15 and 49, and 59 percent of all persons over 50--consume less than 65 percent of minimum requirements. For another example, despite the usual situation where men are assumed to eat more meat and eggs than other family members, this study finds that

31 percent of men between the ages of 15 and 49 consume less than 65 percent of the minimum requirement for protein, in comparison with only 28 percent of children under six years of age and 18 percent of women between the ages of 15 and 49 who were found to have this low level of protein intake.

Although a food-consumption indicator is a worthwhile measure, the current indicator appears to present many methodological and substantive difficulties. Ideally, the food-consumption survey should be redone with an improved questionnaire including all important food items, and the new results checked against available independent studies. The results of the present indicator must be interpreted with the utmost care because a large proportion of the caloric and protein measure necessarily derive from arbitrary additions to the data base rather than from primary data.

The Ministry of Planning has available anthropometric studies. The Household Budgetary Consumption Surveys provide information on the type of food consumed and permit estimation of income elasticities of food. These already available data on anthropometrics, food patterns, and income elasticity together may provide a nutritional indicator that would be more reliable and of greater use in planning in El Salvador than the present food-consumption indicator.

### Recommendations

#### General:

1. Appoint a technical review team to review the accuracy of the data and their interpretation before any documents are circulated.

2. Compare the costs, reliability, and usefulness of the food-consumption indicator with a nutrition status indicator based on available data.

If it is agreed that the food consumption indicator should be pursued, the following recommendations should be carried out:

Questionnaire:

1. Include all relevant foodstuff items in the basic basket of goods.
2. Review and, where necessary, modify survey instrument conceptualization.
3. Record the sex, age, and role of the respondent to this supplement on the questionnaire. This questionnaire should restrict application to appropriate respondents.

Analysis:

1. Archive date of interview in data base and control for seasonality.
2. Highlight at-risk groups--children under five and women of childbearing age.
3. Compare project results with independent anthropometric survey data for children in order to validate the levels of dietary adequacy reported in this analysis. Further, compare project results for caloric and protein consumption with those from the independent household expenditure study.
4. Compare project results for consumption patterns by age and sex, and by region, against all other available studies.
5. Reanalyze actual consumption patterns once survey research is renewed in El Salvador and improved food-consumption data are available.
6. Explain fully the methodology of constructing this indicator. (As a minor example, specify whether the determination of dietary adequacy is based on minimum requirements or on recommended daily allowances, and why.)

## 5. The Housing Indicator

The housing indicator, which is still being developed, not only describes housing conditions in El Salvador by sector and area but also attempts a summary housing index for comparative analysis over time. These two purposes are distinct and require different methods. The determination of the adequacy of housing for policy use requires only tabular presentations of housing type (regular, rancho, marginal); construction materials (concrete, wood, adobe, straw) for floors, walls, and ceilings; services (electricity, water, sewerage, garbage); and possessions (radio, television, dining room set, floor polisher\* or vacuum cleaner). The construction of a summary indicator, by contrast, may involve individual indicator variables or groups of variables. Such aggregate presentations are not, however, directly useful to planners concerned with the specific needs of particular groups for program purposes.

Several of the individual indicator variables suffer from the attempt to group particular characteristics into a single measure through the use of arbitrary weights. For example, in the area of house services, electricity, drinking water, sanitary facilities, and sewerage all have equal weight in the general indicator, six points maximum each. In each of these areas, the specific type of facility is assigned a weight determined by the presumed adequacy of the facility. For drinking water, interior plumbing is assigned six points; communally piped water,

\* The Spanish for floor polisher varies by country: lustradora, enceradora, cepillo electrico. This last, which was not used in the present questionnaire for El Salvador, might elsewhere be confused with a wire buffer or an electric toothbrush.

five points; public well water, four points; private well water, three points; common well water, two points; cisterns, one point; and rivers and other natural water sources, no points. The scores for the type of facility for each service are then summed for each household, and the range of total scores is broken into arbitrary numerical categories. Each household is then assigned a qualitative rating (good, bad, very bad), determined by its cumulative score for all services.

Acceptable indicators must reduce the number variables presented without creating methodological problems over the assignment of arbitrary weights. One means to those ends is to select as indicators those variables that have demonstrable associations with other phenomena. The source of potable water and the type of sanitary facility are two such variables for water services. These two can therefore be presented separately, with the same methodology and in the same format as the indicators in other domains. The other items included in the water-service indicator can then be eliminated.

House type is the only indicator where a single, specific characteristic will not suffice. The questionnaire records the construction materials for floors, walls, and roofs. In this case, qualitative criteria may be used to define the adequacy of housing construction. The Ministry of Housing has determined that the most important part of a house are the walls; they are also the part of a house that residents typically improve first. Thus all houses with substantial walls can be defined as at least adequate. Impermeable roof materials and solid, dry flooring can then differentiate houses into the evaluative categories of adequate, better than adequate, and significantly better than adequate. Inadequate housing, by definition, are those habitable dwellings without substantial walls. (Parenthetically, the evaluative categories--good,

adequate, poor, and miserable [pesimo]--should be respecified for descriptive precision. As presently used, these evaluative terms gloss quite different matters in each area. 'Good,' for example, means substantial building materials in the house-type indicator, but interior plumbing, private bath, and sewerage in the water-services indicator. Precisely descriptive labels would greatly assist the reader in interpreting the tabular results.)

The difficulties with the present housing indicator point up important philosophical and methodological concerns about classification in quantitative analysis. Arithmetical grouping procedures, such as those used in the present indicator, appear to avoid such old problems. The problems, however, are inevitable. Numerical procedures only evade the difficulties, while introducing irresolvable complexities in interpretation due to the use of arbitrary weights for characteristics that are not readily scaled. It is better to confront the issue head-on. It is man, not machine, who must determine the classifications. Qualitative decision rules for ordering characteristics make the methodological problems of classification explicit. The ordering of decision rules must be determined empirically and documented fully, which requires much preliminary work. But at least an empirically determined, fully documented set of qualitative decision rules for quantitative analysis is infinitely more defensible than an arbitrary arithmetical procedure that disguises numerous qualitative decisions about ranking.

#### Recommendations

##### Questionnaire:

1. Include beds and cots in the list of household possessions.

### Analysis:

1. Respecify each indicator to encompass only a single variable.
2. Use qualitative ordering rules, instead of arithmetic weighting procedures, to group characteristics whenever single-variable indicators are not possible.
3. Explain procedures fully in the text, and provide supporting documentation for all decisions.
4. Give precisely descriptive, rather than evaluative, headings in the tabular presentations of each indicator.

### 6. Other Indicators

The clothing and social communication indicators have yet to be developed. These two indicators have been left till last in part because there is as yet little demand for this information on the part of policy makers in El Salvador. It is nonetheless worthwhile to develop these two indicators in order to ascertain their potential usefulness in the planning process.

## PART II

### Social Indicator Systems And Survey Research

#### General Observations

Social indicator systems\* reduce the multitude of social and economic characteristics to a basic set of variables that can be used to monitor change. Ideally, each indicator covers but one facet of the global concept termed 'quality of life,' so that the set of indicators focuses attention on a congerie of discrete variables that characterize any population. Periodic collection of this information enables government officials to identify in summary fashion those areas or groups that benefit little from particular programs. Social indicator systems, however, only signal the need for support. As a set of outcome-indicator variables, they do not specify the causes of change, nor do they determine the type of support or program needed. Moreover, while social indicator systems facilitate rational planning and program development, they do not guarantee those ends.

To collect basic information periodically within a country requires a permanent national survey research system. Survey research is an exacting and complicated process. A sample must be carefully drawn and maintained. Questionnaires must be composed for each topic and pretested

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\* Presently, three social indicator projects are underway in Central America. The Salvador project has been discussed at length in this report. The IICA-PIADIC project has yet to develop a set of useable questionnaires, which will have to be pretested and refined. The CEPAL project reportedly involves the analysis of aggregate data from available national sources. Inasmuch as this last is a regional project in Central America, the indicators are not presented at a level of disaggregation that would be useful for local planning.

to ensure that all items reliably elicit the desired information.

Trained survey teams must keep to a rigid schedule for interviewing, and their work must be constantly supervised. The coding process must be simple and rapid, with thorough editing procedures. Finally, skilled programmers and analysts must maintain data banks and create programs for quantitative analysis. All of these components must be in place in order to ensure the ability to generalize with confidence from the sample to the entire population: survey research is an all-or-nothing affair. If any step of the process is deficient, the justification for the endeavor is lost completely.

Most Third World countries still lack parts of the data collection process necessary for social indicator systems. In Central America, for example, Honduras and Nicaragua have no system for short-run periodic data collection; Guatemala collects some data annually. None of these countries yet has a nation-wide sampling frame, although one could be installed within a year because detailed maps are available.\* Costa Rica, El Salvador (until recently), and Panama have sampling frames and conduct multipurpose household survey at least biannually. (Figure 1 lists all

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\* Sample definition requires maps with a scale of 1:50,000 in order to delimit preliminary survey areas and more detailed maps to demarcate actual survey units within those areas. (The lack of detailed maps would likely prolong the time required for sample definition another six months.) The cost of defining a sample will be generally similar in all countries because sample size and thus the number of survey units are essentially fixed by statistical requirements (below). That is, the costs of sample definition will vary more with the prevailing wage rates than with the geographic size of a country. To judge from the household-sampling project in El Salvador, these costs will run about \$150,000 dollars. (In that project, the Government of El Salvador paid two-thirds of the costs, and USAID financed the remaining third.)

MULTIPURPOSE HOUSEHOLD SURVEYS CONDUCTED IN THE AMERICAN REGION, BY COUNTRIES, 1960-1980 1/

Country

Household surveys by year and period

Country	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Argentina	-	-	-	-	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Barbados	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	S	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T
Canada	-	-	-	-	-	-	-	T	T	T	A	A	A	A	-	-	-	-	-	-	-
Colombia	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	A/II
Costa Rica	-	-	-	-	-	-	-	-	-	-	C	C	C	-	C	S	T	T	T	T	T
Chile	-	-	-	-	-	-	-	A	S	S	S	S	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	C	C	C	S	S	S	A	C	C	C	C	C	C	C	C
El Salvador	-	-	-	-	-	-	-	-	A	A	-	-	-	-	-	B	-	-	-	-	-
Estados Unidos	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	A	-	-	-	-	-	-	-	-	-	A/S
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
México	-	-	-	-	-	-	-	S	S	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	T	T	-	A	-	-	-	S	S	S	S	S	S	S	S	S
Panamá	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T	T	T	T	T	T	T
Paraguay	-	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Perú	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
República Dominicana	-	-	-	-	A	A	A	A	A	A	S	S	T	H	S	B	B	B	B	B	B
Suriname	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trinidad y Tobago	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	S	S	S	S	S	S	S	S	S	-	B	B	S	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	S	C	C	C	C	S	S	S	S	S	S	S	S	S

1/ Excluding: Commonwealth of Dominica, Grenada, and St. Lucia.  
 Source: OEA/IASI, Household Survey carried out in the American region, page 142 (updated, June 1980); consultation with the countries relating to the design proposed for the Inter-American Household Survey Program (doc. IASI 7597-4/22/80).

References

- A - Annual
- B - Biennial (once in 2 years)

countries in Latin and South America and notes the periodicity of their household surveys.) Even in these countries, however, the conceptualization of questionnaires is poor. As the evaluation of the El Salvador social progress indicators project demonstrates, most available questionnaires include many items that are inappropriate or inappropriately phrased, while omitting many pertinent matters. The need for adequate survey instruments--questionnaires that derive from the stated purposes of a country's particular research needs and not from some other country's aims and goals--is the most gaping hole in Third World data collection processes today. While well conceived and appropriately phrased questionnaires may be the greatest lack, there is a potential problem where massive, periodic data collection systems are installed successfully: the scarcity of personnel skilled in data processing and analysis. To develop quantitative systems will require expansion in the ranks of data processors and analysts.

All the requisite steps of quantitative data systems--sampling, questionnaires, interviewing, processing, and analysis--can be put in place. Although one or another step may be handled better in a country, techniques for each step are available and, for the most part, universally applicable. Only questionnaires need reconceptualization for the particular purposes of Third World countries. Thus the question is not whether these tasks can be done, for the answer is, in theory, of course yes.

To install a structured data collection program would help overcome problems evident in current periodic data collection systems. First, a permanent periodic data collection system would eliminate the recurrent problems of constantly retraining new staff, who however dedicated, invariably commit numerous learning errors. Secondly, at the outset, interviewing is often done on a haphazard schedule, almost catch

as catch can. This research design causes no difficulty for one-time studies, where the major concern is to interview all households in the sample. For periodic data collection, however, repeated interviews with the same households require strict adherence to a rigid interview schedule, so that the same families are interviewed during the same week in each survey round. This stricter research design increases intertemporal comparability. Thirdly, and perhaps most importantly, a periodic data collection system permits feed-back between analysts and interviewers, so that questionnaires can be improved gradually. The improvement must be gradual, so that current results remain comparable to earlier results. This indeed may prove to be the greatest benefit of a structured data collection system.

The key question, however, is whether the use of the information on social conditions gathered through survey research outweighs the cost involved. Total cost varies largely with sample size, which is effectively set by the levels of confidence acceptable for analysis. In general, 11,000 households, which includes a 10 per cent factor for attrition, is sufficient for national and regional analysis, regardless of the size of a country. In El Salvador, this sample size yields coefficients of variation for a 'rare' event--a characteristic associated with only five per cent of the population--of five per cent at the national level and 10 per cent at the regional level, but 20 per cent at the department level. (There are nine regions and 14 departments in El Salvador.) In a larger country, the coefficients of variation would be similar for national estimates, as well as for regional estimates, if the regional classification is not more elaborate.

To analyze data for smaller administrative units requires significantly larger total sample size necessary for reliable estimates. In El Salvador, the nine-fold regional classification effectively allows

departmental analysis because in several instances, contiguous small departments are combined into one 'regional' unit. By contrast, in Brazil, which has 22 states, all of which are larger than any Salvadorean department, a sample size of 60,00 households is necessary in order to estimate characteristics for each state with confidence. (A sample size of 60,000 approaches the practical limits on periodic data collection. The U.S. household survey canvasses approximately 50,00 households.) Analysis at the municipio or township level is simply impractical because any unit requires about the same sample size as the original sample. To monitor conditions in the 220 municipios of El Salvador, for example, would require sampling one in every five households, some 220,000 families in total. At this point the logistical problems are insurmountable, and the advantages over a complete census minimal.

Assuming an average sample size of 10,000, which is statistically and practically the optimum size, cost estimates for periodic data collection will vary with the distribution of population and the level of personnel employed. According to cost information from the Salvador UIM provided by SIECA, the cost for field data collection runs about \$6 per interview, while the total cost, including analysis, runs about \$14 per interview. These estimates may be slightly low. An earlier (1975) study calculated the average field costs to be \$10 for an urban interview and \$25 for a rural interview. These are still significantly less than survey costs in this country, which, not including transportation, currently run between \$25-\$50 per interview when local people are hired and between \$75-100 per interview when professionals are retained. (Survey research in Latin America usually employs paraprofessionals.)

Table 2 presents the actual costs of survey research in EL Salvador and the probable costs in Guatemala. Even when sample size and wage rate are held constant, the cost of one six-month round is higher in Guatemala

TABLE 2  
ESTIMATED SURVEY COSTS (EL SALVADOR AND GUATEMALA)  
BY SAMPLE SIZE, POPULATION, AND WAGE RATE

Country	Population	Number of Households	SAMPLE SIZE	PERCENT UNEMPLOYED	Cost per 6-month round			Annual Cost for two 6-month rounds
					@ \$15/interv. (\$200/mo salary for paraprof. only) <sup>a</sup>	@ \$22.50/interv. (\$400/mo salary for paraprof. only) <sup>b</sup>	@ \$37.50/interv. (\$800/mo salary for profess only) <sup>c</sup>	
El Salvador	5,000,000	1,000,000	10,000	40% <sup>d</sup>	\$150,000			\$300,000
Guatemala	7,000,000	1,400,000	10,000	33%	\$170,000			\$340,000
			10,000			\$238,000		\$476,000
			10,000				\$425,000	\$850,000

Assuming 50% of the population is urban, \$15 average cost represents \$10 per urban interview and \$20 per rural interview  
 " " " " " \$14 " " " " \$28 " " "  
 " " " " " 37% " " " " 25 " " " " 50 " " "

because more of its population is rural. (That many of the rural areas are more inaccessible than in El Salvador would only increase this difference.) When the wage rate is varied to reflect the higher salary structure in Guatemala, the cost difference increases even more. What costs \$150,000 per survey round with paraprofessionals in El Salvador would run in Guatemala \$235,000 with paraprofessionals and \$425,000 with professionals. These are only the six-month totals. The annual cost in El Salvador totals \$300,000; in Guatemala it would run between \$475,000 and \$850,000. In a longer view, the cost of biannual household surveys over the course of a decade would likely equal the cost of a decennial census.

These costs would increase further if interview times were lengthened. In El Salvador, each interviewer is expected to average eight half-hour interviews each day. (While this goal might be attainable at the outset of the survey in densely populated areas, it becomes more difficult to achieve once repeat visits to houses become necessary in order to encounter a respondent at home. In the countryside, the goal is unattainable at the outset.) If the length of time for an interview were to increase so that each interviewer could accomplish on average only six interviews a day, manpower needs would increase by a third. Additional labor and transport costs would increase total costs by 25 to 33 per cent, to \$400,000 a year in El Salvador and to nearly \$1,000,000 a year in Guatemala. This represents a major recurrent investment of limited resources.

The money buys more timely basic data. The major complaint about census materials is that they are two to three years old when they first become available and that they are often fifteen years out of date before the new census materials are published. Moreover, censuses collect

national information on only a few basic topics. One advantage of periodic sample surveys is that the results are available quickly, within a few months after the termination of that round. Up-to-date data, it is argued, make firmer grounds for rational planning. Periodic surveys also provide more "in-depth" information than censuses, though not as much information as qualitative studies.

Periodic survey information necessarily covers only fundamental characteristics that measure quality of life. Survey interviews must be kept short, under 30 minutes in length. This limitation derives from the length of time an interviewer can impose on an individual or family and from the degree of detail people will volunteer about themselves, as well as from management problems.\* Moreover, the necessity for a face sheet on family structure halves the time for brief supplements on topics of particular interest. The 15 or 20 minutes remaining is sufficient for a like number of questions, fewer if any item pertains to all family members. Consequently, the questions asked deal with major characteristics only; there is not time to include more sensitive items, which many people would decline to answer forthrightly.

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\* From a management perspective, longer interviews mean more interviewers, coders, and supervisors, which typically increases the number of errors in interpretation, coding, and key-punching. Moreover, the time required for data processing increases as the error rate rises. This is one justification for closed formats which provide an exhaustive list of all relevant answers. This format reduces interview time and the error of interviewer misinterpretation. Even more importantly, it reduces coding time, the level of coder training, and the risk of coder error through misinterpretation. Essentially, closed formats reduce coding to a mechanical process that can be performed by clerical personnel, unlike open-ended questionnaires where the interviewer notes the respondents' answers verbatim and which require well-trained and sensitive coders, who cross-check their coding decisions with each other. The trade-off is in sensitivity. Closed formats predetermine the answers and unless carefully pretested, may produce spurious or irrelevant answers or miss important aspects.

The necessity for brevity and closed formats in large-scale survey research limits socio-economic indicators to basic measures that have a relatively long periodicity. As the El Salvador survey program demonstrates, the useable information is limited--literacy, level of schooling completed, proportion of overage students in the education sector; morbidity, medical services, and hospitalization in the health sector. In contrast to economic indicators, these fundamental social indicators do not for the most part change quickly without a concerned, successful program on the part of the government. In other words, social indicator systems are capable of monitoring only those conditions that change in the medium run of three to five years.

The Inter-American Statistical Institute (IASI) recommends collecting only 'basic population characteristics' (that is, family structure, or the name, age, and relationship of all persons residing in a household) and labor force data on at least an annual basis (Figure 2). In their schedule, the other topics--fertility, migration, health, food consumption, nutrition, housing conditions, education, and household economic level--need be covered as a minimum program only once every five years. That is also the period of time necessary to complete the suggested cycle of supplementary topics.\*

The heavy costs of social indicator systems are more readily assessed than the long-run benefits. The true benefit of these systems lies in their planning uses over time. To date, only Brazil operates a system of permanent periodic data collection. And in that country, the demand for

\* The relatively long periodicity of most basic socio-economic variables, the likelihood of further reducing the number of items on each questionnaire, and the need to maintain staffs trained in quantitative data collection and analysis are all good reasons for instituting social indicator systems within the agency in each country that is charged with statistical analysis. In most countries, this agency would be the national statistics office.

Figure 2

SUGGESTED TIME SCHEDULE FOR TOPICS COMPRISING MINIMUM PROGRAM, ACCORDING TO AREA AND TOPIC

C = Continuing; S = Supplemental module; SS = Special survey

Area of investigation and survey topic	Type of survey	Year				
		1st	2nd	3rd	4th	5th
<b>I. <u>Demographic characteristics</u></b>						
1. Basic population characteristics .....	C	x	x	x	x	x
3. Fertility.....	S	-	-	-	-	x
4. Internal migration .....	S	-	x	-	-	-
<b>II. <u>Health</u></b>						
3. Immunization against communicable diseases .....	S	x	-	-	-	-
<b>III. <u>Food consumption and nutrition</u></b>						
1. Consumption of selected high protein foods .....	S	-	-	-	x	-
2. Type and quantity of food consumed .....	-	-	-	-	-	See (VII-3)
<b>IV. <u>Housing conditions and facilities</u></b>						
1. Basic housing unit characteristics .....	S	x	-	-	x	-
2. Structural and occupancy characteristics .....	S	-	-	-	x	-
<b>V. <u>Education</u></b>						
1. Educational attainment .....	S	-	-	x	-	-

Figure 2

SUGGESTED TIME SCHEDULE FOR TOPICS COMPRISING MINIMUM PROGRAM, ACCORDING TO AREA AND TOPIC

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Area of investigation and survey topic	Type of survey	Year				
		1st	2nd	3rd	4th	5th
<u>VI. Employment, unemployment and underemployment</u>				-	-	
1. Labor force .....	C	x	x	x	x	x
2. Economic situation of the own-account worker .....	S	-	x	-	-	-
<u>II. Economic level of the household</u>						
1. Annual income and work experience .....	S	-	-	x	-	-
3. Household income and expenditures * .....	SS	-	-	-	-	x

Household income and expenditure survey questionnaires for VII-3 include queries on type and quantity of food consumed.

primary data from government agencies has increased constantly over time, as bureaucrats have realized the utility of specialized, periodic information. In other countries, however, it is unclear whether there exist the resources and bureaucratic skills necessary to maintain periodic data collection systems, even where there is a definite demand. No less importantly, it is unclear whether even responsive governments could implement the programs necessary to counteract particular social and economic conditions effectively.

(That the social progress indicator project has met rapid acceptance in El Salvador is no argument for such systems. El Salvador lacked even approximations to current socio-economic conditions.\* However uneven in quality, the results of the SPI project filled this immediate need for static analyses. Social indicator systems, by contrast, are dynamic monitoring systems. Diachronic analyses require much greater exactitude than the SPI project has shown to date. Conditions must be accurately assessed at two points in time in order to track change, for if the margin of error is large, changes over time will not be apparent, or worse, false trends may be discerned. There is, therefore, great need for improvement in questionnaires and analyses before the results can be used productively in monitoring change.)

Only periodic household surveys can regularly provide information on fundamental social and economic conditions. But the investment required

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\* The need for up-to-date analysis of conditions in El Salvador points up an important qualification to the arguments about the periodicity of basic indicator systems. Where, as in El Salvador, the political or economic situation is unsettled, social conditions may change rapidly. Unfortunately, where the situation is violent, survey data collection must be curtailed or suspended, which severely limits the usefulness of social indicator systems.

to establish and maintain such systems is enormous. To be sure, the definition of a nation-wide sample can be quickly amortized where special surveys are the order of the day. But the installation of a nation-wide sample is just the first step in developing a periodic data collection system, and it is not the most expensive step at that. Data collection is the most costly expense, and it is a recurrent expense. Against these costs must be weighed the gains from limited, basic, but timely information.

An ideal data collection system would include decennial national censuses, periodic household surveys, and special or "spot" studies. These data collection components are complementary, in that each serves a distinct set of needs and aims. Censuses provide estimates of particular conditions in very local areas. Household surveys permit more frequent estimates of more conditions, but only for larger areas and only for basic concerns. "Spot" studies permit deeper analysis of these same and other concerns, among other advantages.

For short-run change, where government planners are interested in the impact of particular projects on specific groups or regions, the assignment of a skilled professional to monitor change in the area or among the group is quite feasible. This approach has several advantages over the survey method. First, a single full-time professional can construct random samples and, with local assistants, conduct survey research whenever the need arises, thus providing useful quantitative data. Second, a single on-site professional will in very short order come to know the relevant problems that are accessible through survey research. The questionnaires will quickly become more relevant to the problems at hand. Third, the professional, and his or her assistants,

if any, will also gather a great deal of qualitative information that is presently lost in survey research.

The complementary relationship between quantitative and qualitative information is particularly critical in Third World countries. Unlike this country, where decades of work have corroborated our assumptions, we do not know in many Third World countries just what we are sampling from. Further, we do not know whether the pieces fit together in the same way and for the same reasons as they do in this country, though, admittedly, that is the case in many instances. Fourth, the qualitative information collected by professionals and paraprofessionals goes far beyond the sharp limits of survey research. Both greater depth and greater breadth are possible. The details can assist program managers to ascertain which aspects of the program need readjustment. The breadth is necessary in order to assess the consequences of particular programs on other aspects of life--the so-called unintended consequences. Fifth and finally, a single professional with assistants, transport, and research budget would cost one-third to one-tenth of a survey research project. A team in a region would probably cost about \$100,000 a year, compared to the hundreds of thousands, and even millions of dollars for survey research.

Most people would probably agree that censuses, periodic surveys, and spot studies are in theory all necessary and useful components for a complete data collection system. Most people would also probably agree that where only one component is possible, that component should be the decennial censuses system. Disagreement arises over what should be the second component for an expanding system--periodic surveys or special studies. In practice, these two alternatives are not mutually exclusive. Special studies will always be necessary to define and

monitor projects. The question thus becomes whether social indicator systems based on survey research, which is a complicated, rigorous, and expensive process, absorbs too many resources at the expense of other necessary, local studies. To this question there is no easy answer. The choice between approaches is not either-or. It is a choice of which methods for what ends, in the context of limited resources.