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EVALUATION REPORT ON THE CONTRACEPTIVE
PREVALENCE STUDIES PROJECT

A Report Prepared By:
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I. Introduction: Purpose and Objectives of Project and Evaluation

A. Background of Evaluation

1. Rationale--The Contraceptive Prevalence Studies (Contract No. AID-pha-C-1194) is a 27-month activity begun on October 1, 1977 and scheduled to expire on December 31, 1979. Westinghouse Health Systems is the contractor for the Contraceptive Prevalence Studies (CPS). The project paper for this activity calls for one intensive evaluation on or about October 1978.

2. Objectives--The primary objectives of this evaluation are to: (a) assess the quality and quantity of actual U.S. planned project outputs, and (b) make specific recommendations as to how project operations and methodological procedures can be improved in order to maximize the quality and usefulness of CPS data. The findings of the evaluation will enable the Office of Population to effect appropriate modifications to the project, and will feed into a decision by the Office of Population on whether to seek continuation and expansion of the project or to allow it to expire as planned.

3. Composition of Team--The evaluation team included two members: (a) Dr. Dennis P. Hogan, Faculty Associate, Population Research Center and Assistant Professor, Department of Sociology, University of Chicago, as the team leader; and (b) Mr. Richard M. Cornelius, the CPS contract monitor from the Office of Population. Originally it was intended that the evaluation team include a third member from either the Program Office of the Development Support Bureau or from the Latin America or Asia Regional Bureau of USAID. However, the work schedules of suitable people from these offices did not permit them to take part in the evaluation. The evaluation therefore proceeded with a two-member evaluation team. Dr. Hogan was given primary responsibility for drafting the evaluation report. Mr. Cornelius reviewed and revised the initial draft in consultation with Dr. Hogan prior to its final submission to the APHA for publication.

4. Dates and Places of Evaluation--The evaluation began with a half-day briefing of Dr. Hogan on the evolution of the Contraceptive Prevalence Studies project at the Office of Population on November 27, 1978. The briefing was conducted by Mr. Cornelius. The evaluation team carried out a three-day site visit at Westinghouse Health Systems, Columbia, Maryland from November 28-30, 1978. During the site visit the evaluation team conducted an in-depth review of project documentation and held discussions with key members of the Westinghouse staff. The evaluation team did not visit any of the overseas sites of the CPS surveys; the

evaluation of the quality and scope of the overseas surveys is based on a review of the project documents, trip reports, progress reports, and on interviews with the Westinghouse staff.

B. Description and Purpose of CPS Project

The Contraceptive Prevalence Studies project is a 27-month project with the objective of carrying out periodic sample surveys of contraceptive knowledge and use in six developing nations with active public and/or private sector family planning programs. During the contract period six first-round and two second-round surveys are to be carried out. The results of the surveys are to be published for use by family planning program administrators in developing nations and by AID.

By conducting prevalence surveys on a repetitive basis, this project is expected to generate a continuous flow of data that will provide a representative picture of family planning activity in several key developing nations. The emphasis in these studies is on the measurement of the full community and household availability of contraceptive services and their utilizations. This coverage is broader than that of existing client record systems (which measure only clinic family planning use) in that the emphasis is on the acceptance of family planning from all sources. This is precisely the type of data required to evaluate the effectiveness of community-based distribution systems and commercial and/or private contraceptive distribution systems that have received support from AID and other assistance organizations.

C. Evaluation Protocol

The evaluation team fully reviewed the quantity and quality of basic survey documentation, preliminary data analysis reports, survey agreements, trip reports, project progress reports, and project financial reports. The team also questioned the Westinghouse staff about relevant aspects of the projects not fully covered in these project materials. The evaluation included an examination of: (1) the project development phase; (2) the project implementation phase; and (3) the management of the project.

The evaluation team concerned itself with getting answers to a number of basic questions, including:

(1) Is the project design sufficient to achieve the objectives of the project?

(2) Has Westinghouse developed a project strategy

which has allowed it to adhere to the implementation plan in the Project Paper? In what ways can project strategy be improved?

(3) What is the current and projected utilization of CPS survey results?

(4) Is the staffing pattern at Westinghouse adequate for project success?

(5) Has Westinghouse exercised sound technical and fiscal management skills in reviewing this project?

(6) Has Westinghouse adhered to the reporting requirements in the project?

(7) Has AID funding been adequate to enable Westinghouse to achieve prescribed project outputs? How do projected versus actual survey costs compare?

D. CPS Project Objectives

The objectives of the Contraceptive Prevalence Surveys are threefold:

(1) To determine contraceptive prevalence (i.e., knowledge and use) rates at national and subnational levels;

(2) To examine differentials in contraceptive prevalence rates in order to assess the impact of governmental and non-governmental family planning services and to identify factors effective in promoting contraception; and

(3) To institutionalize the CPS studies in the country so that they may then be undertaken at regular intervals by a local organization.

II. Evaluation Findings and Recommendations

A. Major Recommendations

Based on our evaluation we make the following recommendations regarding the Contraceptive Prevalence Survey project:

1. Westinghouse should immediately fill the vacant position on the project staff. Westinghouse should consider bringing in an outside expert on contraceptive availability as a consultant for the design of the availability data analysis.

2. The core questionnaire should be modified to

include attitude towards family planning and age at first marriage (or first sexual activity) questions. The core document for data coding should discontinue the practice of using both blank and zero codes with unique meanings for variables.

3. Westinghouse should develop a complete model tabulation and analysis plan to guide countries in their report writing. The plan could be based on the tabulations worked out for the Costa Rican study. It is essential that this plan include a complete analysis of the contraceptive availability data--something that is not now done. Better controls for age, parity, and/or marital status need to be included in the examination of socioeconomic differentials in contraceptive prevalence.

4. Better dissemination of the findings from the CPS is needed among an international audience (including Americans). Published results from these studies could prove of tremendous use to other AID contractors evaluating the impact of family planning programs, measuring fertility rates, and so forth.

5. The quality of the financial reporting for the project must be brought in line with contract requirements. Trip reports should be thoroughly written on a more consistent basis.

B. Findings of Phase 1: Project Development

1. Staff Recruitment--The Westinghouse project team consists of three core members:

(a) Dr. Lawrence Smith, Jr., Ph.D., is the co-project manager. He is a sociologist with broad experience in health systems research. Dr. Smith participated in the Contraceptive Retail Surveys conducted in several developing nations by Westinghouse during the early 1970s. He is fluent in Spanish, Portuguese, and Italian, and has some knowledge of French, although he is not fluent in it. Two-thirds of Dr. Smith's time is charged to the CPS contract, of which 51 percent was spent in overseas field travel.

(b) Mr. Sushil Kumar, M.A., M.S., Project Director, is a statistician and social psychologist with a solid background in demographic research. Mr. Kumar is a native of India and speaks several of the languages spoken in the Indian subcontinent. In addition, he is fluent in Spanish, enabling him to work on surveys in many parts of Latin America. He is a full-time employee under the CPS contract and has spent 42 percent of his time in overseas field trips.

(c) Mr. Gary Lewis, M.A., Project Research Associate, is a demographer who was formerly employed by the U.S. Bureau of the Census. While at the Census Bureau, Mr. Lewis was responsible for providing substantial assistance in the design and implementation of a contraceptive prevalence survey in Pakistan. Mr. Lewis is not fluent in any languages other than English. He is a full-time employee who has spent 20 percent of his time in overseas field trips. In the early stages of the project, much of Mr. Lewis' time was spent in the central office in Columbia working on the development of project materials, but of late he has spent increased proportions of time overseas as the focus of field operations has moved from Latin America to Asia (Thailand and South Korea).

The members of the project staff all have survey research experience that permits them to develop satisfactory modifications of the model survey procedures (questionnaires, coding and editing schemes, etc.) for use in each CPS-participant nation. They are also sufficiently conversant in sampling procedures to ensure that an appropriate random sample is drawn in each nation in consultation with local sampling experts. Many of the initial subcontracts with the participant nations were negotiated by a Westinghouse team very capably led by Dr. Smith and including Mr. Kumar. Now that he has had more experience with subcontract negotiation, Mr. Lewis has also become involved in that aspect of the field work.

All three members of the staff are knowledgeable about demographic issues, but none has any extensive record of designing and writing analytical demographic reports. This relative lack of expertise has been one of the factors hindering the development of a fully satisfactory model plan for the analysis of the contraceptive availability data from the survey (discussed below). It may also limit the dissemination of information from the CPS surveys among professional demographers in the U.S. On the other hand, the relatively straightforward techniques of analysis employed may facilitate the diffusion of usable information among family planning officials who are uncomfortable with more sophisticated styles of demographic analysis.

Dr. Gary L. Damkoehler is listed in most project materials as the co-project manager for the CPS. He is not actively involved in the project, but is listed as co-project manager since he is Dr. Smith's immediate superior in Westinghouse Health Systems.

The project is funded for two full-time and two half-time positions. Dr. Smith was originally scheduled for one of the half-time positions and Mr. G. David Wood was scheduled

for the other. Dr. Smith increased his work time on the CPS project to two-thirds after Mr. Wood transferred out of Westinghouse Health Systems into another branch of the Westinghouse Corporation. The project is thus short a one-third time person, and the work load of the other employees is consequently heavier than optimal. Dr. Smith especially has had to travel substantially more than anticipated because of this unfilled project position. This has apparently resulted in reduced central office coordination of the project work and in insufficient pre-planning of a core document for analysis of the CPS data.

Priority should therefore be given to the hiring of a person to fill the vacant position on the project. The work burden on the other staff members would especially be reduced if the new recruit was capable of doing demographic work in both Spanish and French (in case a Francophone African nation is recruited for the project).

Our overall evaluation is that a very capable staff has been assembled by Westinghouse to carry out the CPS project. Their backgrounds and research experience provide the necessary professional base for family planning survey research. The language skills of the staff are a major asset for the CPS project. The existence of an unfilled half-time professional position on the project has resulted in the deflection of time from managerial and technical pre-planning activities to technical field work. The lack of a carefully formulated research plan for the analysis of the data is symptomatic of the sorts of problems that have resulted. If the vacant position is filled by as capable a person as the other Westinghouse staff members, there is not doubt that the staffing pattern would be adequate for project success.

2. Country Recruitment--In September, 1976 a memorandum from Mr. Richard Cornelius of the Office of Population was sent to the AID missions in order to familiarize them with the CPS project (which was then in its preparatory stages). Positive response to this memorandum, in addition to interior discussions between Westinghouse and the Office of Population, provided a basis for the Westinghouse staff to proceed as they began to recruit countries for the CPS project in October, 1977. The Westinghouse staff made initial site visits to countries which had indicated an interest in participation in the CPS project. (In the initial phase of project implementation, Dr. Smith and Mr. Kumar ordinarily made these preliminary visits as a team. More recently, Mr. Lewis has accompanied Dr. Smith or Mr. Kumar in the recruitment of Asian nations). Westinghouse relied on local contacts suggested by the AID missions, by AID/Washington, and by their own previous professional relationships with local researchers to assess

the interest of capable demographic or family planning research organizations in doing a CPS survey. Priority was given to the recruitment of those countries where there seemed a high probability that the CPS surveys would be institutionalized (i.e., carried out repetitively by the local survey organization with little or no Westinghouse support upon completion of the initial survey round).

Westinghouse initially proposed that surveys be carried out in Colombia, El Salvador, and Mexico in Latin America, in the Philippines, Thailand, and Nepal in Asia, and in Egypt, Tunisia, and Ghana in Africa. Recruitment of countries has proven more successful in Latin America and Asia than in Africa. Five countries have thus far been recruited for CPS participation: Costa Rica, Colombia, and Mexico in Latin America and Thailand and South Korea in Asia. Negotiations are now underway to establish a first round CPS in Ecuador and Bangladesh. No African nations have thus far been recruited, although Tunisia, Kenya, and Morocco have all indicated strong interests in some sort of CPS participation.

Westinghouse will thus have no difficulties in recruiting the six nations called for by the contract for first round CPS surveys. Rather the problem has been that wider interest seems to exist in CPS participation than had initially been anticipated by AID/Washington. The present funding for the CPS contract limits first round surveys to six developing countries, and the short period of time remaining in the contract (which expires December 31, 1979) prevents Westinghouse from recruiting additional countries that have indicated an interest in the CPS. It seems probable that additional first round CPS surveys could be carried out if these two constraints were removed.

As mentioned, Westinghouse has been more successful at recruiting Latin American nations than African nations. In part, this results from the greater previous experience the Westinghouse staff has with demographic research in Latin American countries. Also, the infrastructure for conducting surveys in Latin America is generally better than in Africa, and this simplifies the task of carrying out the surveys. The lack of an extensive infrastructure for family planning survey research in most African nations means that substantially more lead time would be required to successfully field a survey there than in most nations in other parts of the world; the 27-month length of the initial contract thus works against the inclusion of an African nation in the current CPS project. If the current contract is extended or a new CPS project is contracted, it would be helpful to lengthen the contract period to at least three years to permit adequate time to field a survey in some of the nations

with less developed family planning survey infrastructures.

The contract with Westinghouse calls for second round surveys to be carried out in two nations. It is too early to tell whether second round surveys will be carried out in any country. The Westinghouse staff reports considerable interest in a second round survey in Mexico and some interest in a second round in Costa Rica and Colombia. Actual preparations for second round surveys have not yet been begun in any nation and no subcontract has been signed for a second round survey.

The project paper called for the participant nations to be developing countries with active public and/or private sector family planning programs. All of the nations included in the first round meet this criteria. The Westinghouse success in recruiting Mexico as a participant in this AID-funded project is particularly worthy of note. Mexico, Colombia, and Thailand are three of the nations most frequently cited as showing promising declines in fertility in recent years due to the introduction of family planning experiences. The CPS data will provide the necessary data to verify or disprove these claims.

3. Survey Design/Model Documents--Project development proceeded with Westinghouse creating a series of model documents for the Contraceptive Prevalence Surveys. These model documents include a questionnaire, interviewer and supervisor training manuals, and coding and editing manuals. These model documents were intended to provide a common core around which each country's CPS could be designed. The model documents are available in both English and Spanish, with the model questionnaire also being available in French. No model document was developed for the sampling design since the nature of the samples varies so markedly among countries. As will be discussed more fully below a complete model tabulation plan has also not been developed.

We now turn to a discussion of each of the model documents in turn.

(a) Questionnaire--The core questionnaire was designed in close consultation with AID/Washington. The questionnaire is carefully formatted with questions being asked in a smooth-flowing, logical order. The questionnaire gathers most of the demographic information necessary for carrying out a complete evaluation of levels of contraceptive prevalence and differentials therein. This includes such demographic variables as: age and birthdate of the respondent; number of pregnancies, live births, male and female children; number of additional children wanted and preferred timing for the

next child; the date of last pregnancy and of last live birth; and date of last menstrual period. The fertility regulation section includes variables on contraceptive knowledge (prompted and unprompted) and use. Contraceptive availability questions include the respondent's knowledge of where to obtain methods not currently being used, the perception of method cost, mode of transportation and travel time to location, and the relative convenience of the location. For pill and condom users, household availability is ascertained and reasons for nonavailability are probed. The model questionnaire also includes a question on reason for non-use of contraception. The core questionnaire documents suggest that education, labor force participation, and ethnicity or religion be ascertained as appropriate for each country.

In designing the questionnaire, Westinghouse had to counterbalance the desire to include additional questions with the necessity of keeping the interview brief so as to reduce survey costs and permit quick processing of the results. In general, they have done this in a very capable fashion.

There are two items of information not included in the core questionnaire that should have been: attitude towards family planning and age at first marriage (for calculating marriage duration). These are both extremely useful pieces of information for demographic analysis and for family planning officials. Attitude towards family planning is an essential item of information for family planning officials to have in order to permit a quick response to sudden shifts in popular opinions against family planning. For example, if family planning officials in India had had available data from a series of CPS the data probably would have shown a dramatic shift in popular opinion against family planning, and the Indian government could have responded prior to the development of a full-scale political crisis. In a less extreme case, the introduction of a new method of contraception (for example, IUD in a Moslem population) might create bad impressions about family planning overall, and the inclusion of this datum in a periodic CPS would permit appropriate responses to be made by family planning officials.

Age at first marriage should also be included in the questionnaire. This is one of the standard controls used by demographers for differing length of exposure to the risk of pregnancy (controlling for current age). Many family planning programs have the goal of raising age at first marriage to reduce the fertility rate. The CPS is unique in interviewing all women aged 15-49 regardless of their marital status. Trends in age at marriage could thus be monitored by the CPS if the appropriate question were included. The inclusion of

age at marriage in the core questionnaire would also permit the calculation of number of years since first marriage, a control variable that is extensively used in demographic analysis.

We therefore recommend that an attitude toward family planning variable and age at first marriage variable be added to the model questionnaire. Both are extremely useful data that are quickly ascertained. In addition, the prime contract includes a requirement that both items be included in the CPS questionnaire. Aside from this, the core questionnaire has been carefully designed by Westinghouse and meets all of the contract requirements for a successful CPS survey.

(b) Interviewer and Supervisor Manuals--Complete, easily read model manuals for interviewers and supervisors were designed by Westinghouse to accompany the CPS model questionnaire. The model manuals can, with suitable alterations to fit the details of each country's survey, be used in the training of interviewers and supervisors. The interviewers and supervisors can also use these manuals as reference materials when questions arise during the field work.

The model interviewer's manual include: (1) background information on the objectives, nature and organization of the Contraceptive Prevalence Survey. This includes a discussion of the survey organizations involved, how the sample was drawn, the role of the interviewer in the CPS, and a description of the training sessions for the interviewers; (2) general information on techniques of interviewing, the relationship of the interviewer to the respondent, the relationship of the interviewer to the supervisor, ways to check completed questionnaires, and methods for dealing with non-response; (3) the correct method for completing the household schedule and of selecting eligible women from each household for interview. Ways of dealing with incomplete interviews in filling out the household roster are also discussed; and (4) complete instructions describing the way to ask each question, how it fits into the overall sequence of CPS questions, and possible problems in obtaining responses to the questions. Throughout the interviewer training manual the emphasis is on the importance of maintaining quality in the field work by following instructions exactly, asking the questions as they are written, and not creating situations in which the interviewer may bias the response.

The supervisors are first trained in techniques of interviewing with the interviewer's manual. The model supervisor's manual is written as a supplementary document to inform supervisors about their administrative and supervisory

duties. The administrative duties of the supervisors in terms of making local logistical arrangements (food, lodging, and transportation), obtaining survey materials for the interviewers, and contact with local officials are left sketchy in the model manual since they will vary substantially among countries; the supervisory duties are described in more detail. The supervisory duties include work assignments, ways of dealing with interviewers, suggested solutions for nonresponse, and the editing of questionnaires. The field edit is discussed in great detail, with the supervisor's manual including a complete set of field edit instructions for the model questionnaire.

The model interviewer's and supervisor's manual cover all aspects of survey activities in a thorough and appropriate manner. The manuals are clearly written (in English) in a way that will insure their maximum use by the survey field personnel. These core materials are satisfactory in their present form; we have no recommendations for their improvement.

(c) Coding and Editing Manuals--The model supervisor's manual included instructions for field edits of the questionnaire. These field edits checked the eligibility of the woman interviewed, the completeness of identifying information, the completeness of the age/birthdate information, that all questions were answered, and that the correct skip patterns were followed. The model materials instruct the supervisors to correct the erroneous entries in consultation with the interviewer and, if necessary, through a revisit to the respondent.

Most of the questions in the model questionnaire are precoded which speeds up the data collection process. Rather than develop potentially unrealistic codes for the open-ended questions on the model questionnaire, Westinghouse develops such codes based on the pretest and questionnaire responses in each country. The model computer edit includes standard range, consistency, and logical checks of the data collected in the model questionnaire. These computer edits are modified in accordance with changes in the model questionnaire in each country. The computer language used to perform the edits also varies, but Westinghouse has used the Costa Rica edit program (written in Fortran IV) as a model edit program for other countries. After final data tapes are prepared a complete code book is prepared which describes the tape. The Costa Rican study code book is being used as a model by Westinghouse.

The core project manuals for coding and editing of the data have been competently designed to fulfill the CPS project objectives. We have no modifications to recommend in these procedures.

(d) Tabulation Plan--Westinghouse has not developed a complete model tabulation plan for the CPS. Thus far, only twenty-seven model tables have been developed, and there is no accompanying write-up to describe these tables or their purpose to participants in the CPS. The model tables that have been developed represent only the beginning of an analysis of the data collected in the CPS. The model tables do achieve the major project objective of describing the prevalence of contraception (knowledge and use) in the population because the marginal distributions on the knowledge and use variables are tabulated.

The model tables fail to provide an analysis of differentials in contraceptive prevalence in the population for two reasons. First, the tabulations shown in the model tables often show the data percentaged in the wrong direction. For example, percentages are shown across categories of the independent variables, rather than within categories of the independent variables across categories of the dependent variables in Tables, 8, 9, 10, 12, 15, 16, 18, 19, 20, 21, and 22 of the model tables. Second, three-way tabulations controlling for age or marriage duration are essential to the analysis of educational differentials in contraceptive prevalence. More complex tables of this sort could be condensed into two-way tables controlling for age through the usual demographic procedures of standardization, if preferred.

The model tables also fail to successfully analyze the effects of contraceptive availability on contraceptive practice. Given the keen interest of AID in the association between perceived availability of family planning services and their use, it is unfortunate that Westinghouse does not analyze the relevant data collected in the CPS.

This failure to develop a model analysis plan that is sufficient to fulfill the objectives of the contract is the most serious problem we identified in the Westinghouse project. The lack of a model tabulation plan does not mean that the country reports are necessarily insufficient to meet the contract objectives; rather, the lack of development of a model tabulation plan leaves local research organizations more on their own in developing an analysis plan that may or may not in accordance with the project objectives. (For example, see the discussion of the Costa Rican CPS analysis below). We strongly recommend that Westinghouse develop a complete model tabulation plan using either dummy tables based on core questionnaire variables or actual data from the Costa Rican study. This model plan should include a sufficient number of tables to measure differentials in contraceptive prevalence with the appropriate demographic

controls. It should also include an analysis of the relationship between perceived contraceptive availability and use.

As mentioned earlier, the staff vacancy has thus far limited the amount of staff-time available for developing a model tabulation plan. This position needs to be filled so that sufficient time can be devoted to the development of a model analysis plan. Also, it may be advisable for Westinghouse to use Professor Charles Westoff (who has previously acted as a consultant on the CPS project) or some other demographer as a consultant on the model tabulation plan. This would help remedy any problems resulting from the relative inexperience of the staff in demographic analysis. This is especially true in regard to the analysis of the contraceptive availability data since it is a relatively new field of inquiry.

With the exception of the development of a model plan for data tabulation, the development phase of the project has been capably carried out in lines with the requirements of the prime contract and the Project Paper. Additional work is required on the tabulation plan in order to bring the analysis phase of the project into line with contract requirements. The Westinghouse staff is capable of carrying out much of this work, but will also need to make use of consultants at appropriate points in the process.

B. Findings of Phase 2: Project Implementation

1. Selection of In-Country Organizations--As described above, Westinghouse assessed the interest of countries in CPS participation through an on-site visit. An integral part in assessing the interest a country has in the CPS was to discuss the project with organizations likely to have the capabilities of carrying out a first phase study in the allotted amount of time. In some nations this narrows the field to only a few organizations. Westinghouse usually chose among these organizations taking several factors into account:

(a) The research capabilities of each organization. This was judged by supplying potential subcontractors with the core project materials and asking them to write a project proposal that described the CPS they would carry out. This proposal would include details about sample sizes, sampling procedures, modifications in the core questionnaires, etc. The advice of the local AID mission and previous in-country contacts of Westinghouse also were drawn upon in assessing the capabilities of each organization;

(b) The likelihood that a research organization would

institutionalize the CPS so that later rounds of the survey would be carried out in line with contract requirements. This led to an emphasis on the participation of established governmental agencies and/or family planning organizations that require the data and would more readily agree to conducting additional survey rounds; and

(c) The budget for the CPS subcontract requested by the competing organizations. Westinghouse reports that they attempted to remain as cost-effective in subcontract budgets as possible and would often bargain with potential subcontractors to reduce the size of the budget prior to conclusion of a subcontract.

These procedures resulted in the selection of the Costa Rican Demographic Association and Directorate General of Statistics and Census as the subcontracting agencies in Costa Rica. Other subcontracting organizations included the Coordinación Nacional de Planificación Familiar in Mexico, the Research Division of the Ministry of Public Health and the Corporación Centro Regional de Población in Colombia, the National Institute of Development Administration in Thailand, and the Korean Institute for Family Planning and the Bureau of Maternal and Child Health in South Korea.

The selection of in-country organizations has been carried out in a careful, systematic manner by Westinghouse. The organizations recruited all fulfill the requirements for subcontractors detailed in the Project Paper and Prime Contract. A review of their technical capabilities and of the in-country field execution of the CPS surveys with the Westinghouse staffs suggest that very capable survey organizations have been chosen.

2. Negotiation of Project Subcontracts--An examination of the project contracts indicates that they carefully detail the personnel from the subcontracting organizations, the objectives of the CPS project, the elements of the survey (sample design, pretest, field staff training, data processing and tabulation), and the final country report. The budgets seemed in line with costs for other surveys of this magnitude and the budgets were fully defined as to component item costs.

3. Survey Execution--The surveys were executed in line with the model CPS project documents designed in the first phase of the project, appropriately modified to suit the needs and objectives of each particular participant nation. The procedures followed have tended to be similar among the countries. Costa Rica is the only nation for which a first

round CPS has been completed. In this evaluation report we have chosen to use Costa Rica as an illustrative example of the ways in which the CPS project was implemented in participant nations. We note where significant deviations have occurred from the model plans and/or from the Costa Rican experience in the CPS in other nations.

(a) Questionnaires--The core questionnaire served as the model on which each country CPS was based. In each country there has been a temptation to add a substantial number of additional questions (often dealing with socioeconomic status or contraceptive clinic experience), but Westinghouse has successfully resisted the addition of large numbers of questions. In Costa Rica the education question was modified to fit the educational system in that nation, questions were added about family planning IEC contacts with radio programs sponsored by the family planning organizations, whether they have used organized program services and the reason for discontinuing their use, and women were asked the names of clinics they were aware of that supplied the different contraceptive methods. Similar sorts of modifications and additions were carried out in the other participant nations.

After initial modifications of the questionnaires were agreed upon, the questions were translated into local dialects. The emphasis was on a translation that would permit each question to be asked in a smooth-flowing fashion that would sound naturally conversational in the population. Close attention was given to retaining the exact meaning of each question while using phrasing that would be understood by the respondents. Because there was less need to worry about the comparability of questions asked among the different participant nations, Westinghouse did not attempt the sort of literal translation that was done in the World Fertility Surveys.

The draft questionnaires were then pretested on 81 women in Costa Rica. As a result of this first pretest experience, the wording of the questions was modified. The revised questionnaires were then pretested again on 106 women. The questionnaire translation, pretests, and revision were carried out under the supervision of a Westinghouse staff member. In most nations, people who were to be supervisory personnel for the field work conducted the pretest interviews. Similar pretests, with roughly comparable samples, were conducted in the other CPS-participant nations. The Costa Rican questionnaire was such that an average interview lasted about 15 minutes. Additional questions on socioeconomic status, age at first sexual activity, use of folk contraceptive, and whether each method was used for spacing or limiting

births were added to the survey in Mexico, lengthening the interviews to about 25 minutes in that nation.

It is impossible for an outside reviewer without Spanish language ability to comprehensively evaluate the modified questionnaires. However, it appears the final questionnaire did collect most of the data required for a complete analysis of contraceptive prevalence (with the exceptions discussed above for the model questionnaires). The procedures followed on the translation and pretesting of the questionnaires were thorough and should have resulted in the production of high caliber research instruments.

(b) Interviewer and Supervisor Training--The selection of field work supervisory personnel and of interviewers was left to the discretion of the local survey organizations in each nation. Usually the interviewers were younger women with their bachelor's degrees. In Costa Rica, the average age of interviewers was about 24.

Training of the interviewers lasted five days. The core documents for interviewer training were modified to fit the field procedures and questionnaires in each nation and used as the major training materials. In all nations, the classroom work included discussions of: (1) the principles of interviewing and ways to avoid interviewer biasing effects; (2) the appropriate way to ask each question in the survey and problems that might arise in asking each question; and (3) the organization of field teams, the sampling procedures for identifying respondents, and the chain of command in the field work. The interviewers also role-played, interviewing members of the supervisory staff to familiarize themselves with the questionnaires and with interview procedures. In Costa Rica, the interviewers also carried out several interviews with respondents in non-sample areas. Interviews in the early stages of the field work were tape recorded and later reviewed by the interviewer and the supervisor in order to further develop interviewer skills.

Supervisors participated in all stages of the interviewer training. They received additional training lasting about two days in the administrative and supervisory topics treated in the model documents for supervisor training. In addition, the supervisors participated in the pretest interviewing and were thus intimately familiar with the development of the questionnaires.

As a general practice, interviewers were organized into field teams with four interviewers and one supervisor. Supervisory personnel coordinated the operations of the

interviewer teams. In Costa Rica there were five interview teams in total. The teams that demonstrated better abilities in the early stages of the field work were then assigned to problem areas to help maintain high response rates. The teams averaged about six interviews per day. Field supervisors worked with the interviewer teams in the villages and neighborhoods. Questionnaires were initially edited by the supervisors in the field as interviews were completed.

The training of interviewers, the organization of the field teams, and the training of the supervisory personnel in Costa Rica were exemplary. The procedures are sufficient to permit high quality data to be gathered from a large percentage of sample respondents, but are simple enough to do so on a reasonably cost-effective basis (i.e., there is not excessive training and/or supervision of the interviewers). The interviewer and supervisory training and organization are similar to Costa Rica in all other survey nations except Korea.

In Korea, interviews will be conducted with about 26,000 women in 10 of the 11 districts in the nation. This will require regional recruitment and training of the interviewer teams. The procedures for training of the interviewers and organization of the field work in Korea will be developed fully in early 1979. The size of the Korean survey drastically reduces the ability of Westinghouse to monitor the quality of the interviewer training and field work, compared with what was possible in the other nations. Westinghouse expressed confidence that the Korean Institute for Family Planning has the ability to carry out a survey of this magnitude successfully. We have reservations about a survey of this magnitude, given the difficulties of carefully monitoring the field work and the greater burden this puts on the performance of the local survey subcontractor. The Korean field work preparations should therefore be reviewed carefully by AID/Washington as they are developed in 1979. Regardless of the eventual outcome of the Korean experiment, the training of interviewers and organization of the field work in other nations has thus far fulfilled all CPS contract requirements.

(c) Sampling--Developing a satisfactory sampling frame is nearly always difficult in developing nations, particularly in those nations where the census is of poor quality and/or was last taken several years prior to the survey. This has forced the CPS to rely on sampling frames developed for other surveys or to develop their own sampling frame. The bases on which to stratify the sample vary among the nations but usually include geographic components distinguishing urban and rural residence and the major regions or provinces

of the nation. The samples were usually designed by local experts in consultation with Westinghouse.

In Costa Rica, the CPS used a three strata sample that distinguished urban, rural, and metropolitan areas. The second stage was to select 310 primary sampling units (PSU) from the twenty-five districts comprising the three strata. Each PSU included two segments (small geographic areas) in which all households were visited and systematic random samples of women interviewed. The CPS sample in Costa Rica was a split sample in that half of the PSUs were from the World Fertility Survey and half were newly selected. Maps from 1973-1974 provided geographic boundaries for the segments in the newly drawn PSUs. The complete listing of eligible women in all households within a segment allows for newly constructed houses to be included in the sample. The sample was designed to be self-weighting.

Similar sorts of sample designs were used in Colombia and Thailand. The development of a sampling frame presented some problems in Mexico. Official maps of the primary sampling units were not available in Mexico due to political difficulties with the Office of the Director General of Statistics. The CPS staff in Mexico therefore had to develop its own maps of the primary sampling units. The additional expenditures entailed in this activity necessitated an amendment to the subcontract providing an additional \$21,504. The sampling frame ultimately developed is completely independent of that used in the Mexican World Fertility Survey. The sample represents all 31 states of the nation and the federal district. The metropolitan areas of Mexico City, Monterrey, and Guadalajara were represented along with 86 primary sampling units from the other areas of the nation. A total of 170 census segments were completely surveyed among these PSUs. The sampling procedures yielded completed interviews with 4980 women. Dr. Jorge Martinez Manautau, the Executive Director of Coordinacion has indicated an interest in repeating the CPS annually, using the sampling frame developed in the initial survey round.

One innovation of the CPS has been to interview all women aged 15 to 49 without regard to their marital status. Contrary to the predictions of most local demographic experts, this has created few problems. The main way in which anticipated difficulties in interviewing unmarried women about their contraceptive behavior has been avoided is to ask the marital status question at the conclusion rather than the onset of the interview. An unmarried respondent can thus report her contraceptive behavior in the early stages of the interview as though she were married. If necessary, she then can

avoid embarrassment in the later part of the interview by misreporting her marital status as married or previously married. While this procedure can provide an overestimate of the percentages married at each age, it has much to recommend it for providing more accurate contraceptive prevalence information, particularly for young women. The CPS project, is, to my knowledge, unique in this regard.

The Korean CPS will, as mentioned above, interview about 26,000 women in 10 of 11 districts in the nation. The size of the sample, and the separate representativeness required for each of the districts will complicate sampling procedures in Korea. The sampling frame for Korea has not yet been developed. We again caution that AID/Washington should carefully monitor CPS procedures for Korea.

The samples designed for the CPS have been satisfactory to fulfill all contract requirements for accurately representing the study populations. The survey response rates have been 90 percent or higher in all cases, according to Westinghouse. Westinghouse has especially been successful at choosing local experts knowledgeable in sampling for the projects. The political difficulties encountered in designing the Mexican sample appeared unavoidable, and Westinghouse satisfactorily resolved the problem in a short time, although the use of an originally developed sampling frame for the Mexican CPS did entail unanticipated costs and necessitated an amendment to the Mexican CPS subcontract.

(d) Data Coding and Editing--The coding and editing of the data has proceeded in a satisfactory manner in each nation that has reached that stage of the study. The data were field edited in the Costa Rican study by the interviewer team supervisors. Coding manuals were developed for the Costa Rican questionnaire based on the model coding manuals prepared by Westinghouse. The data were coded by an experienced team of permanent coders in the Costa Rica Bureau of Census and Statistics. The coding operation was supervised by the field director in the CPS central office. Codes were developed for open-ended questions as appropriate.

The data editing was done using a FORTRAN program custom-written for the purpose. The style of data coding necessitates the use of a special purpose program rather than a standard program such as MINITAB EDIT because blanks are used as inappropriate data (i.e., skip) codes and zeroes are sometimes valid codes. In general, it is usually preferable to avoid using both blank and zero codes on the same variables. If this were done, the editing procedures could be simplified by the use of a standard editing program. Insofar as the

missing data coded as blanks are for inappropriate or inapplicable questions, the blanks can be distinguished from the zeroes by appropriate filter controls. In the future, however, Westinghouse should refrain from using blank and zero codes on the same variables.

Upon completion of the editing process, a working data analysis tape was constructed for the Costa Rican CPS that included all of the variables needed for the analysis in appropriate recoded form. Code books were prepared that fully document these final data tape layouts. This is important for ensuring the data will be documented for future analysts. These same types of procedures have been followed in all of the CPS participant nations that have reached the stage of survey operations thus far.

(e) Tabulation and Analysis--As discussed in the evaluation of the project implementation, Westinghouse has not developed a complete model plan for analysis based on the core questionnaires. Some of the mock tables that were developed showed the percentages calculated in the wrong direction. This is potentially troublesome in countries where analytic experience with demographic data of the sort collected in the CPS is limited. Many developing nations participating in the CPS will need some sort of analysis plan to guide their tabulation and analyses of the data.

The only report thus far completed (at the time of the evaluation site visit) was that for Costa Rica. This report was available only in Spanish. Since neither member of the evaluation team is fluent in Spanish our ability to fully evaluate the quality of the Costa Rican report is limited. The Westinghouse staff provided English translations for all of the tables included in the Costa Rican report and this does permit us to make some observations about the scope and quality of data analysis in the Costa Rican CPS.

The Costa Rican report is much better quality than might have been anticipated given the lack of development of a model plan for analysis. All of the major topics on contraceptive prevalence (knowledge, use, and perceived availability) are provided for various age and parity groups. Fertility rates are calculated from the CPS data for the year prior to the survey. Comparisons of number of children ever born and of contraceptive prevalence information from the 1976 World Fertility Survey and 1978 CPS provide a trend analysis. Distributions are provided for the contraceptive IEC questions included in the survey by the Costa Ricans. Tabulations are also provided showing the source of contraceptives currently being used, and their cost and convenience of

access. All percentages are in the correct direction and the tabulations all appear to be correctly done. In short, the Costa Rican report includes most of the relevant data envisioned in the CPS Project Paper and called for in the CPS contract. The types of tabulations reported are of direct relevance to family planning officials.

Improvements could be made in the analysis of the CPS data, however. The contraceptive availability data are insufficiently analyzed and the relationship of perceived contraceptive availability with contraceptive use is not mentioned. An insufficient number of three-way tables showing contraceptive prevalence by socioeconomic status controlling for age or parity are presented. Where such tables are presented, no summary measures of contraceptive prevalence by socioeconomic status standardizing for age are calculated. Because information on age at marriage and attitude toward contraception was not gathered in the CPS, those variables cannot be included in the analysis.

As discussed earlier, these shortcomings could be overcome by minor modifications in the CPS questionnaire and by the development of a complete model tabulation plan with explanatory text. We recommend that Westinghouse proceed with these changes as soon as possible so that they can influence the course of CPS studies just getting underway. Given the overall high caliber of the Costa Rican report, we suggest that data from that country report be used to illustrate the model tabulation plan.

(f) Dissemination of Findings--The findings of the CPS are being disseminated through the publication of the first report in Costa Rica. The report is being circulated widely among high level government officials. In addition, an official conference is planned in January, 1979 in which the CPS results will be presented in relationship to the World Fertility Survey findings of 1976. The results of the CPS study are thus receiving all necessary publicity in Costa Rica. Similar strategies for dissemination of the findings of the CPS are planned in Mexico.

International dissemination of the CPS findings has been limited, apart from a presentation of Costa Rican findings at a recent meeting of Latin Americans IPPF Medical Directors. The first research report would be suitable for publication in abbreviated form in English in Studies in Family Planning, International Family Planning Perspective, or Family Planning Resume. We recommend that the Costa

Rica CPA analysts be encouraged to do this, perhaps in collaboration with the Westinghouse staff. Westinghouse also needs to compile a concise stratified international mailing list of population policy-makers and insure that these individuals receive appropriate CPS documentation and research reports.

(g) Application of Findings--It is too early to tell with certainty what the actual utilization of the CPS findings will be by the family planning service organizations. The potential for utilization of the results is certainly large. The types of tables produced for the report in Costa Rica are suitable for direct utilization by the family planning organizations. The findings are being widely disseminated among government and family planning officials in Costa Rica. This is about all Westinghouse can do under its contract to promote CPS utilization. Westinghouse indicates that similar procedures for the dissemination of findings will be followed in other nations, as appropriate.

C. Findings of Project Management

1. Staffing--The Westinghouse project is not fully staffed, as described in the section on staff recruitment. This has created a shortage of necessary personnel time to coordinate the project and has hindered the development of a model tabulation and analysis plan. We therefore recommend that a suitable person be hired to fill the vacant position at the earliest possible date. All members of the staff are capable individuals able to assist in carrying out the work required by the CPS contract.

2. Overseas Supervision--There has been excellent supervision of all phases of the field work by Westinghouse. This supervision has been accomplished through a series of brief, but timely, trips to CPS participant nations at crucial junctures in the subprojects. For example, when problems developed with the sampling design in the Mexican CPS, Dr. Smith was able to resolve the problem through an on-site visit scheduled for that purpose.

By having had one or more staff members in each country during critical stages of the CPS project, Westinghouse has been able to guarantee the integrity of the survey results. The much larger scope of the Korean project will likely inhibit the efficacy of this type of short-term supervisory backstopping in Korea. For this reason, the Korean field work will depend more directly on the capabilities of the Koreans involved in the study. The quality of the data from the Korean study will need to be carefully evaluated by Westinghouse as the field work in that nation is underway.

3. Budgeting--Project expenditures are on track twelve months into the prime contract. There have been some cost overruns in the subcontracts negotiated by Westinghouse with the participant nations. The \$21,504 cost overrun in Mexico was due to the unexpected expenditures resulting from the necessity of mapping the primary sampling units, as discussed earlier. Minor cost overruns in Colombia were due to transportation costs resulting from unanticipated increases in gasoline costs. It is our impression that the budgeting of subcontracts has been prudently executed by Westinghouse. The budget costs seem reasonable for surveys of the size and extent being conducted.

4. Reporting--The adequacy of the reporting by Westinghouse to AID/Washington was established by a review of the project financial, progress, and field reports and through discussions with Mr. Cornelius, the AID project monitor.

(a) Financial Reports--The financial reporting by Westinghouse has not been satisfactory in terms of timeliness and completeness under the terms of the project contract.

(b) Project Reports--The project reports have been adequate under terms of the contract. They are sufficiently informative in a succinct fashion. The January 1, 1978-June 30, 1978 report was not submitted until after August 31, 1978.

(c) Trip Reports--The trip reports are generally complete in terms of describing contacts made, meetings held, etc. Some of the trip reports have included an insufficient amount of detail regarding business actually transacted and agreements made in reference to technical aspects of the survey. Other trip reports (such as those for Thailand) have been completely satisfactory.

5. Subcontract Agreements and Amendments--The subcontracts have been negotiated in accordance with AID regulations. The implementation of the projects have been in line with the technical specifications of the sub-contract agreements. There have been delays beyond the dates specified in the subcontracts, but these delays have been minor and have not adversely affected the progress of project work. Amendments to the subcontracts have been required in a number of instances for budgetary reasons. These were described above under the section on budgeting by the project management.

6. AID Impact--

(a) AID/Washington--AID/Washington has consulted closely with Westinghouse at all stages of the project

development and implementation. AID/Washington had frequent input in the technical aspects of the project implementation. Westinghouse indicated complete satisfaction with the project monitoring by AID/Washington.

(b) AID/Missions--The AID/missions have usually been helpful to Westinghouse in getting CPS projects launched and successfully executed in the nations they have visited. The degree of assistance required in each country has varied as has the mission interest in the project. The absence of a USAID/population officer in Jamaica to serve as a monitor/liaison with the Jamaican government was cited by Westinghouse as one problem preventing a CPS from being carried out in that country.

D. Conclusions and Recommendations

1. Summary of Findings/Conclusions--The Contraceptive Prevalence Studies Project being conducted by Westinghouse Health Systems (Contract No. AID-pha-C-1194) is a 27-month project begun on October 1, 1977 and scheduled to expire on December 31, 1979. An intensive evaluation of this project was conducted November 28-30, 1978 by Dr. Dennis P. Hogan of the University of Chicago and Mr. Richard M. Cornelius of USAID. The major objective of the CPS project is to carry out periodic sample surveys of contraceptive prevalence (knowledge and use) levels and differentials in six developing nations with active public and/or private sector family planning programs. During the contract period six first-round and two second-round surveys are to be carried out. The project is designed to provide information for use by family planning program administrators in developing nations and by AID.

The evaluation established that the CPS project is largely on track and is fulfilling most aspects of the project requirements as outlined in the Project Paper and Primary Contract. A first-round CPS has been completed in Costa Rica and is nearing completion in Mexico and Colombia. Planning is now underway for first-round CPS in Thailand and Korea where the subcontracts have already been signed. Negotiations are underway for a subcontract to do a CPS in Ecuador and Bangladesh. Second-round surveys are under discussion in Costa Rica and Mexico.

Westinghouse has assembled a capable staff to develop and implement the project. Core project documents have been developed for the CPS. These include the questionnaire, interviewer and supervisor training manuals, coding instructions, code book, and data edit program. Complete project model

documents for data tabulation and analysis have not been developed for the CPS. The model questionnaire needs to be expanded to include questions on attitude towards family planning and age at first marriage (or sexual contact). A model tabulation and analysis plan needs to be developed. These tasks would be simplified by the addition of a staff member for the vacant position budgeted under the main contract.

The implementation phase of project activities has proceeded in line with contract specifications. The selection and subcontracting of in-country study organizations, the technical aspects of carrying out the survey field work, and the data processing have all been examined and found to equal or exceed specifications in the Project Paper and Contract. Important improvements could be made in the data analysis even though the overall character of the first country report for Costa Rica is quite good. The Costa Rican surveys results are applicable to family planning organization needs and are being widely disseminated in-country. Project plans call for similar procedures to be followed in other CPS nations.

The management of the project was found to be sound. The vacant staff position needs to be filled. The supervision and management of the overseas subcontract has been satisfactory. The primary budget is on track, but there have been explainable cost-overruns in the project subcontracts. The project financial reports have not been in line with contract requirements. Project progress reports are satisfactory, but trip reports need to be upgraded to a more uniformly high quality.

Overall, we are extremely impressed by the performance of Westinghouse on the Contraceptive Studies project. While improvements in the project remain to be made, their work thus far has been of a first-rate quality that conforms closely with the Project Paper and Contract requirements. The project appears to be well on its way to a successful conclusion barring unforeseen problems in carrying out the studies. Additional nations have expressed an interest in carrying out CPS projects, but these cannot be accommodated under the current Westinghouse contract. One possible solution would be to extend the project past its present deadline so that more countries could be brought into the project.