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DESIGN OF TRAINING
AND CONSULTATION PROGRAM
IN DATA ANALYSIS FOR CAPMAS

A Report Prepared by:

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EXECUTIVE SUMMARY

A team consisting of a research scientist from the Survey Research Center and a research associate from the Population Planning Program at The University of Michigan served as consultants in Cairo, Egypt, for a two-week period starting February 24, 1984, under an assignment made in conformance with APHA's agreement with USAID. The purpose of this assignment was to design a comprehensive training and research program which would involve training of mid-level staff at the Central Agency for Public Mobilization and Statistics (CAPMAS), the primary statistical organization in Egypt. In particular, a project for the collaborative analysis of the Pregnancy Wastage and Infant Mortality Surveys (PWIMSS), conducted on national samples of the Egyptian population in 1979 and 1983, was to be developed.

The consultants held extensive discussions with a Working Group composed of members of the Population Studies and Research Center (PSRC) at CAPMAS. It was learned that these data sets contain a richness of information about the levels and possible correlates of pregnancy wastage through abortion or miscarriage and through still birth, and about infant mortality. These data are unique in their potential for providing nationally representative estimates of pregnancy wastage rates. Moreover, with respect to infant

mortality they may resolve issues concerning levels and causal relationships raised by discrepancies between estimates from other sources. The PWIMSSs also include information about contraceptive knowledge and practice, and about desired future children, and so may be a valuable resource to supplement fertility and contraceptive usage surveys.

To date, however, no analyses of any of the three rounds of this survey have been completed. This deficiency apparently reflects a combination of lack of resources, lack of relevant analytical skills, and lack of motivation. It was also clear, however, that the President of CAPMAS, Dr. Awad Hallouda, is committed to upgrading the institutional capacity of CAPMAS for completing analyses of data from surveys conducted by that organization. This commitment was also expressed by the acting director of the PSRC.

To facilitate the enhancement of the analytic capabilities of CAPMAS, the consultants recommend a training and consultation project. Specifically, they recommend a workshop which would provide hands-on experience with data analysis procedures for selected staff members of the PSRC and other parts of CAPMAS. This workshop would be preceded by a seminar series for directors of government agencies concerned with collection and analysis of data relevant to population and economic development, in order to intensify the support of such organizations for more complete and

sophisticated data analysis. The workshop itself would be centered on data from the 1979 round of the PWIMS.

Participants would learn about all phases of data analysis, and would actually participate in application of computer programs to specific analytical problems.

The workshop would be followed by a joint enterprise in which PSRC staff would join forces with consultants in multivariate analysis of the 1979 PWIMS. The outcome would be a monograph which would both describe the analyses of this particular data set, and document the analysis steps and procedures in sufficient detail to allow the monograph to serve as a guidebook in implementing analyses of other data sets, with less need for consultation with experts from outside CAPMAS.

Finally, it is recommended that a national conference be held to present the findings from the analysis of the PWIMS to an audience concerned with population issues. In addition to communicating the findings from this particular survey, the conference would also be intended to serve a training function with respect to the potential value and application of multivariate analysis techniques.

ABBREVIATIONS

AID	Agency for International Development
BMDP	Biomedical Package
CAPMAS	Central Agency for Public Mobilization and Statistics
CRT	Cathode ray tube
EFS	Egyptian Fertility Survey
HP	Hewlett Packard
ICL	International Computer Laboratories
NCC	National Computing Center
PSRC	Population Studies and Research Center
PWIMS	Pregnancy Wastage and Infant Mortality Survey
SPSS	Statistical Package for the Social Sciences
USAID	United States Agency for International Development

I. INTRODUCTION AND BACKGROUND

A. Purpose of the Assignment

The Central Agency for Public Mobilization and Statistics (CAPMAS), the agency of the Government of the Arab Republic of Egypt which is responsible for collecting and analyzing basic demographic information through censuses and surveys, requested two consultants from The University of Michigan to design a comprehensive training and research program which would include the training of mid-level CAPMAS staff in analysis of survey data. In particular, collaboration in the analysis of the Pregnancy Wastage and Infant Mortality Surveys (PWIMSSs), conducted in 1979 and again in 1983, was requested.

B. Itinerary

Left Ann Arbor, Michigan:	1:00 P.M., 2/24/84
Arrived Cairo, Egypt:	6:00 P.M., 2/25/84
Left Cairo, Egypt:	7:00 A.M., 3/9/84
Arrived Ann Arbor, Michigan:	9:00 P.M., 3/9/84

C. Methodology

Prior to departure, extensive discussions were held by both consultants with George Simmons, Professor at The University of Michigan, who has spent considerable time in Cairo working with CAPMAS personnel and with officials in other Egyptian agencies concerned with population issues. Discussions were also held with Dr. M. Nizamuddin, United Nations Chief Technical Advisor/Demographer, who is resident

at CAPMAS, while he was visiting The University of Michigan in January, 1984. Both Dr. Simmons and Dr. Nizamuddin were able to provide invaluable background information about CAPMAS and to make suggestions for the ways in which training and consultation could most usefully be offered to CAPMAS personnel.

As the primary statistical organization in Egypt, CAPMAS has the responsibility for collecting and analyzing basic demographic data and for publishing and disseminating the findings to potential users in a timely fashion. Although CAPMAS has demonstrated its competence in the collection of population data through censuses and surveys, CAPMAS has little experience in the analysis of such data which goes beyond basic descriptive analysis. Some staff members have participated in more complex, multivariate analyses of survey data, but such experience is limited to a small number of staff. Moreover, the computer software to carry out many types of multivariate analysis is not available at CAPMAS. The consequence is that potentially valuable data sets from surveys of samples of the Egyptian population have remained largely unexploited.

A particularly cogent case in point is the focus of the present project: the Pregnancy Wastage and Infant Mortality Survey (PWIMS). This survey was first conducted in 1979; it involved a complete census of 30 villages and 127 urban areas (enumeration districts), in which a total of about 58,000 households were listed. On the basis of this census,

about 13,000 women were identified who had experienced a relevant event during the calendar year 1978: the termination of a pregnancy (through live birth, still birth, or an abortion or miscarriage); or the death of a child under one year of age. Each such woman was personally interviewed, and a large amount of information obtained about those pregnancies and/or infant deaths, and also about the health and health care of the woman, socio-economic characteristics of the household, and the fertility and marital histories of the woman. Questions were also asked about knowledge and use of contraceptives, and their desire for future children. These data were carefully edited by clerical staff, coded, and entered into tape files. As of this date, however, no analysis of these data has been done, beyond some simple tables produced by hand counts of the written questionnaires. Despite this failure to analyze the data from a study done in early 1979, the survey was repeated in 1981 and again in 1983. Thus there now exist data from three large surveys, containing information that could be valuable inputs to understanding demographic characteristics of the Egyptian population and to evaluating health care and family planning programs in Egypt, which remain unseen by any data analyst.

The need for upgrading the data analysis skills of CAPMAS staff was recognized by Dr. M. Nizamuddin when he came to CAPMAS as U. N. Advisor. Moreover, the need is clearly recognized by Dr. Awad M. Hallouda, who has been

Director of CAPMAS since 1981; by Mr. Saad Zaghloul Amin, who retired as director of the Population Studies and Research Center (PSRC) just before our visit; and by Mr. Ahmed El-Baz, the current acting director of the PSRC.

On our arrival in Cairo, we met with Dr. Nizamuddin, Mr. El-Baz, and a working group composed of other senior staff members of the PSRC to discuss the 1979 and 1983 PWIMS. We wished to clarify some questions about the sample design and the data collection procedures, and to determine the present status of the data file. We also discussed the education and experience of the staff of the PSRC and other parts of CAPMAS and considered with them what type of training and consultation would be most useful. We met with Dr. Farag Sedky, the director of the National Computing Center (NCC), to discuss the computer hardware and the software available for analysis of survey data at CAPMAS.

As a consequence of what we learned about the present status of the data files for the 1979 and 1983 PWIMSSs, we decided it was expedient to limit our attention to the analysis of the 1979 survey only. The 1983 survey (and also the 1981 survey, which we only discovered to exist during our discussions) remain a valuable resource for replication of the findings from the 1979 survey and for examining possible trends, but the logistics of preparing a clean data tape for the 1979 survey are sufficiently complex in themselves as to render consideration of adding one or two more data sets problematic, given practical considerations

of time and resources.

During the second week of our visit, we drafted a proposal for a project consisting of four components: (1) a seminar series for directors of government agencies concerned with population and economic development issues; (2) a workshop for training selected CAPMAS staff in methods for the analysis of survey data; (3) collaboration in preparing a final report on that survey; and (4) a conference to disseminate findings to relevant government agencies and interested scientific colleagues. This draft proposal was reviewed by PSRC staff and Dr. Hallouda, and some minor revisions were made in it. The draft proposal was then discussed with John Paul James and Lenni W. Kangas, USAID Population Program Advisor. At the time of our departure, the draft proposal was turned over to Dr. Hallouda, and it is expected that a slightly revised version will be formally submitted by CAPMAS to the USAID mission in Cairo.

II. OBSERVATIONS AND FINDINGS

The material presented in this section will concentrate on two key aspects required for the training and consultation program's successful conclusion: The status of facilities for execution of the proposed training and analysis mission, and the degree of institutional support for the proposed training program.

CAPMAS has within its superstructure two institutional organs devoted to data processing: the National Computing Center and the CAPMAS Data Processing Center. These separate divisions maintain their independent computing facilities. The National Computing Center is under the direction of Dr. Farag Sedky. In collaboration with Mr. Ahmed El-Baz, Dr. Sedky has made his facilities available for our project. His current hardware configuration consists of two main-frame computers, an ICL 2966 computer and an ICL 2900 computer. Access to an HP3000 computer could also be arranged with the Data Processing Center, if necessary. Supporting peripheral input and storage devices include a card reader, six tape drives and ten disc drives (three of which maintain the operating system macros). In addition, nine CRT terminals are either currently on-line or in the process of being connected. Dr. Hallouda has mandated, in conformance with prior collaboration between Dr. Sedky and Mr. El-Baz, that four or five terminals be made available for the use of trainees for workshop exercises and the execution of analyses directed

towards the preparation of the final report. Additional computer hardware is being acquired by CAPMAS in anticipation of its use in conducting the 1986 Egyptian census. Though formal contracts have been signed for this project, it is not clear whether delivery of any additional equipment can be anticipated in advance of either the lecture series or the workshop. The current hardware configuration and supporting operating system macros should, however, be satisfactory for our project requirements.

Software capacity is, however, not as satisfactory as hardware. The NCC has the SPSS program package available for statistical analysis. These programs allow a variety of multivariate analyses to be conducted, and were used successfully for the analysis leading to the main report on the Egyptian Fertility Survey (EFS). They are not sufficient, however, for the purposes of the training and analysis project that we are proposing. Of particular importance, given the categorical nature of many of the variables in the PWIMS and other resident data sets, the package lacks capabilities for multivariate contingency table analysis. Specific recommendations are made below for steps that could be taken to remedy this situation.

In addition to computational facilities, CAPMAS maintains seminar rooms equipped with blackboards and overhead projectors satisfactory for display of prepared lecture materials. These facilities have been placed at the disposal of the outlined project. CAPMAS also contains a

conference center equipped for simultaneous translation. These capabilities would greatly facilitate the holding of a final conference for the dissemination of the results of project activities.

The most critical components for the execution of an institutional effort geared to short-term analysis and training activities are not physical capabilities but, rather, the degree of institutional mobilization on the furtherance of the project. Fortunately, the support and encouragement of the proposed project has been beyond criticism. Dr. Hallouda, President of CAPMAS, independently and in close collaboration with Dr. M. Nizamuddin, UN Chief Technical Advisor/Demographer on assignment to CAPMAS, Mr. Saad Zaghloul, retiring Under-Secretary for Population Studies and Research, and Mr. Ahmed El-Baz, in charge of the PSRC, have been entirely supportive of efforts to strengthen CAPMAS's capabilities for the timely and sophisticated analysis of survey data. Dr. Hallouda has instructed relevant personnel in the PSRC to cooperate in the furtherance of this project. The proposed initial lecture series was substantially the inspiration of Dr. Hallouda and the conception endured through discussions with Dr. Nizamuddin and PSRC personnel. Dr. Hallouda is seriously interested in upgrading CAPMAS's capabilities for analysis of resident data sets and in opening its data archives to collaborative efforts with outside institutions if this will further these institution building aims.

The members of the working group for the analysis of the PWIMS data have been generous of their time and attention in educating us about the survey and about field and office procedures followed in its execution. Dr. Farag Sedky of the National Computing Centre, at the request of Mr. Ahmed El-Baz, has assigned personnel from his division to aid the project and to undertake activities mutually agreed upon prior to the execution of the lecture series. As a whole, CAPMAS is ready to commit necessary resources in furtherance of the analysis and training mission. They recognize the institution building component of the project and concur in the necessity to select individuals for training with the requisite skills and commitment to be long-term resources for their activities.

III. RECOMMENDATIONS

It is recommended that the proposed analysis and training activities be undertaken. CAPMAS has within its possession invaluable data sets, including three rounds of the PWIMS, for the use of policy makers in assessing characteristics of the current demographic situation in Egypt and planning and executing relevant policy initiatives in health and population programs.

We further recommend assistance to CAPMAS for the acquisition of computer software necessary for them to achieve the targetted objectives.

It is recommended that consultant activities directed towards the analysis of the 1979 PWIMS data set, educating senior personnel, and providing hands-on training to appropriate middle-level staff be undertaken. A proposal to that effect has been drafted by the Working Group for PWIMS analysis in collaboration with us for submission to USAID for funding and assistance. Attached as appendices to this report are drafts of the Project Summary of that proposal and the detailed work plan formulated by PSRC members in collaboration with the consultants.

APPENDIX I: LIST OF EGYPTIAN AND U.S. OFFICIALS CONSULTED

- Mr. Lenni W. Kangas, Chief, Population and Family Planning,
Near East Bureau, USAID, Cairo
- Mr. John Paul James, Population Program Advisor, Near East
Bureau, USAID, Cairo
- Ms. Laura Slobey, Population Officer, Near East Bureau,
USAID, Washington, D.C.
- Dr. M. Nizamuddin, United Nations Chief Technical Advisor/
Demographer
- Dr. Awad M. Hallouda, President of CAPMAS
- Mr. Ahmed El-Baz, Director General in charge of PSRC, CAPMAS
- Mr. Saad Zaghloul Amin, consultant, CAPMAS
- Mr. Mohd Abedin Rehban Abdel Lotif, General Secretary,
CAPMAS
- Eng. Abdel-Hamid Shalaby, Director General, Office of
Technical Affairs, CAPMAS
- Dr. Farag Sedky, Under-Secretary of State/Director National
Computing Center, CAPMAS
- Mr. Ismail Raffat, First Under-Secretary of State/Head of
Statistical Center, CAPMAS
- Mrs. Amal A. El-Ghamry, Chief of Fertility Division, PSRC,
CAPMAS
- Mr. Hosni Soliman Ashy, Chief of Labor Force Section, PSRC,
CAPMAS
- Mr. Ismail Eid, Demographer, PSRC, CAPMAS
- Mr. Nosshey Abd El-Rahman Orabey, Chief of Nuptiality
Section, PSRC, CAPMAS

APPENDIX II: PROJECT SUMMARY FROM PROPOSAL
FOR TRAINING AND ANALYSIS PROJECT

This project would provide for cooperation between international consultants and the Central Agency for Public Mobilisation and Statistics (CAPMAS) for the analysis of data concerning pregnancy wastage and infant mortality in Egypt, and for dissemination of the findings of these data to persons and agencies who are concerned with policy formation with respect to health and population programs in Egypt. The long-term objective of this project is to enhance the ability of CAPMAS staff to conceptualize, implement, interpret, and disseminate the findings from analysis of survey data that go beyond descriptive statistics.

The first step toward meeting the objectives of this project will be a seminar series for directors and key persons in various Egyptian agencies involved in the collection and use of data for purposes of research and policy formation in the area of population studies. The purpose of this seminar series will be to enhance the awareness of such people of the potential usefulness of multivariate analyses techniques in providing more specific answers to policy-relevant issues than are possible from simpler analysis techniques. A second purpose of the seminar series will be to inform the participants about the pregnancy wastage and infant mortality surveys conducted by CAPMAS, and about the plans for analysis of data from those surveys which may be relevant to health and population policy issues.

Training and hands-on experience in the analysis of survey data will be provided through a workshop offered to selected persons in the Population Studies and Research Center (PSRC) and other parts of CAPMAS. The workshop

will center around an important survey conducted by PSRC in 1979, in which for the first time in Egypt nationally representative data were collected about pregnancies that terminated for any reason (abortion or miscarriage, stillbirth, or live birth) during 1978. This survey also obtained data about any infants who died during 1978, and therefore may resolve some issues concerning infant mortality raised by analysis of data from other sources. This Pregnancy Wastage and Infant Mortality Survey (PWIMS) screened a national sample of more than 50,000 households, in which about 13,000 eligible women were identified who had experienced one or more of these events. Each of these women was then individually interviewed to obtain information about their pregnancy, along with information about their health, marital and fertility histories, and general household conditions. Thus, there is a rich body of information about the correlates and possible causes of pregnancy wastage and infant mortality which has not been analyzed and which could be valuable inputs to population planning and policy formation. Examples used in the workshop will be taken from this survey, and the participants will do practical exercises involving analysis of these data.

One important aspect of the workshop will be training of the participants in the use of computer programs for the implementation of analysis procedures. For this purpose, use will be made of an integrated package of programs for data analysis. Thus, one component of the project will be acquisition and installation of such a package.

In the course of this project, a final report on the analysis of the 1978 PWIMS will be written (in English) by PSRC staff with the collaboration of international consultants. A conference to disseminate and discuss the

findings from that survey, and their implications for population planning and policy formation, will be convened after that report has been drafted.

Advanced training of members of the PSRC staff will be provided through participation in programs offered by a reputable American research-oriented university. In addition some CAPMAS staff members may be provided the opportunity to enroll for training in graduate degree programs.

APPENDIX III: WORK PLAN FROM PROPOSAL
FOR TRAINING AND ANALYSIS PROPOSAL

Project Activity	Location	Responsible Agency	Start Date	End Date
<u>A. File Preparation</u>				
1. Define editing checks	P.S.R.C.	P.S.R.C.		DONE
2. Review of editing checks	P.S.R.C.	Consultants	3/1/84	3/4/84
3. Merge four sub-files	N.C.C.	P.S.R.C.		
4. Test and define editing program	N.C.C.	P.S.R.C.		
5. Arrange questionnaires for review	P.S.R.C.	P.S.R.C.		DONE
6. Run editing program for batches of questionnaires	N.C.C.	N.C.C.		
7. Resolving inconsistencies	P.S.R.C.	P.S.R.C.		
8. Making corrections	N.C.C.	P.S.R.C.		
9. Rerun editing program (steps 6-8) until no further inconsistencies	N.C.C.	N.C.C.		6/15/84
10. Prepare subset tape about 2000 cases for use in preparing workshop	N.C.C.	N.C.C.		6/15/84
11. Define event, restructure women's file, create dictionary	P.S.R.C.	Consultants		3/7/84
12. Create event file	N.C.C.	Consultants		6/15/84

Project Activity	Location	Responsible Agency	Start Date	End Date
<u>B. Seminar Series</u>				
1. Decision on whom to invite	P.S.R.C.	P.S.R.C.		4/30/84
2. Invitations	P.S.R.C.	P.S.R.C.		4/30/84
3. Logistics: room, facilities, scheduling	P.S.R.C.	P.S.R.C.		4/30/84
4. Preparation of seminar series	U.S.A.	Consultants		5/5/84
<u>C. Workshop</u>				
1. Decision on who is to participate	CAPMAS	P.S.R.C.		5/24/84
2. Logistics: room facilities, scheduling	CAPMAS			5/24/84
3. Preparation of workshop materials	U.S.A.	Consultants		6/30/84
4. Duplication of workshop materials	CAPMAS	P.S.R.C.		7/7/84
5. Workshop	CAPMAS	Consultants, P.S.R.C., N.C.C.	7/7/84	8/16/84
<u>D. Acquisition of software</u>				
1. Order software package				
2. Install	N.C.C.	N.C.C.		4/30/84
3. Check out	N.C.C.	N.C.C.		5/10/84
4. Test runs	N.C.C.	Consultant	5/12/84	5/24/84

Project Activity	Location	Responsible Agency	Start Date	End Date
<u>E. Analysis of Pregnancy Wastage and Infant Mortality Survey Data</u>				
1. Outline final report	P.S.R.C.	P.S.R.C.		3/7/84
2. Assign key persons to each part	P.S.R.C.	P.S.R.C.		5/5/84
3. Identify co-authors	U.S.A.	Consultants		
4. Introductory chapter: survey design, etc.	P.S.R.C.	P.S.R.C.		6/15/84
5. Initial exploratory analyses	P.S.R.C.	P.S.R.C. Consultants		8/16/84
6. Intensive analysis	CAPMAS & U.S.A.	Authors		
7. Writing analysis chapters	CAMPAS & U.S.A.	Authors		12/31/84
8. Publication of final report	Cairo	P.S.R.C.		2/28/85
<u>F. National Conference on Findings</u>				
1. Logistics: whom to invite, where and when to hold	P.S.R.C.	P.S.R.C.		
2. Conference	Cairo	P.S.R.C.		3/85
<u>G. Further Training of P.S.R.C. Staff</u>				
1. Decide on criteria for selection	CAPMAS	P.S.R.C.		
2. Selection	CAPMAS	P.S.R.C.		
3. Training	U.S.A.	Consultants		8/85