KENYA
TRIP REPORT

Prepared by: Michael J. Levin **Date Prepared: June 18, 2002**

Sites Visited: Isiolo and Nairobi, Kenya **Submitted to: Joanne Jeffers**
USAID/G/PHN/POP/PE

Period Covered: January 20 to February 11, 2002

Trip Purpose and Summary

At the request of USAID/Kenya and the Kenya Central Bureau of Statistics (CBS), Michael J. Levin traveled to Isiolo (January 20 to February 1, 2002) and Nairobi (February 7-11, 2002), Kenya, to work with the CBS staff on issues related to the continued processing of data from the 1999 Census of Population and Housing. Levin worked with CBS staff and consultants developing the analytical monographs and resolving issues relating to editing and tabulation problems when scanning captured the 1999 Kenya Census of Population and Housing data.

The list of persons contacted appears in Attachment A.

Trip Details

Upon his arrival in Kenya, Levin turned his attention to assisting in finalizing edits used to cope with issues arising from scanning the 1999 Kenya Population and Housing Census. The staff also concentrated on producing tabulations, using the formats currently recommended by the United Nations Statistical Office (UNSO).

Edits. In Kenya, certain problems remained in the edited data. Some of the issues and their resolutions were:

1. *Educational attainment.* Too few persons were reported as having reached Standard 1, but as having "no education" (code 97) rather than "currently attending Standard 1" (code 00). When the program was corrected, so was the problem.

2. *Dead female children.* Many problems remained in the fertility data, particularly for female children, and more particularly, for dead female children. These particular columns were not picked up properly during scanning, and, unfortunately, the scanning problems were not systematic. That is, it was not possible to tell whether some of the items had been picked up to be used to correctly impute the others. Hence, another method was needed. The method selected was to try to determine dead female children from the other

fertility items, usually obtaining dead female children by subtracting the sum of the living female children from the total female children ever born. In most cases, this procedure gave consistent results, and results consistent with number of female children and total children for that age of child.

3. *Leading X for 10 or more children.* Originally, it was assumed that all information in the tens digit for children ever born were assumed to be wrong, and deleted during editing. However, it was decided on this trip to look at the information more analytically, so male and female children ever born were summed, checked for consistency with their component parts, and with age, and, if all checked out, the "greater than 10 children" was accepted.

4. *Extra dead last births.* The original edit for last births checked to (1) make sure the last birth was not superseded by a later child of the correct relationship in the household (and, then substituted for reported information), and (2) if a match was made between a dead last child and a last child listed in the household, the last child was made "alive". The combination of these two edits decreased the infant mortality rate from about 80 in the unedited data to about 20 in the edited data. A decision was made to accept the reported information in both cases. The first because the relationship reporting tends to be very general, and attributed to the head (who is usually male) rather than to the spouse (usually female), and the second because the dead child could have been one of a pair of twins, or the second of two children born in the same year. Also, other cases where a last dead child should have been reported as alive, but was reported as dead, would offset erroneous reports in this section.

5. *Other issues.* A series of other small issues were resolved in the final edits.

As previously reported, in most cases, the "hot deck" approach was used to resolve inconsistencies. This approach replaces invalid entries or resolves inconsistencies by using information for a previous person or housing unit with similar characteristics with valid information. Most of the edits followed the United Nations' recommendations appearing in the *Handbook on Population and Housing Census Editing*, Studies in Methods, series F, no. 82, which Levin recently wrote for the United Nations Statistical Division (UNSD). But the individual edits were modified to fit the situation in Kenya.

To assist researchers at the CBS and other researchers when a sample of data is released later, Levin changed the edit to provide unedited data for some variables–relationship, age, sex, marital status, paternal orphanhood, maternal orphanhood, children ever born, surviving, and dead, and last child information on each record. Also, partially edited fertility data–data after intra-record checking were also provided; these data were the same as the edited data unless inconsistencies between the fertility items required imputation.

After editing the data, Levin made the following subsets for tabulation and research purposes:

1. *Provinces.* The whole data set was passed 8 times, to create a separate final data file for each of the eight provinces. Besides ease of use for responding to data requests for provinces or districts, this procedure was necessary because CBS has no computer with sufficient memory to handle some requests for data.

2. *Ten percent sample.* Levin developed a 10 percent sample of the entire data set by selecting the 5th housing unit, and every 10th unit after that. This data set can be contained on a single compact disk.

3. *One percent sample.* Levin developed a 1 percent sample of the entire data set by selecting the 50th housing unit, and every 100th unit after that.

4. *One in a thousand sample.* Levin developed a 1 in 1000 sample of the entire set by selecting the 500th housing unit, and every 1000th unit after that. This data set can be contained, in zipped form, on a single floppy disk.

5. *Analytical Reports.* Kenya is producing a series of analytical reports for the Census 1999. These reports include (1) fertility, (2) mortality, (3) migration, (4) education, (5) labor force participation, (6) housing, (7) gender, and (8) projections. Caribert Irazi worked with the projection groups in Isiolo and in Nairobi. He has developed a separate report (See Trip Report, January 22 to February 17, 2002).

Levin developed a series of specialized Census Tabulation System (CENTS) tables on various topics as the authors requested them. These included series for fertility, mortality, migration, education, labor force participation, and housing. Certain that the fertility, mortality, and migration tables were shared with the projection groups as well.

Activities Remaining

1. *Computer edits.* As noted above, after the structure edit developed by Nyongesa Peter and Tom Ondra, three content edits were applied to the structurally edited data set: (1) Population, including all population items except for the fertility items, (2) Fertility, for the fertility items only, and (3) Housing for the housing items. The group of CBS staff members and consultants agreed in a meeting at Nairobi to accept the currently edited data, even with a very few apparently continuing glitches, and to use these data to develop the tabulations, indicators, and text tables. Assuming that the edits will not change further, the CBS staff members need to fully document the actual edits, enhance use of the data during analysis, and to assist in developing questionnaires and edit specifications for follow-on surveys (now and at the next census).

2. *Tabulations.* As noted above, most of the tabulation plans are in place, and programs run on the current or recent data set. However, the various sets of tabulations need to be finalized, with particular attention to wording of table titles, universes, boxheads entries, rows or stubs, sources, and notes. Some tabulations sets have not been completed, and need to be completed or dropped from the series. Tabulation plans need to be documented for future reference.

Recommendations

This mission basically accomplished its goals: to obtain a fully edited data set, and to assist in developing tabulations for publication and for use in developing the analytical reports. Consideration should be given to the following for further work:

1. *Tabulation sets.* Cross-tabulations for provinces and districts have been prepared. The CBS should consider cross-tabulations for age, birthplace, education, and employment.

2. *Development of Internet capabilities.* The CBS seems to need both internal and external Internet capabilities. Considerable time is spent physically moving programs and data sets, and parts of data sets around. The cost-benefit of doing this electronically should not be difficult to ascertain. Also, as the Census 1999 data becomes available, methods of disseminating results will be bulky and inefficient if electronic transfer isn't readily available.

3. *Development of increased facility in CSPro.* While the edits and tabulations are in the old IMPS-DOS, CBS should quickly move to CSPro, both for subsequent cross-tabulation and analysis of the current Census 1999, and in preparation for follow-on surveys, and administrative records work that previously used IMPS. Because it is a generally superior system, and because it is Windows-compatible, CSPro is a better package for use in the twenty-first century. Additional training for more staff, either in Washington, DC or in Nairobi, may be needed.

4. *Use of the 1969, 1979, and 1989 data.* The Africa census project at the University of Pennsylvania has earlier data sets. The CBS may want to consider working with the project to look at trends over time for various characteristics.

5. *Documentation.* CBS should make every effort to fully document all phases of the census–enumeration, processing, and analysis.

Attachments
cc:

M. Strong	USAID/Kenya
D. Vogel	USAID/Kenya
D. Nalo	CBS Director
F. Munene	CBS Deputy Director
J. Kekovole	Census Project Manager
F. Otieno/C. Opiyo	CBS Demographers
P. W. Nyongesa	Chief of Data Processing Dept.
J. Jeffers	USAID/G/PHN/POP/PE
K. Lucas	USAID/East Africa Affairs, Desk Officer
E. McPhie	USAID/East Africa Affairs, Director
B. Phipps	East African Affairs/State Dept., Desk Officer

ATTACHMENT A

Persons Contacted

USAID/Kenya

Street Address: ICIPE Complex Thika Rd., P.O. Box 30261
Nairobi, Kenya

Telephone: (254-2) 862400/402
Fax: (254-2) 890562/949
E-Mail: msrong@usaid.gov

Michael A. Strong, Ph.D., Senior Reproductive Health Advisor, Office of Population and Health

Central Bureau of Statistics (CBS)

Street Address: Herufi House, First Floor (between Central Bank and Ministry of Finance)
Nairobi, Kenya

Mailing Address: P.O. Box 30266
Nairobi, Kenya

Telephone: (254-2) 340-929
Fax: (254-2) 330-030

David S.O. Nalo, Director of Statistics, Ministry of Finance and Planning
(e-mail: director@cbs.go.ke)

Census Operations (Located at Nyayo House)

Francis M. Munene, Deputy Director
John Kekovole, Census Project Manager
Fred Otieno, Demographer
Collins Opiyo, Demographer
P.W. Nyongesa, Chief of Data Processing Department
Moses Okelo, Statistical Officer
Tom O. Ogutu, Housing Planning Officer, Housing
Department, Ministry of Roads and Public Works
(e-mail:housdept@AfricaOnline.co.ke)