EVALUATION OF THE SURVEY AND CENSUS INFORMATION, LEADERSHIP, AND SELF-SUFFICIENCY (SCILS) PROJECT

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ACRONYMS

AIM	Analysis, Information Management, and Communication Project
BuCen	United States Census Bureau
CA	Cooperating agency
CDC	U.S. Centers for Disease Control and Prevention
CPR	Contraceptive prevalence rate
CSPro	Census and Survey Processing
CTO	Cognizant technical officer
DESA	United Nations Economic and Social Affairs Division
DHS	Demographic and Health Survey
E&P	Estimates and projections
ECSP	Environmental Change and Security Program, Woodrow Wilson Center
FY	Fiscal year
GH-Tech	Global Health Technical Assistance Project
GPS	Global Positioning System
HMN	Health Metrics Network
IAA	Interagency Agreement
IDB	U.S. Census Bureau International Data Base
IIASA	International Institute for Applied Systems Analysis
IPC	U.S. Census Bureau International Programs Center
IRs	Intermediate Results
MICS	Multiple Indicator Cluster Surveys
NGO	Nongovernmental organization
OGAC	Office of the Global AIDS Coordinator
OHA	USAID Bureau for Global Health Office of HIV/AIDS
PAS	Population Analysis Spreadsheets
PASA	Participating Agency Services Agreement
PDE	Population-Development-Environment
PEPFAR	President's Emergency Plan for AIDS Relief
PHN	Population, health, and nutrition
PRB	Population Reference Bureau
PRH	USAID Bureau for Global Health Office of Population and Reproductive Health
RUP	Rural/Urban Projections
SCILS	Survey and Census Information, Leadership, and Self-Sufficiency Project, within IPC
SOW	Scope of work
TFR	Total fertility rate
UN	United Nations

UNCDB	United Nations Common Database
UNFPA	United Nations Population Fund
UNPD	United Nations Population Division
UNSD	United Nations Statistics Division
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
WHOSIS	World Health Organization Statistical Information System
WPP	World Population Profile

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EXECUTIVE SUMMARY

The United States Agency for International Development Bureau for Global Health Office of Population and Reproductive Health (USAID/GH/PRH) requested that the Global Health Technical Assistance (GH Tech) Project conduct an evaluation of the Survey and Census Information, Leadership, and Self-Sufficiency (SCILS) Project, a Participating Agency Services Agreement (PASA) with the United States Census Bureau (Project Number 936-3083.04). The major focus of the evaluation was on the estimates and projections (E&P) portion of the SCILS portfolio. USAID/GH/PRH is planning to design a new interagency agreement with the Census Bureau. Information from this evaluation will assist in making management decisions regarding the scope of the E&P work to be performed under the new Interagency Agreement (IAA) and the extent of future PRH funding of this work.

The objectives of the evaluation were:

1. To assess the current status of the Census Bureau E&P systems and how they function, determining whether the product of the systems (estimates and projection information) are accessed and used by USAID, USAID implementing partners, and other health-field partners.
2. To assess the total average annual cost of producing estimates and projections per country and to explain the overlap in E&P work done with the USAID Bureau for Global Health Office of HIV/AIDS (OHA) and the Office of the Global AIDS Coordinator (OGAC).
3. To analyze and compare the Census Bureau system in relationship to the United Nations Development Programme's system in terms of process, product, collaboration, and value added.

A two-person GH Tech team conducted the evaluation from January 2, 2008 to March 31, 2008.

BACKGROUND

SCILS is tasked to strengthen the capacity of statistical offices in developing countries to collect, analyze, disseminate, and use data to increase understanding of population structure and demographic trends and their implications for development planning and policymaking. SCILS, one of the projects under the MEASURE umbrella, was awarded on September 30, 1997. In 2002, the SCILS PASA was extended for five years, and in 2007 was granted a no-cost extension through August 2008.

This evaluation focused on three of the project's six strategic Intermediate Results (IRs). These were:

- IR4: Improved design and implementation of the information-gathering process, including tools, approaches, methodologies, and technical guidance to meet users' needs.
- IR5: Increased availability of population, health, and nutrition (PHN) data, analyses, and tools.
- IR6: Increased facilitation of use of PHN data.

EVALUATION METHODOLOGY

The evaluation team acquired and reviewed relevant documents from USAID and the Census Bureau. The team then conducted targeted interviews with key informants including Census Bureau/International Programs Center (IPC) staff, representatives of USAID, and also United Nations Population Division (UNPD) staff. The team developed a questionnaire and administered it by email and through telephone interviews to over 40 representatives of U.S. cooperating agencies (CAs), United Nations (UN) agencies, nongovernmental organizations (NGOs), think tanks, and university-based researchers. The overall approach to data collection, analysis, and reporting is covered more fully in **Section II** of the report, while the list of contacts and their affiliations appears in **Appendix C**.

MAJOR EVALUATION FINDINGS

Objective 1: To assess the current status of the Census Bureau E&P systems and how they function, determining whether the product of the systems (estimates and projection information) are accessed and used by USAID, USAID implementing partners, and other health-field partners.

Key findings under this evaluation objective include:

1. Criteria for annual comprehensive updates of about 30 countries on average include population size, recency of the last update, new data availability, and priority for United States Government (USG) HIV/AIDS efforts and USAID/PRH work. While USAID/PRH priority is included as a weighting factor, the team recommends this criterion be given greater weight.
2. The technical aspects of population estimation and projection, described in detail in this report, are demographically sound and are undertaken very professionally by Census Bureau IPC staff. However, the Population Analysis Spreadsheets (PAS) and the Rural/Urban Projections (RUP) software need considerable updating and revision.
3. The International Data Base (IDB) products are extensively used by development planners who require well-documented population estimates and projections to underpin their own work, across a spectrum of development sectors. Beyond USAID and its implementing partners, this information is accessed by a broad spectrum of users in the development community, and in academic think tank settings.

Objective 2: To assess the total average annual cost of producing estimates and projections per country and to explain the overlap in E&P work done with OHA and OGAC.

Key findings under this evaluation objective include:

1. In the past decade there have been 311 updates, for 108 countries of interest to USAID, with 161 updates since 2002. PRH has provided roughly 25 percent of E&P support, and in general appears to have received updates commensurate with its level of support, relative to other funding agencies, including OHA and OGAC.
2. Updates of countries of particular interest to PRH average roughly $25,000, but with substantial variability.

3. Annual updating of estimates, as in the current practice, is justified, and should continue. However, the system for prioritizing countries for comprehensive updates could be modified to give greater weight to countries of particular interest to PRH.

Objective 3: To analyze and compare the Census Bureau system in relationship to UNPD in terms of process, product, collaboration, and value added.

Key findings under this evaluation objective include:

1. Differences in both methodology and timing of updates between the Census Bureau and UNPD account for most differences in the E&P products of these two major data generators. In most cases, the differences are not large and can be readily explained. Continued interactions and professional interchanges among these two, along with Population Reference Bureau (PRB), SPECTRUM, and perhaps a few others involved in E&P work, are recommended to promote ongoing improvements for all such efforts.
2. Both the IDB and UNPD figures are widely used in the development community, as are such more "derivative" sources as PRB. Such apparent duplication of sources actually provides useful synergies, and slightly different perspectives, on the dynamic and ever-changing population scene. In terms of "value added," having more than one major agency committed to excellence in providing population estimates and projections is highly beneficial to the development community.
3. In comparing UNPD and Census Bureau outputs, as assessed by a range of users who have accessed both, the team finds that both sources are considered to be of high, and comparable, quality and accessibility. There appears to be some preference for UNPD sources by other UN agencies, while USAID CAs use both, as do academics and think tank researchers. In general, the Census Bureau's website is rated better than its UNPD counterpart. For the immediate needs of many generalists, the PRB's annual datasheets and website are also widely used, while more specialized users are likely to use multiple sources of data, depending on their needs. Several respondents expressed the view that they see considerable value in having both UNPD and the Census Bureau engaged, independently but not in isolation from each other, in making estimates and projections.

MAJOR EVALUATION RECOMMENDATIONS

Overarching Recommendation

1. USAID/PRH should continue to support the preparation of population estimates and projections by the IPC. This will permit a continuation of a long-standing and valuable contribution to improved databases for USAID, agencies supported by USAID, and the development community worldwide.

In addition to this overarching recommendation, the GH Tech evaluation team recommends several technical and outreach steps that can reasonably be expected to facilitate any follow-on agreement. Although there may be some overlap, specific recommendations can be grouped into two categories: (1) Technical Recommendations, and (2) Outreach and Management Recommendations.

Technical Recommendations

1. The Census Bureau should completely redesign Population Analysis Spreadsheets (PAS) and Rural/Urban Projections (RUP), especially PAS, as a set of routines in the statistical languages R or S or, preferably, within a commercial statistical package such as SAS or Stata. Ideally, the redesign of PAS would be done jointly with a UN Population Division redesign of Mortpak. This work and its cost could be spread over a two-to-three-year period.

2. A working group consisting of representatives from the Census Bureau, UNPD, PRB, and possibly other agencies, should be set up and should meet regularly once or twice a year. This working group could consider the changing needs of users, differences in E&P methodology, and the relation to other projection software and methodology such as SPECTRUM, developed by the Futures Group with USAID funding.

3. The Census Bureau should seriously consider presenting low and high variants to supplement their projections, or at least describe the uncertainty in the projections from future trends in HIV/AIDS prevalence, contraceptive use, etc.

4. For selected major countries, the Census Bureau should consider preparing subnational estimates and projections, going beyond the rural/urban breakdown currently prepared. For such countries as Nigeria and Sudan, along with several other large and heterogeneous countries, such breakdowns would be useful both for the countries themselves and for donor agencies.

Outreach and Management Recommendations

1. The Census Bureau's estimates and projections are a good product but are not marketed well. The Census Bureau should present and publicize its work more effectively to its various audiences and users. It is recommended that the Census Bureau hire or assign someone to serve as a liaison with USAID, the UN, and other governmental and nongovernmental entities, to facilitate this effort.

2. The IPC should provide an annual report to USAID/PRH, which includes the components of the priority scores for the countries selected for analysis. IPC and USAID should negotiate a larger weight for the USAID priority component of the total score.

3. The Census Bureau should continue to improve its website. More details about the projection methodology should be made available directly at the website. A page for each country could include the dates of the two most recent updates, the degree to which the projections for the country changed between those updates, and a brief summary of the reasons for these changes. This page should also include a table that would give previous projections, such as the population totals for 2000, 2010, 2020, etc., that were projected in 1970, 1980, 1990, and 2000.

4. The Census Bureau should be encouraged to engage more actively in capacity-building activities, both in international settings, and perhaps also in supporting E&P courses, or preparation of curricular materials, aimed toward U.S. institutions that train foreign statistical staff who are expected to return to their own countries.

I. BACKGROUND

The current SCILS/IPC/Census Bureau agreement with USAID/GH/PRH is in its last year. Prior to developing a follow-on agreement, USAID wished to have an assessment undertaken of certain aspects of the existing agreement. This evaluation was undertaken in response to USAID's desire to gain a fuller understanding particularly of the Estimation and Projections (E&P) activities undertaken under this agreement, and also to understand how the Census Bureau E&P work relates to other agencies' efforts in this field, and questions of cost in relationship to benefits to USAID and the "development field." A comparison of the Census Bureau's E&P activities with those of the UN's Population Division was explicitly requested, and became a subfocus of the assessment.

The full scope of work (SOW) for this activity appears in Appendix A. This also provides a comprehensive summary of the entire SCILS project, and the six IRs it is designed to achieve, before focusing on three aspects that are the focus of the present assessment and report, which are designated as IR4, IR5, and IR6, as follows:

- IR4: Improved design and implementation of the information-gathering process, including tools, approaches, methodologies and technical guidance to meet users' needs.
- IR5: Increased availability of population, health, and nutrition data, analyses, and tools.
- IR 6: Increased facilitation of use of population, health, and nutrition (PHN) data.

These three IRs are the basis of three categories of questions USAID wished the consultants to address, and form the background for the findings and recommendations contained in this report.

II. METHODOLOGY

The evaluation team conducted meetings with GH Tech and USAID staff to translate the SOW into an evaluation work plan and explored ways to clarify assessment objectives and the best approaches to data collection to answer the SOW questions.

The actual assessment began with the collection and review of a variety of documents from the Census Bureau and other sources. Key to this document review was self-evaluation reports provided to the team by the Census Bureau, in response to specific sets of questions and requests from USAID. These proved very helpful, as did the original SOW, in providing some of the background information on which the team could build, in answering specific questions posed in the illustrative questions in the SOW. These documents and additional ones subsequently collected from various sources, including the Census Bureau and UNPD, also contributed to the design of the next stage of data gathering.

The next stage involved meetings with staff of the Census Bureau at their headquarters. Following an initial meeting with Census Bureau staff, and particularly those involved with the USAID agreement, another full-day meeting was set up for two weeks later, during which the team was provided with a comprehensive overview of key activities and was able to explore a number of issues related to the SOW. Meetings with key individuals from UNPD, at their UN headquarters, enabled the team to get some idea of the differences, and similarities, in the approaches and products of UNPD, in comparison with SCILS.

Key to the assessment was a determination not only of how SCILS actually functions and what is involved in the preparation and dissemination of its E&P products, but also how this work is actually used by various actual or potential constituencies, and what other sources of similar estimates and projections compete with, or perhaps supplement, the Census Bureau's efforts. This was done through several approaches to data gathering, beginning with the identification of representatives of a variety of potential users of SCILS products. Besides the staff of USAID/PRH, the team quickly identified some key potential users and information sources.

Using a "snowball" sampling approach as discussed in the SOW, the team identified additional contacts through USAID and other initial contacts. This potential respondent list was further expanded to widen the range of user group representatives. It was recognized from the outset that this sampling methodology would not provide a true probability sample, which limited types of formal analysis that could be used. However, it serves as a purposive sample, to yield a range of responses from identified user groups, and is an "efficient" design for the current assessment. Since direct person-to-person interviews were not practical in most cases, the intention was to obtain information by a combination of emailed questionnaires and telephone interviews.

A basic questionnaire was designed to guide the selected respondents in providing the needed types of information. In addition, the emails were personalized to elicit information relevant to the selected agency or respondent. Appendix C gives respondent names and affiliations. Response rates were well over 80 percent, yielding the 45 responses noted below. The list contains representatives of USG (mostly but not exclusively USAID/PRH), several UN-affiliated agencies, AID-supported cooperating agencies, various NGO and development-oriented institutions, and several university-based and other researchers.

In addition to questionnaire responses, and as already noted, the team had two lengthy group meetings with Census Bureau staff and one with UNPD staff, and two brief meetings with USAID staff. These group meetings included altogether over 20 individuals. Therefore, total feedback came from over 65 people.

There was some division of labor between the two consultants, with frequent communication throughout this process to review what each was learning. The essential findings and resulting recommendations began to coalesce during a two-day meeting of the consultants in Austin, Texas, but were further refined subsequently, following briefings with Census Bureau and USAID staff, and also receipt of additional information from various sources.

III. EVALUATION FINDINGS AND CONCLUSIONS

From March 1997 through July 2007, the Census Bureau tables list 583 updates to 225 countries or quasi-independent demographic entities. The range is from one to five updates per country, apart from four outliers having had six to nine updates. However, in terms of the evaluation, the team focused on the subset of 108 countries of particular interest to USAID, for which 311 updates are reported during this period, for an average of about 30 updates per year. The average number of updates was a little under three, and the range is from one to six updates per country during the decade.

Though focus of the evaluation was on the USAID-interest countries, many of its findings apply also to the other, mostly more-developed countries for which the Census Bureau has provided periodic updates.

The SOW was divided into three broad areas or components:

- **Component One:** Understand and explain what the Census Bureau E&P system entails and how it functions, and determine whether the product of the system, estimates and projections information, is accessed and used by USAID, USAID implementing partners, and other health-field partners.
- **Component Two:** Determine the total average annual cost of producing estimates and projections per country and explain the overlap in E&P work done with OHA/OGAC funds.
- **Component Three:** Analyze and compare the Census Bureau system in relation to the UNPD E&P system in terms of process, product, collaboration, and value added.

The team's evaluation findings are organized under these three components as presented below.

Component One: <u>Understand and explain what the Census Bureau E&P system entails and how it functions, and determine whether the product of the system, estimates and projections information, is accessed and used by USAID, USAID implementing partners, and other health-field partners.</u>

The team started with an overview of the E&P system. First, the IPC continuously receives data from countries around the world, from the Demographic and Health Surveys (DHS), the U.S. Centers for Disease Control and Prevention (CDC), UNAIDS, and other sources. Generally, data that come in reports are routinely mailed to the IPC; computer files are requested as needed. This information for a specific country is not actually used until the time for that country's next update, but is filed when it comes in.

The timing of a country's next update is based on a priority index with the following components and possible points:

Population size (0–10)
USAID priority (0–4)
HIV/AIDS priority (0–10)
Other sponsors (1–5)

Years since last update (0–14)

Amount and importance of new data (0–23)

Need for extension of single ages to an upper limit of 100+ (0–5).

Approximately 30 countries with the highest total scores are updated each year. The selection of countries is not completely transparent; almost one-third of the possible maximum points (23 out of 71) are based on the "amount and importance of new data," a component that is hard to quantify.

Second, for a selected country, the age distribution in a recent reference year is estimated, in five-year intervals of age, by sex (male/female). For some countries, the distributions are prepared separately by type of place of residence (urban/rural). The reference date is typically the most recent census year. The expectation of life and age-specific death rates are estimated (for both males and females), as are the total fertility rate (TFR) and age-specific fertility rates. The country's net international migration rate (which is positive or negative) is also estimated. Even if the age distribution comes from a census, it may be adjusted to correct for apparent undercounts or age displacement.

These calculations may extend to the revision of an earlier estimate in order to reconcile apparent inconsistencies. For countries with poor vital statistics systems, it is necessary to estimate a schedule of age-specific death rates from just the expectation of life, and to estimate a schedule of age-specific fertility rates from just the TFR. An overall net migration rate must be converted to an age-specific pattern. The IPC is gradually extending the age distributions in the IDB so that the final age category will be 100+ for all countries rather than 85+. Steps such as these, and checks on the quality of the new data, are done with a library of Excel routines known as PAS (Population Analysis Spreadsheets). To summarize, the most recent age-sex distribution, expectation of life for males and females, age-sex-specific death rates, TFR, age-specific fertility rates, sex ratio at birth, and the level and age pattern of migration comprise the *estimates* part of the E&P system that is then pushed forward in the *projections* part. The IDB website includes, for many countries, past estimates of contraceptive prevalence and method mix. These are not projected and are not used in the population projections.

Third, a trajectory of future fertility and mortality is estimated by fitting previous and current estimates of the summary measures of fertility and mortality, the TFR and life expectancy, with a logistic function, also using PAS. The upper and lower asymptotes, or ultimate values in the past and the future, are constrained to specific values, as will be described in more detail in a comparison with UNPD procedures. The purpose of fitting a logistic function is to estimate *how fast* the country is moving toward the ultimate values but not to estimate *what* those ultimate values will be.

Fourth, using the recent or current age distribution and the estimated logistic trajectories of the TFR and life expectancy, and the migration pattern, the age distribution is pushed ahead one year at a time up to 2050, for males and females (and, in some countries, for urban and rural areas). The extrapolated distributions and rates are the *projections*, in contrast to the estimates. The software for this step is a program written in FORTRAN called RUP. (RUP stands for "Rural/Urban Projection," a source of some confusion, because the projections are usually not disaggregated by type of place of residence.) The projected age-sex distributions, by five-year intervals of age up to 100+ (although only a few countries go out to 100+ at this time), and single year of time to 2050,

are put into a large spreadsheet. This last step is done with an automatic conversion of the RUP output.

The fifth phase of the process is the conversion to what is actually seen by a visitor to the IPC website, called the IDB. A visitor will select one or more countries, one of eight possible combinations of ages for an age distribution, and any future year up to 2050. The website will then produce a table giving the distribution and projected rates, and can also give a graph of the age-sex pyramid. The IDB can produce nine different types of tables, but some of them (for example, tables for the contraceptive prevalence rate [CPR] and method mix, and for actual census counts), refer exclusively to the past. To the user, it may appear that a projection is being done during the session, but actually the database software is simply retrieving and aggregating numbers from the large spreadsheet that was already prepared and installed. The user is executing a query to the database.

The IPC structures these activities into A: preparatory work; B: evaluation, estimation, and projection; C: preparing documentation; and D: review procedures. The description here has skipped over parts C and D and has gone into more detail about the website. The purpose of this part of the assessment is to understand the E&P procedures, almost all of which are within part B of the IPC outline. The assessment now turns to illustrative questions in the SOW.

Improvements Made in the RUP Software and PAS

The Census Bureau sets the industry standard for population analysis and projection software. No other entity has developed or distributed anything that is comparable. UNPD distributes a set of routines under the "Mortpak" label, but these are the routines it uses for estimates; the projection software is not distributed. The East-West Population Institute and the Population Council previously distributed some limited versions of projection software. The Futures Group International developed SPECTRUM, the International Institute for Applied Systems Analysis (IIASA) has developed PDE (a program for "Population-Development-Environment" analysis), and a few other organizations have developed some limited projection software. (See http://www.demonetasia.org/links/linkssoftware.htm for links to a variety of demographic software.) The Census Bureau is essentially the only organization that has developed and distributes a complete set of routines for estimation and projection.

The Census Bureau website, known for its ease of use, obscures the fact that the underlying PAS and RUP software currently distributed through the website is not user-friendly. Virtually none of the people contacted said they had actually downloaded, installed, *and used* the software on their own computer. This is particularly true of RUP. If someone outside of the Census Bureau wanted to modify the Census Bureau assumptions and rerun a projection, they would have difficulty doing it without the kind of special training that the IPC provides for NSOs.

The Population Analysis Software (PAS) is a set of 45 Excel spreadsheets, whose function is to use various kinds of demographic data to estimate mortality rates and fertility rates, sometimes indirectly; to aggregate or disaggregate age groups; to smooth distributions; to fit logistic curves to trends in the expectation of life and the TFR; etc. Most of the PAS spreadsheets actually distributed through the website were last revised in May and June 2004. That date is recent, but the routines are relatively minor revisions of versions developed with Lotus (the spreadsheet package on which Excel was based) in the early 1990s or even earlier. They operate within DOS,

rather than Windows. They do not interface directly with statistical software packages, such as SAS or Stata. New data must be directly entered by hand.

The RUP software consists of 21 files in a variety of formats. The dates on the RUP files are 1992–1999; most have a 1994 date. The two most important files are rup.exe and rupagg.exe, the executable versions of two Fortran programs for which the source code is not distributed.

The documentation for PAS and RUP consists of a two-volume 1994 publication, *Population Analysis with Microcomputers*, by Eduardo Arriaga (now retired) and other Census Bureau staff. The website includes a document called rupdoc.pdf, an updated version of the part of the 1994 publication that describes the RUP software. The PAS and RUP routines are integrated in the sense that they have similar formats for input data. Otherwise, they are not easy to use or understand.

During the life of the PASA, many routines have been added. The new routines have probably contributed to the website but they are not available outside of the Census Bureau. They are itemized in the self-assessment (IPC 2008) as follows:

- 13 additional or revised spreadsheets for the analysis of age structure;
- 15 additional spreadsheets for mortality analysis;
- 4 additional spreadsheets for fertility analysis;
- 2 spreadsheets for modeling age patterns of migration;
- 6 additional spreadsheets for other demographic analysis;
- 16 spreadsheets for modeling HIV/AIDS or estimating AIDS/non-AIDS mortality;
- 14 spreadsheets to control RUP input/output and 13 new utility spreadsheets.

Census Bureau staff have stated that the PAS and RUP software needs to be better documented and more easily available, and RUP needs to be converted from FORTRAN to C or another language. The staff has expressed the need for a software specialist and a documentation specialist, possibly summer interns, to do these things, but say they cannot afford these specialists at present.

As far as the assessment team is concerned, the IPC has correctly identified some problems with respect to the software, but has not identified the optimal strategy to resolve these problems. For the past few years it has essentially been tinkering with the estimation and projection procedures by adding more and more spreadsheets, rather than designing a new interactive and integrated system that would be easier for them to use, and incidentally easier for other users. Interns and temporary specialists are not likely to be able to produce the major overhaul that is called for.

The main obstacle to using either PAS or RUP outside of the Census Bureau—and that probably much reduces the efficiency of the work *within* the Bureau—is that the various procedures are organized into separate "batch" routines, in Excel or Fortran, in contrast to the "interactive" nature of most data analysis packages. The very term "package" does not describe either PAS or RUP. The structure of these routines was typical when they were first developed, but now, despite the sophisticated tasks that they can accomplish, they seem clumsy. If statistical software were organized this way, then a user would have to use one program to recode data, another program to

do tabulation, another to calculate means, another to do a regression, another to do a graph, and so on. For each procedure, it would be necessary to set up the data, enter the commands into a file, and then save the results.

PAS and RUP are specialized and not commercial, with a small universe of potential users, so it is perhaps unreasonable to expect that they will have the interactive nature, menus, easy help, macros, and various frills of packages such as SAS and Stata. However, truly integrated and interactive software would dramatically improve IPC efficiency and sustainability. The strategy that would most likely achieve this end would be to shift away from Excel and Fortran, and not to use a general purpose language such as C, and to completely redesign PAS and RUP within the statistical languages R or S or, preferably, as modularized routines within a commercial statistical package such as SAS or Stata. A change such as this could be gradual, over a period of two or three years. The built-in data handling, graphical, and statistical procedures in R, S, SAS, or Stata would make this conversion easier than it might initially appear.

The E&P System: A Time- and Person-Hour-Efficient Process?

This work involves judgments and decisions that require a combination of several skills: familiarity with the country and its demographic history; familiarity with data from censuses, different kinds of surveys, and registration systems; a healthy skepticism about data quality issues, such as underreporting of vital events, age heaping and displacement, and even politically motivated over- or undercounts of ethnic groups; a deep understanding of population dynamics and interrelationships; and an understanding of the demographic methods and software. The team does not have a breakdown into how much time goes into each country's update, though the IPC did give a few examples, but the total amount of work completed by the IPC, in relation to the number of staff, suggests that the data collection, evaluation, and estimation process is indeed "efficient." However, that does not preclude the possibility of future steps that could further streamline the process, as noted elsewhere in this report, and in the Recommendations.

Assuming that the question of efficiency refers to the data currently posted on the website (rather than the archived data), the answer is yes. For most countries, the database includes single years of time from 1950 through 2050. The user can request a specific year or a range of years. Countries can be aggregated in any way the user chooses. The output can be downloaded onto the user's own computer, making it easy for the user to enter it into a package and produce graphs or secondary analyses. A printed version would have some additional reference value because it would then be possible to see how projections for specific years, such as 2020, have changed as that year has drawn closer, but overall, the website is much easier to use than a printed volume would be. The website receives nearly 400,000 hits per month. The UNPD, Population Reference Bureau, and most respondents judged the website to be excellent.

The website would be somewhat more helpful if it included a page for each country indicating when the two most recent updates were done, and summarizing the kinds of data that became available between these updates and the changes that ensued. At present, there is not a clear indication of the date or transitional interval that distinguishes estimates from projections. For example, many countries had censuses in 2000 or 2001, and that marks the most recent estimate of the population's growth rate and age distribution, but some countries had their most recent census several years earlier, and the figures given for 2000 and 2001 are mostly projections. The line between estimates and projections is often blurry, because of the varying kinds and quality of data

that are used, but more country-specific information could be provided as "country notes." In addition, a more detailed description of the projection procedure could be available at the website.

It is difficult to measure efficiency because there is much variation across countries in the amount of effort required for an update. A rough comparison with the UNPD indicates that the two operations are comparable.

Users of the Primary Data, the Product of E&P from the IDB

Staff from USAID and CAs use IDB data, along with other sources. Besides some users at USAID/PRH itself, and some USAID/OHA use, the team found that almost all users of national population information from groups or agencies that currently receive, or in the past have received, USAID funding, are aware of IDB, and use this resource when it meets their needs. In addition to traditional USAID-funded CAs, CDC staff access this source when appropriate. The IDB is widely used by policy researchers who require reliable demographic estimates and projections. In addition to government and multilateral agencies, this information is used by others needing it for modeling likely future "security" scenarios involving the relationship between populations and various types of resources. Thus think tank groups, academics, and others rely on such information. Often the use of IDB data is indirect, through PRB datasheets.

For USAID, these data do seem to be the primary source. However, other sources are also used, including UNPD and PRB sources (with the latter data derived in part from both Census Bureau IDB and UNPD, along with other sources). Outside the U.S., and especially among UN-associated agencies, UNPD-derived estimates and projections tend to be used more, but Census Bureau sources are used also, though sometimes simply as a check on UNPD and other sources. The team has only very limited information regarding use of demographic data by other offices within USAID.

Updates

New data are developed and become available on an ongoing basis, whether from censuses, major surveys, or vital statistics and surveillance systems. There is some periodicity in the generation of some of these data sets, while others emerge with less predictability and regularity. When looking at the entire universe of countries, there is some logic to having ongoing monitoring of updated data inputs, and their effects on future projections, both in order to justify a claim that these are comprehensive recent global updates, and also because some of the changes may indeed be quite substantial, with real-life implications for health and other development planners.

It would be hard in most cases to show major shifts in policy resulting from annual updates, where these changes may be modest for most countries in any given year. This is both because changes tend to be incremental, rather than sudden or massive, in most cases, and also because there is some built-in (and quite reasonable) inertia in the perceptions of change, except where these changes are so massive as to be evident even without formal country updates. In such cases, the formal updates may simply validate what headlines already have announced, but are likely to give a much firmer base for more ad hoc field estimates, and thus a firmer base for longer range as contrasted with short-term emergency planning. However, sometimes the changes resulting from updates are indeed quite substantial. For Kenya, for example, data from the 1999 national census and from the 2003 Kenya Demographic and Health Survey showed marked shifts from prior downward fertility trends. Incorporating this new information into updated estimates and

projections shows a very different demographic future from earlier figures, and has clear implications for long-range planners.

Other examples where updated information on refugee flows and international migration suggests substantial changes in future projections, and shorter-term demographic circumstances, include Afghanistan and Jordan, along with countries where HIV/AIDS has emerged as a major demographic determinant. In all these, and many other countries, having ongoing and timely updates has clear policy implications.

The system of prioritization for country updates is discussed in the introduction to Component One in the overview of the Census Bureau SCILS E&P system. In essence, both new data availability and particular interests of the USG contribute to the decision on which countries will be updated in a given year. The general logic of this system is sound, but the actual factors and weights could be tweaked to ensure that countries (and regions) of particular interest to USG, and notably to the funding agencies, have increased probabilities of inclusion. Whether more frequent updates result in substantive changes is not easily documented, nor readily predicted for some countries. However, data generated and updated with above-average frequency and presented for countries defined as high priority and of particular interest because of their size, HIV/AIDS status, or any other reason, are also going to be used more frequently to guide policies leading to desired changes.

The present system, with more frequent formal updates for countries operationally defined (by weighting criteria) as higher priority, while having ongoing compilation of new data as it becomes available for all countries, seems to be a reasonable approach. Several users of the IDB expressed support for annual updates, to undergird their own developmental plans and efforts.

Component Two: <u>Determine the total average annual cost of producing estimates and projections per country and explain the overlap in E&P work done with OHA/OGAC funds.</u>

Much of the following is derived from the Census Bureau self-evaluation documents and email exchanges with several key staff professionals at the Census Bureau.

The production of E&P updates reflects the level of funding available for this purpose from various sources. Total funding in FY2004 was $1.075 million, which rose slightly in FY2005 to $1.101 million and to $1.285 million for FY2006. For FY2007, it appears to have declined somewhat to $1.196 million, though the team has also seen a slightly higher figure, which may have been an estimate, of $1.331 million in FY2007.

Besides PRH, which in 2007 provided about 25 percent of SCILS support, OHA, in conjunction with the President's Emergency Plan for AIDS Relief (PEPFAR), provided about 14 percent of funding, while the *CIA Factbook* covered 28 percent, with the balance mainly covered by Census Bureau-appropriated funds (29 percent), and the Global Fund (4 percent). In recent years, the percentage of the total cost of updates contributed by PRH has ranged between 22 percent in FY2004 and 33 percent in FY2006.

In terms of the numbers of updates covered by E&P funding, the recent average has been close to 30 per year. Altogether, 311 updates have been produced for 108 countries since 1997. Since 2002, there have been 161 updates. Of this total, 76 have been PRH "tiered" countries since 2002. The average number of updates per country that received any update since 1997 is about three. This ranges from one to six updates, depending on the priority weighting system that determines

which countries top the list in a given year, in which recency of the previous update is only one consideration among several.

Some country update cost breakdowns provided by the Census Bureau illustrate the variability of these costs among countries, based on the levels of effort required for these updates. While some minor updates, especially involving the recent adjustments for survival functions being extended to 100+ years, may be as low as $10,000, the overall average for all updates is currently just under $30,000 per update, or $32,600 for "full" updates. The Census Bureau estimates the cost of a "100+" update at one-third the cost of a more comprehensive update. For USAID countries, the average figure tends to be a little lower, with an overall recent average of $24,800.

Issues of Upgrading of E&P Software

With respect to the anticipated cost of proposed improvements in software, the Census Bureau has produced estimates of the expected costs associated with both a "minimal cost" and an "optimal" higher level of modification of both PAS and RUP, and with documentation of these changes. In summary, the cost of necessary changes in PAS is about $80,000, as these are required for both the "minimal" and "optimal" modification options. The differences are in RUP updating and associated documentation. Under the "minimal" option, RUP updating is estimated at $101,900, compared with $203,800 for the "optimal" updating. Total documentation costs for both PAS and RUP are estimated at $142,000 under the "minimal" approach, compared with $187,100 at the "optimal" level.

The grand total for the "minimal" update package is $323,900, which would rise to $470,900 under the full "optimal" combination of updates to both PAS and RUP. The Census Bureau notes that these are likely to be modestly underestimated costs, since they use salary estimates for FY2008, rather than for FY2009, when the updates would begin.

As mentioned earlier in the discussion of PAS and RUP, the team is not convinced that the proposed strategy for updating and improving these procedures is the right way to go. A translation from Excel and Fortran into C or a similar general purpose programming language would completely ignore the excellent built-in input/output, data manipulation, graphical, and other advantages of the statistical languages and packages already mentioned. The main problem with the current software is that it is not interactive and integrated, and a conversion to C would not solve that problem unless it included a major interface with Windows. There are current staff at the IPC who already have expertise in SAS and Stata. If they cannot be freed from other tasks to do the PAS and RUP conversions, it might be possible to contract this out. This is addressed in the Recommendations below.

PRH-Funded E&P Work Contribution to HIV/AIDS Mortality Modeling for the 15 Focus Countries

Much of the information in this section is derived from the SCILS Self-Assessment (IPC 2008). Since 2002, RUP enhancements have focused on the HIV/AIDS component. In 2003–04, modeling work on the demographic impact of HIV and AIDS led to the development of the RUPHIVAIDS.xls spreadsheet. During 2004–05, approximately two dozen new spreadsheets were developed and RUPHIVAIDS.xls was refined.

Prior to the development of the RUPHIVAIDS module, a separate HIV/AIDS model was used to project the epidemic. These results were then put into the standard RUP demographic projection

model. In a separate process, the "non-AIDS" projection was prepared, and the impact of HIV/AIDS was taken as the difference, for example, in mortality rates. In the RUPHIVAIDS module, these processes are combined into one integrated step. The HIV/AIDS model is the one currently used by UNAIDS, UNPD, and others to model the epidemic. The result is a unified model that makes available key epidemic parameters and the standard demographic ones. The result is more efficient and more consistent with current HIV/AIDS modeling efforts worldwide.

It appears that all of this development work was funded by the PASA with USAID/OHA, rather than by the PASA with USAID/PRH. Indeed, "Since FY2002, all PAS and RUP enhancements have been funded by other sponsors" (IPC 2008, p. 1). This IPC statement leaves unclear the question of the PRH funding budgeted specifically for PAS/RUP enhancements, and whether the statement refers only to HIV/AIDS-associated enhancements. The team's sense is that there may be some indirect contributions of PRH to HIV/AIDS mortality modeling, but the team found no evidence of a direct contribution.

The team found no evidence that PRH is paying for estimates and projections for OGAC's 15 focus countries, and neither OGAC nor IPC believe this to be the case. Overall, the total number of country updates of particular USAID interest since FY2004 (52 updates) account for 34 percent of all updates (155), and this was achieved with the expenditure of 28 percent of funding, suggesting that PRH was by no means shouldering a disproportionate burden of total support. The team cannot break out exact figures for OGAC from other non-PRH sources, but it appears unlikely that PRH is subsidizing OGAC.

If E&P funding from PRH were withdrawn, it likely would result in some shifting of OHA funding to cover basic E&P funding for the 15 focus countries. Respondents both within the Census Bureau and in the general user community who commented on the question of multiple funding sources for E&P efforts expressed the view that the E&P work supported by PRH is an important component of the totality of the Census Bureau's E&P effort, and it is appropriate to think in terms of leveraging of funding, resulting in synergies in generating the estimates and projections that this joint funding supports.

PRH Support of E&P through SCILS: Value Added?

It is hard to quantify the value added by PRH support to E&P through SCILS. While pinning down the funding amounts by different sources, including PRH, to SCILS can be done with reasonable confidence, the "benefit" side does not lend itself to easy quantification. Within "benefits" one would need to place a value on such hard-to-capture, yet obviously real, outcomes for the many users, both direct and indirect, of these products, as:

- Gains in both timeliness and accuracy of estimates required by developmental planners, in the U.S. and globally, by having Census Bureau estimates available, in addition to UNPD and others.
- Likely increased use of population data, and confidence in its validity, by the multiplicity of users, including various government agencies besides USAID, CAs, NGOs, university and other scientific researchers, and private citizens.
- The value to other professionals engaged in Population Estimation and Projections work (notably UNPD), or in dissemination of basic population estimates by such groups as PRB.

- Least quantifiable, but possibly most valuable, is simply having more than one respected data validation and dissemination source engaged in generating and making data available to "the world," especially for agencies concerned with ameliorating long-range problems in such diverse areas as global health, environment and climate change and their impact on food supplies, population displacements through civil conflicts or natural disasters, and even issues of security, among others.

Future PRH Funding and Technical Support to E&P Work in a Potential New Agreement with the Census Bureau

The team believes that the current PASA/PAPA mechanism has worked reasonably well, but communication between the more technical staff in the Census Bureau SCILS and the officers with oversight responsibilities at USAID could be improved, as addressed in the Recommendations section. There needs to be closer tracking by the Census Bureau of its E&P expenditures, and communication of this information to PRH. This could facilitate improved two-way communication between the Census Bureau and USAID, which in turn might also allow for more flexibility in adjusting to emerging data needs that USAID might identify in "out years" of the agreement.

Component Three: Analyze and compare the Census Bureau system in relation to the UN Population Division E&P system in terms of process, product, collaboration, and value added.

The Mortpak routines used by UNPD to smooth data, do indirect estimation, etc., are distributed to the public. They are quite comparable to the PAS software available through the Census Bureau. The software and spreadsheets used by UNPD for its *projections*, distinct from the estimations, are not distributed, so the team was unable to assess how they differ from the RUP used by the Census Bureau, which is available in compiled form although not in source code.

Both Mortpak (UNPD) and PAS (Census Bureau) can be traced back several decades, to the 1970s or even earlier, as FORTRAN programs written for mainframes. They have gone through somewhat parallel adaptation to microcomputers and to spreadsheet formats, but neither package is user-friendly by current standards and neither has adapted well to the Microsoft Windows operating system. There is a good deal of duplication, particularly in their indirect estimation routines and use of model life tables. A consolidation and improved interface would be a positive contribution to the demographic community and to each agency's efficiency. That is, if possible, UNDP and the Census Bureau should work together to develop a single integrated set of all the estimation-related routines that they use. It would be less useful, at this time, for the Census Bureau and UNPD to attempt to integrate their projection routines.

The software for managing the Census Bureau and UNPD databases online, that is, for doing various aggregations and displays of numbers in the databases, is relatively generic and there would be no advantage to sharing or integrating this code. The Census Bureau uses dBase, with programs in C using a set of UNIX library routines called CODEBASE to create the queries and format the output. The team does not know what specific package is used by UNPD, but as stated above, there would be no significant benefit from using the same database package or the same code for the queries.

The UNPD uses essentially the same data sources as the Census Bureau. These consist of recent population censuses from the country; vital statistics estimates of fertility and mortality, if the country has an adequate vital statistics system; estimates of fertility, contraceptive prevalence, and infant and child mortality from surveys; and indirect estimates of fertility and mortality if the vital statistics system is inadequate and there are no relevant surveys. As at the Census Bureau, all sources are subjected to data quality checks.

Differences between UNPD E&P System and Product and Those of the Census Bureau E&P system

There appear to be no significant differences between the UNPD and Census Bureau in the procedures for preparing current and recent population estimates. This is not to say that they always reach the same conclusions about data quality—nor would it be desirable for them to do so. However, there are a number of differences in the projection methods. The most important ones are listed below. Many of the assumptions or procedures for projections in both agencies have changed in just the past 10 years or so.

The UNPD always uses five-year age intervals and projects to years ending in 0 or 5. The Census Bureau also does its projections with five-year age intervals, but in single years of time. The Census Bureau is better able to incorporate disasters, etc., that cause a spike in mortality in a point or short interval of time, and to project the consequences.

The UNPD produces high, medium, and low variants, whereas the Census Bureau produces only a single projection. UNPD procedures for constructing the high and low variants are fairly simplistic. The high variant is based on the assumption that the TFR will be 0.5 higher than in the medium variant; in the low variant, the TFR is 0.5 lower. UNPD does not alter its assumptions about mortality or migration to produce the high and low variants. UNPD cautions users that the high-to-low range should not be interpreted as a confidence interval, and that it does not involve alternative assumptions about anything other than fertility.

UNPD assumes (for the medium variant) that all countries of the world, regardless of their current levels of fertility, will follow logistic patterns of fertility change that will converge to a TFR of 1.85 no later than the year 2100. Until the late 1990s, UNPD assumed that all countries would converge to a TFR of 2.1 (replacement fertility), but for the past 10 years or so the asymptote has been 1.85.

The Census Bureau also uses logistic trajectories, but with a future asymptote of 2.0 for countries whose current TFR is 3.0 or greater or an asymptote of 1.7 for countries whose current TFR is less than 3.0. Note that these two asymptotes (2.0 and 1.7) are equidistant from the single value used by UNPD (1.85). For the higher-fertility countries, the upper asymptote of the logistic (which refers to the distant past) is one child higher than the highest TFR observed in the country's history, but not less than 6.0. For the lower-fertility countries, the upper asymptote is 4.0.

UNPD assumes that the expectation of life will continue to increase indefinitely. The Census Bureau currently assumes that the expectation of life will converge to the current levels (separately for men and women) that are approximately those now observed in Japan and a handful of other countries, but the Census Bureau will probably relax this assumption in the near future. There is increasing evidence that life expectancy has, for practical purposes, no upper limit.

UNPD reconciles its international migration estimates so that the total net migration across all countries of the world is zero for all time points. Although this kind of consistency is a logical necessity, it is very unlikely to arise naturally and must be imposed by a round of iterative adjustments. The Census Bureau does not impose this consistency.

UNPD produces some subnational estimates and projections for a few large and internally diverse countries. The Census Bureau does not at present do so, although the team understands it is considering some subnational estimates. These can be very helpful, especially for internal use by the countries that would be affected.

UNPD produces updated estimates and projections for all countries, with urban-rural breakdowns, every two years (in even-numbered years). They are made available in two versions: a hard-copy, two-volume report, which includes a detailed chapter on procedures, and an online version. The online version gives access to a database that contains five-year age groups, in calendar years ending in 0 or 5 up to 2050, and a breakdown by sex and urban-rural residence. Users can specify and call up various aggregations from this database.

The Census Bureau formerly produced a hard-copy version. Hard-copy versions comprise a public archive, with which it is possible to see how projections made for a specific year, such as 2020, have varied over time. Old projections are archived for future reference, and could be obtained under some circumstances, but it would be helpful if some old summary projections could be added to the "country notes" pages on the website. The utility of old projections is that they can give a sense of whether (as is often the case) old projections have consistently been revised upward, or consistently revised downward, suggesting a long-term trend in one of the components of change.

The Census Bureau's online database is very similar to that of UNPD, except for being about five times as large, because it is in single years of age and single years of time, rather than five-year intervals of both age and time. The greater detail of the Census Bureau database allows for much greater flexibility for a user. For most purposes, the downloadable online format is preferable to a hard copy publication.

The Census Bureau updates the online database annually, rather than every two years, as UNPD does. This does not mean, however, that every country is revised annually. For most countries, the input data do not change from one year to the next, and the projections will either be the same or will change in relatively minor ways because of changes in software or assumptions about future HIV/AIDS mortality, etc. About 30 countries are actually updated annually in terms of their current age distributions, expectation of life, TFR, immigration/ emigration patterns, etc. These countries are selected on the basis of the priority score described above, one of whose components is the relative importance of the country for USAID/PRH. Census Bureau staff have indicated that it would be possible to increase the weight of this component.

The UNPD issues annual wall charts that give current estimates of many population characteristics. The Census Bureau does not do so. However, PRB issues such charts, with more information than the UNPD charts, and much of the information in the PRB charts is drawn from the Census Bureau. The principal data sources for PRB wall charts are the Census Bureau, the UNPD, the countries themselves, and the DHS and CDC survey reports. The wall charts provide estimates, and not projections, except in the sense that the numbers for current years are short-term projections from the most recent reference years.

In Volume 2 of its biennial publication, UNPD describes its projection procedures in more detail than the Census Bureau does in any publication or on its website, but UNPD makes no effort to distribute its software. The team has noted the difficulty in trying to run the Census Bureau software, but a major difference from the UNPD is that the Census Bureau does at least make its software available in a compiled form.

UNDP produces a variety of publications (through DESA), and also has a website. Beyond this, it also participates in various scholarly forums and workgroups.

USAID and its CAs and the Two Sources of E&P

Key USAID staff, at least in PRH, seems well aware of both sources. Another source widely used within USAID (and elsewhere) is the PRB annual World Data Sheet, and other PRB sources. Those sources are largely derived, however, from IDB and UNPD sources, along with sources from within countries. Within the wider E&P community, the team also found some use of other specialized sources, which are not nearly as well known nor as commonly used as IDB and UNPD. "SPECTRUM" software was, however, mentioned by several CAs and other users.

Within USAID, the IDB figures appear to be used slightly more than the UNPD figures, but this depends both on the individual staff member's preferences and on the specific types of information needed. Most find the IDB information to be readily available on the Census Bureau website, and find this a user-friendly source for the types of data breakdowns they need, and also find this easier to access than UNPD's site. Some types of data, for countries having recent surveys, may also be accessed from DHS.

For other CAs, UNPD and the Census Bureau data seem about equally favored. In general, those who seemed to be the heaviest users seemed also to feel that both sources were highly credible, and appreciated having both available, even when they noted some differences in the figures provided by the different sources. Agencies, including USAID-supported CAs, will also (appropriately) use local data resources in the countries in which they work, but may check these against IDB and UNPD or other estimates.

Most staff at USAID and in its CAs feel they lack a basis for judging the relative credibility, neutrality, and objectivity of the two sources, nor are they closely attuned to differences in the methodologies employed by these two dominant E&P generators. There is a general perception that both use reasonable and accepted methodologies. A few non-USAID demographic methodologists have been critical of different aspects of the procedures of both UNPD and the Census Bureau.

In terms of dissemination, users at USAID and its CAs both found the data fairly accessible. However, the more of a "generalist" the user is, the more likely it is that they will use such secondary sources as PRB.

UNPD considers the IDB website to be better designed, more accessible, and "better" than their website at this time.

Redundancies between UNPD and Census Bureau E&P Products

There are apparent redundancies in that the current estimates and near-term projections are very similar. However, the Census Bureau's online database has more depth because it goes down to

single years of age and time. The longer-term projections have greater differences because of the effect of different assumptions about future mortality and fertility.

The assessment team does not view the two projected databases as duplicates or redundant, largely because of the necessary uncertainty in the different underlying assumptions. On the one hand, the UNDP's assumption that the expectation of life can increase without limit is probably superior to the Census Bureau assumption that it has an upper limit. On the other hand, the UNDP's assumption that the TFR in all countries will converge to 1.85 by the year 2100 is indefensible (although any alternative value would be equally indefensible). The Census Bureau practice of allowing two different asymptotes (1.70 and 2.0) could be considered marginally superior, in recognizing that some differences are likely to remain far into the future. A sophisticated user will compare the two projections.

The Census Bureau and UNPD use substantially the same data on population and the demographic components (fertility, mortality, and migration) that determine future trajectories. Consequently, even though the ways they model these demographic scenarios differ, most estimates and projections, especially in the short run, are fairly similar. Rather than "redundancy," similarities can be seen as validation, giving users additional confidence in the estimates and projections.

UNPD, working with UNAIDS, is involved with AIDS-related mortality estimation, and with the contribution of this mortality to likely future projection scenarios. The Census Bureau and UNPD have collaborated in these efforts in a variety of direct and indirect ways.

The products of both major E&P groups (the Census Bureau and UNPD) are clearly valuable, though there is indeed some duplication in the information generated. Not only do the two agencies consider this "redundancy" to be well justified, but so do many of the users of these sources. A number of highly respected demographers and think tank scholars made a point of urging continued support for the IDB work, even when they themselves may look at multiple data sources, in delving into alternative trajectories for future trends. UNPD also felt that having a second source for credible estimations and projections sometimes helps to protect them from political pressures to "adjust" their figures for political expediency, in that they can point to the Census Bureau figures as ammunition against such threats to the integrity of their estimates.

Capacity Building around the E&P Systems: UNPD and Census Bureau Compared

UNPD does some limited capacity building, though not specifically around the E&P system. The IPC appears to do more capacity building than UNPD, by training the staff of other countries' statistical offices in the use of RUP. The IPC distributes software such as CSPro and provides training in various skills related to censuses and surveys, but these activities are not directly related to E&P.

It bears noting that the Census Bureau's E&P activities are integral to other capacity-building aspects of the project. The process of preparing estimates and projections provides training and experience to Census staff, which they themselves share in workshops. This activity is also developmental, in the sense that it helps identify new tools and methodologies for accurate estimation and projection, which in turn can be shared with other professionals in the field.

UNDP and Census Bureau Collaboration

There is no formal collaboration between UNDP and the Census Bureau. However, professional staff of both groups periodically get together to compare methodologies and approaches to estimation and projection. They also interact through joint participation in various forums. Each has respect for, and values the perspectives of, the other. UNPD made it very clear to the team that both the "competition" and the professional interaction with Census Bureau counterparts serves their interests.

IV. SYNOPSIS OF COMMENTS FROM THE USER COMMUNITY

A set of questions was presented to the contact list. In addition, contacts were encouraged, by email and/or telephone, to add other observations they considered might be helpful in assessing E&P activities, especially with regard to the Census Bureau, but with a secondary emphasis on comparison of the Census Bureau and UNPD efforts. The responses supplemented information obtained through group meetings with the Census Bureau and UNPD staff and documents provided by those agencies. About 45 contacts contributed some information, including nearly 40 by email. These responses included representatives of USAID, USAID-supported projects, other UN-associated agencies, and several other NGOs and individuals identified as users of international population estimates and projections. A few of the respondents identified themselves as former rather than current users of such information, or as having only peripheral involvement in E&P, but still provided some feedback. A brief summary of major points and observations is presented below.

General overview of responses to 12 specific questions:

Most respondents do use, or have previously used, the Census Bureau-generated information, and in most cases have obtained this from the IDB website, or occasionally from a Census Bureau-provided CD. Most have also used UNPD information. A fairly representative type of response was "For population estimates and projections, we use the Census Bureau, UN Common Data Base and the UN World Population Prospects 2006 database, and sometimes the *World Development Indicators*."

In general, the Census Bureau's IDB was better known and more likely to be used by USAID staff, while UN-affiliated staff tended to use UNPD information, reflecting an "unwritten rule" favoring this source. One "other UN agency" staffer noted that "UN official statistics go through an extensive vetting process internally and with member states," but goes on to say "to my knowledge, there is no official statement that UN figures must be used in research or publication." A representative of another UN agency offered "we don't 'gravitate' toward UNPD estimates…[but] we feel semi-bound by UN protocol…[but] that doesn't mean that the Census Bureau is ignored…." No strong preferences were noted among non-UN respondents, though some felt that UN figures, coming from an "international organization," were more acceptable to countries where they worked, but with one respondent noting "the reputation of the U.S. Census Bureau is a valuable asset to check and support countries."

Actual use patterns varied, and depended largely on the uses to which the data were being put, as well as individual preferences. Most respondents have at various times sought information on specific countries from the Census Bureau, either for country reports or regional comparative reports. One respondent stated a preference by his agency to use the data generated within the countries where they work.

Some respondents have used UNPD estimates for such reasons as "the presence of alternative (high/low) projections." One respondent, who has used Census Bureau age pyramids for presentations, stated "If I need long-range projections, I usually use the UNPD estimates, since they are a widely known and utilized source and because they produce multiple projection scenarios" (reflecting uncertainty in estimates).

Most respondents who gave an opinion felt that Census Bureau and IDB estimates are of comparably high quality, with some noting for example that they find the Census Bureau figures "…more responsive to recent surveys and research being published than the UN." One respondent did not make a comparison, but noted "the (Census Bureau) estimates appear to be of good quality, and documentation of assumptions helps understand how estimates were derived."

Regarding "access," the Census Bureau sources were generally rated as being "very accessible," but not necessarily more accessible than UNPD sources. PRB was also seen as providing "very accessible" information, and often the first place they went to, if their objective was simply to get quick access to key national figures, even where they recognized that PRB was less of a "primary source" than Census Bureau and UNPD figures. One respondent noted that "the Census Bureau is just as user-friendly and accessible as other sources. The output is easier to use than the UN World Population Prospects. PRB does not give many trend data, rather only current estimates."

Most users had little to say on software-related questions, but implicitly trusted that the developers of the software were doing a good job. A few did mention additional projections software packages, along with statistical analysis software. Several, while not commenting on the PAS and RUP software, spoke very appreciatively of other Census Bureau software, notably of CSPro, which several (including two UN agencies, the CDC, and the Carter Center's "Global 2000 Project") highlighted for its utility in Multiple Indicator Cluster Surveys (MICS) and other surveys and data analyses. Most were not very aware of other projections software, though the SPECTRUM family of programs ("projection package") got several mentions. Two noted that the SPECTRUM model has a default (in EasyProj) which uses the UN, rather than Census Bureau, estimates and projections, though it was produced in part with USAID funding, and which is also available on the web.

The following is miscellaneous feedback, not directly from specific questions on E&P activities, or taken from telephone or personal interviews:

One negative comment from a generally very knowledgeable respondent was that the Census Bureau estimates of under-5 and infant mortality rates are so different from all other sources (UN, ChildInfo, etc.) that "we do not use them." This is the sort of concern that could be addressed in meetings among the Census Bureau, UNPD, and other E&P leaders, as suggested in the "Recommendations" section.

A different respondent singled out the HIV Surveillance database that the Census Bureau maintains as being particularly helpful. They receive the relevant CD by mail, and note "there is nothing else like this anywhere and we strongly support its continuation."

PRB (two sources) spoke highly of the quality of Census Bureau data, which are among the sources used for its popular annual datasheets and other publications, and speak highly of the professionalism of Census Bureau staff (as did the Census Bureau's counterparts in UNPD's Estimation and Projections branch).

An internationally experienced epidemiologist, after speaking briefly about CSPro and its potential, suggested potential Census Bureau activity in use of micro-level census data in public health programs through such things as assisting countries in "ensuring that all EAs are defined by Global Positioning System (GPS) coordinates, (and adding) GPS coordinates for every household," along with several other ideas that go beyond the present assessment, but not beyond the horizons of other potential future Census Bureau activities.

More than one respondent mentioned (supportively) Census Bureau staff participation in various working groups, including in AIDS-related estimations, and commended Census Bureau staff professionalism.

Speaking to the differences between the Census Bureau and UNPD, one user of data from both sources observed that "I…prefer the UN's publication of their methodology, and the publication of papers and statements from conferences held concerning methodological changes. They have set themselves up as the primary source of this information. The Census Bureau does not—and I think cannot—present itself…as the primary international data source. That said, the Census Bureau/IPC provides a check on the UN, and its researchers have done some innovative work that has pushed the UN (on HIV/AIDS, on aging, on sex-selective abortion)."

V. RECOMMENDATIONS

The following are the GH Tech evaluation team's recommendations:

Overarching Recommendation

1. USAID/PRH should continue to support the preparation of population estimates and projections by the International Programs Center of the Bureau of the Census. This will permit a continuation of a long-standing and valuable contribution to improved databases for USAID, agencies supported by USAID, and the development community worldwide.

In addition to this overarching recommendation, the team recommends several technical and "outreach" steps that can reasonably be expected to facilitate any follow-on agreement. Although there may be some overlap, specific recommendations can be grouped into two categories: (1) Technical Recommendations, and (2) Outreach and Management Recommendations.

Technical Recommendations

1. The Census Bureau should completely redesign PAS and RUP, especially PAS, as a set of routines in the statistical languages R or S or, preferably, within a commercial statistical package such as SAS or Stata. Ideally, the redesign of PAS would be done jointly with a UNPD redesign of Mortpak. This work and its cost could be spread over a two-to-three-year period.

2. A working group consisting of representatives from the Census Bureau, UNPD, PRB, and possibly other agencies, should be set up and should meet regularly once or twice a year. This working group could consider the changing needs of users, differences in E&P methodology, and the relation to other projection software and methodology such as SPECTRUM, developed by the Futures Group with USAID funding.

3. The Census Bureau should seriously consider presenting low and high variants to supplement their projections, or at least describe the uncertainty in the projections from future trends in HIV/AIDS prevalence, contraceptive use, etc.

4. For selected major countries, the Census Bureau should consider preparing subnational estimates and projections, going beyond the rural/urban breakdown currently prepared. For such countries as Nigeria and Sudan, along with several other large and heterogeneous countries, such breakdowns would be useful both for the countries themselves and for donor agencies.

Outreach and Management Recommendations

1. The Census Bureau's estimates and projections are a good product but are not marketed well. The Census Bureau should present and publicize its work more effectively to its various audiences and users. It is recommended that the Census Bureau hire or assign someone to serve as a liaison with USAID, the UN, and other governmental and nongovernmental entities, to facilitate this effort.

2. The Census Bureau/IPC should provide an annual report to USAID/PRH that includes the components of the priority scores for the countries selected for analysis. IPC and USAID should negotiate a larger weight for the USAID priority component of the total score.

3. The Census Bureau should continue to improve its website. More details about the projection methodology should be made available directly at the website. A page for each country could include the dates of the two most recent updates, the degree to which the projections for the country changed between those updates, and a brief summary of the reasons for these changes. This page should also include a table that would give previous projections, such as the population totals for 2000, 2010, 2020, etc., that were projected in 1970, 1980, 1990, and 2000.
4. The Census Bureau should be encouraged to engage more actively in capacity-building activities, both in international settings, and perhaps also in supporting Estimation and Projection courses, or preparation of curricular materials, aimed toward U.S. institutions that train foreign statistical staff who are expected to return to their own countries.

APPENDIX A: SCOPE OF WORK

SOW for Evaluation of the Survey and Census Information, Leadership, and Self-Sufficiency (SCILS) Project

Ritu Singh
9/28/07

I. SCILS is the Office of Population and Reproductive Health (PRH) Participating Agency Services Agreement (PASA) with U.S. Census Bureau (BuCen)

Project Number: 936-3083.04

Contractor: U.S. Census Bureau

Life of project funds and dates: September 30, 1997 – August 31, 2008; the PASA is currently capped at a level of $45,039,439 over the life of the agreement. To date, we have committed approximately $35,133,796 against the agreement total.

II. Project Background

The Survey and Census Information, Leadership, and Self-Sufficiency (SCILS) project is the Office of Population and Reproductive Health's PASA with the U.S. Census Bureau. SCILS seeks to strengthen the capacity of statistical offices in developing countries to collect, analyze, disseminate, and use data to increase understanding of population structure and demographic trends and their implications for development planning and policy making. SCILS is one project under the MEASURE umbrella; the other three projects are MEASURE/CDC (PASA), MEASURE/DHS Phase II (contract), and MEASURE/Evaluation Phase II (cooperative agreement). SCILS was awarded on September 30, 1997. In 2002, the SCILS PASA was extended for five years, and in 2007 it was granted a no-cost extension through August 31, 2008.

The SCILS project has six intermediate results: increased user demand for quality information, methods, and tools; increased in-country individual and institutional technical capacity; improved collaboration and coordination; improved design and implementation; increased availability of data, analyses, methods and tools; and increased facilitation of use of data. Generally, though, the project can be broken down into three main areas: development of the Windows-based data collection and analysis software called Census and Survey Processing (CSPro), institutional capacity building, and estimates and projections. The following are some illustrative activities under the three main areas: develop tools and methodologies for innovative implementation of censuses and surveys; support technical assistance to build the capacity of national statistical organizations to design, manage and conduct national censuses and surveys; conduct technical consultations and regional and in-country training on topics such as census design, data collection and processing, data analysis, and dissemination and use of census data.

This evaluation of SCILS is intended to focus on the estimates and projections (E&P) portion of the SCILS portfolio. The project regularly updates global, regional, and country-specific population growth estimates and projections, and conducts demographic trends analyses. Using in-house software and spreadsheets, the Census Bureau assesses, compiles, and analyzes demographic data to create demographic estimates and population projections, which are then archived and made available to the public on the web-based International Data Base (IDB). SCILS

E&P work falls under three of the six intermediate results (IR4, IR5, and IR6), and is described in more detail below. Additional information on the Census Bureau's E&P work can be found in the PASA document (attached as resource document).

IR4: Improved design and implementation of the information-gathering process including tools, approaches, methodologies, and technical guidance to meet users' needs

The two activities that contribute to E&P and that need to be evaluated under this IR are: (1) improve population projection software, and (2) improve population analysis spreadsheets. The Census Bureau has created Rural/Urban Projection (RUP) software and population analysis spreadsheets in order to produce E&P. The RUP software and population analysis spreadsheets are continually updated in order to improve data collection and analysis and to keep up with technology.

IR5: Increased availability of population, health, and nutrition data, analyses, methods, and tools

USAID relies upon the Census Bureau to evaluate, analyze, and make available demographic data for all countries of the world, with emphasis on USAID priority countries. Activities to be evaluated under this IR can be broken down into two main components: compile and assess demographic data, and demographic estimates and projections.

Compile and assess demographic data

The Census Bureau compiles, analyzes, and maintains computerized demographic and family-planning data from intercensal surveys and censuses, focusing on the following variables:

- Total and age-specific fertility rates and trends;
- Age-sex-specific mortality rates and trends;
- Infant and child mortality rates and trends;
- Contraceptive use levels and trends, by age and method;
- Short-term population projections and special tabulations, such as married women of reproductive age;
- International migration levels and trends, by age and sex.

Demographic estimates and projections

Demographic data for most developing countries come from censuses and surveys. When new data are received, the Census Bureau evaluates the information vis-à-vis existing estimates and projections for the country. When the new data warrant, the Census Bureau prepares updated estimates and projections of fertility, mortality, and international migration, and revises the underlying age and sex structure of the population, as necessary. The Census Bureau also takes into account the changing structure of mortality due to HIV/AIDS when necessary. Once compiled, the E&P are fed into the web-based International Data Base's (IDB) country pages.

IR 6: Increased facilitation of use of population, health, and nutrition (PHN) data

The activity to be evaluated under this IR is the maintenance and updates of the International Data Base (IDB). The Census Bureau's web-based IDB is the mechanism through which the Bureau makes its compilation and analysis of data for each country available to both partners and

stakeholders. Recent statistics show that the IDB receives over 50,000 "hits" per week compared to 1,000 per week five years ago. The IDB contains demographic statistics for 228 countries. Data for 30 countries were updated in the 2006 IDB update; of these, 19 were countries of interest to USAID and were funded through the SCILS project (see Appendix B for a list of all 30 countries).

For the 2005–06 SCILS work plan year, PRH funds covered about a third of the total cost incurred in doing E&P for countries of interest to USAID; the rest of the funds were leveraged from internal Census Bureau appropriated funds, the *CIA Factbook*, and USAID's Office of HIV/AIDS (OHA). OHA and the Office of the Global AIDS Coordinator (OGAC) specifically fund the Census Bureau's E&P work in order to do HIV/AIDS modeling and produce HIV/AIDS mortality estimates in the 15 OGAC focus countries. It is of interest to this evaluation to understand the extent to which PRH funds are used for E&P work in countries of interest to PRH, and to understand the overlap between the estimates done for PRH and the estimates done for HIV/AIDS modeling work, and the synergies that may exist. It should be noted that the level of resources required to complete a country update varies by country and depends on the amount, quality, and consistency of new data available; the complexity of demographic changes in the country; and whether the country has substantial international migration or is an AIDS country.

Also of key interest to this evaluation is the fact that the United Nations Population Division (UNDP) also produces E&P. In addition to evaluating the Census Bureau work, this evaluation will also explain UNDP E&P processes, and conduct a comparative technical and cost analysis of Census Bureau E&P work and UNDP E&P work in order to determine possible synergies and/or variances between the two sets of estimates and projections.

III. Purpose of the Evaluation and List of Questions

The Office of Population and Reproductive Health and the Census Bureau have had an interagency agreement since the 1960s. The overall agreement has been evaluated during this long history; however, an in-depth review of the estimates and projections portfolio has not been undertaken. The existing 11-year agreement with the Census Bureau, the SCILS project, will end on August 31, 2008. PRH is currently in the process of designing a new interagency agreement with the Census Bureau. Information from this evaluation will help determine management decisions regarding the scope of E&P work done under the new PRH and Census Bureau Inter-Agency Agreement (IAA) and the extent to which this work will be funded with PRH funds. The primary management decision regarding E&P work under the new agreement can be broken down into three main queries or components. All three components will contribute equally to the decision making. This evaluation is organized according to these three components.

Component One: Understand and explain what the Census Bureau E&P system entails and how it functions, and determine whether the product of the system, estimates and projections information, is accessed and used by USAID, USAID implementing partners, and other health-field partners. The system is defined as the activities that fall under Intermediate Results 4, 5, and 6 (the software, the process of compiling and assessing data, and dissemination through the IDB). Explaining and evaluating the system will help USAID determine whether past funding investments through the current 11-year agreement have produced requisite primary estimates and projections data that are accessed and used by the primary target audience as defined in the SCILS agreement.

Component One of the evaluation will start with a self-assessment by the Census Bureau. The Cognizant Technical Officer (CTO) will design the self-assessment questionnaire for the Census Bureau, and the Census Bureau will complete it before the beginning of the evaluation. Some of the self-assessment questions are listed below. The evaluation team will be expected to ask questions about the E&P system and carry out any necessary follow-up with the Census Bureau in order to fully explain the system and evaluate it.

Self-Assessment Questions (answered by the Census Bureau):

1. Explain the role of RUP software and population analysis spreadsheets in producing E&P. How many person-hours does it take to update and maintain the software and the spreadsheets annually?
2. Explain the Census Bureau compilation, assessment, and analysis process. How many person-hours does it take on average per country annually?
3. Explain how countries are selected each year for updating. Are countries on a rotation schedule?
4. What methodology is used to determine which donor funds support which country?
5. Which countries has SCILS funding covered in the last 10 years? How many person hours does it take to update and maintain the IDB annually?
6. What is the Census Bureau strategy for disseminating E&P?
7. Is the IDB the only source of age-sex structure graphs? What else is unique to the IDB?
8. Explain what capacity building the Census Bureau has done around its E&P system. What regional and national workshops have been done and/or what short/long-term TA has been provided to USAID countries around the E&P work? Can National Statistics Offices create their own E&P at the end of workshops or TA?

Illustrative Evaluation Questions for Component One:

1. Evaluate the improvements made in the RUP software and population analysis spreadsheets over the life of the agreement compared to industry standards.
2. Is the second part of the E&P system, the data collection and analysis, a time- and person-hour efficient process?
3. Is the IDB an efficient and technologically savvy dissemination tool?
4. Who from USAID Washington and the USAID CAs uses the primary data, the product of E&P, from the IDB? How have they used this data?
5. Is the Census Bureau their primary source of information for such data?
6. Is there anyone outside of the health field in USAID who uses the Census Bureau E&P?

Component Two: Determine the total average annual cost of producing estimates and projections per country and explain the overlap in E&P work done with OHA/OGAC funds. Conduct a cost analysis of average E&P costs per country. It is generally understood that PRH funds are put into a mixed pot of monies that then fund the E&P in a set number of countries. Which countries will be

updated is determined through availability of recent data, need to update, and status as USAID priority countries. Thirty countries were updated in 2006 (see Appendix B), several of which were PRH priority countries. It is not clear how much PRH funding went toward PRH priority compared to nonpriority countries. A cost analysis will allow PRH to direct its limited funding toward its primary and secondary priority countries.

Furthermore, explain the overlap between PRH-funded E&P work and the E&P work done for HIV/AIDS mortality modeling with OHA/OGAC funds. This will create a better understanding of how PRH funds may or may not overlap with funds provided by OHA for HIV/AIDS mortality estimates.

As with Component One, this part of the evaluation will also begin with a self-assessment by the Census Bureau. This self-assessment will focus on the costs associated with E&P. The CTO will design the cost analysis questionnaire for the Census Bureau and do a preliminary analysis. The Census Bureau will complete the self-assessment before the beginning of the evaluation, and the CTO will provide the report and the preliminary analysis to the evaluation team before the start of the evaluation. The evaluation team will be responsible for doing any further analysis that may be required and for synthesizing the results with the rest of the evaluation. Some of the self-assessment questions are listed below. The evaluation team will be expected to follow up with the Census Bureau so that the team fully understands and can explain the costs associated with the E&P system.

Questions for the Cost Analysis (answered by the Census Bureau):

1. How is the total cost of producing E&P determined by the Census Bureau and how are these costs divided between the various donors?
2. What is the total average cost of producing E&P, on an annual basis, for all PRH priority countries, for all USAID countries, and for all countries?
3. Over the life of the PASA agreement, list all countries updated; specify the countries that are of interest to USAID, OGAC, and PRH. (Determine which countries are supported by OGAC funds and which countries by PRH funds.)
4. Explain how PRH-funded E&P work may contribute to the HIV/AIDS mortality modeling for the 15 focus countries.

Illustrative Questions for Component Two:

1. Understand and explain how PRH-funded E&P work may contribute to the HIV/AIDS mortality modeling for the 15 focus countries. Determine if PRH is paying for estimates and projections for OGAC's 15 focus countries.
2. If PRH withdrew all funding for E&P work, would OHA be required to fund basic E&P work for the 15 focus countries?
3. How should PRH structure future funding and technical support to E&P work in the new agreement with the Census Bureau?
4. Is PRH support of E&P through the SCILS project a value-added benefit to the development world?

Component Three: Analyze and compare the Census Bureau system in relation to the UNDP E&P system in terms of process, product, collaboration, and value added. A comparative analysis of the two systems will give PRH a better understanding of the synergies or variances that may exist between the two systems.

Illustrative Questions for Component Three:

1. What software and spreadsheets does the UNDP use? How different are these from the Census Bureau's? Does the Census Bureau need to maintain its own spreadsheets and software?
2. What data sources does the UNDP use to create its E&P?
3. What are the differences between the UNDP E&P system and the Census Bureau E&P system (illustrative differences: the variables, the methodology of analysis)?
4. What are the differences between the UNDP product and the Census Bureau product?
5. How are UNDP E&P disseminated?
6. Do USAID and USAID CAs know there are two sources of E&P (Census Bureau and UNDP)? Do any other agencies produce demographic estimates and population growth projections?
7. Which organization's product is utilized more by the USAID and USAID CAs as determined through the key informant interview? Why?
8. What are the USAID and USAID CA perceptions about the UNDP E&P? (Are they considered more credible? More neutral? Do they use a better methodology? Are they better disseminated?)
9. Are there redundancies between the UNDP E&P product and the Census Bureau E&P product? If yes, what are they?
10. Is the redundancy between the two products valuable and/or necessary to the development community?
11. Does UNDP do any capacity building around its E&P system? Explain and compare Census Bureau capacity-building activities.
12. How do UNDP and the Census Bureau collaborate in developing estimates and projections?
13. Does UNDP produce HIV/AIDS mortality estimates?

IV. Resources and Methodology

1. Data Sources: The following data sources will be provided by USAID (except UNDP E&P documentation) to the evaluation team for review and consideration as background documents for the evaluation.
    a. PASA agreement document (provided by CTO)
    b. SCILS Management Review 2007 (provided by CTO)

c. List of PRH priority countries (provided by CTO)
d. SCILS results reviews from last two years (provided by CTO)
e. Census Bureau self-assessment (provided by Census Bureau)
f. Cost analysis (provided by Census Bureau)
g. Self-assessment analysis and cost information analysis (provided by CTO)
h. UNDP E&P documentation.

2. Methodology: Most of this evaluation will be a desk study done through key informant interviews conducted either via phone or in person. Within the given budget constraints and in consultation with GH Tech, the evaluation team will be given discretionary authority to determine whether phone or in-person interviews are the best methodology. The CTO expects that the following techniques will be utilized to conduct the evaluation:

   a. **Team Planning Meeting:** A team planning meeting will be held in Washington, DC for USAID, GH Tech, and the evaluation team to ensure that the team members understand the assignment objectives. Background materials and other data sources will be provided, the timeline finalized, assessment tools prepared, and the data collection and the analysis plan prepared. The evaluation SOW may be revised based on this meeting.

      Census Bureau Self-Assessment: The CTO will design the self-assessment tool for the Census Bureau. The evaluation team will design the methodology to analyze data from the self-assessment in conjunction with the Bureau, will conduct key informant interviews, and will synthesize results in the final report.

   b. **Cost Analysis** of funding required for E&P work per country per year. Data for the cost analysis will be part of the self-assessment and will be submitted to the CTO by the Census Bureau. The CTO will design the instrument for collection of cost data and do a preliminary analysis of the data. The CTO will submit results to the evaluation team for follow up with the Census Bureau, any further required analysis, and synthesis of findings in the final report.

   c. **Key Informant Interviews** done by phone and/or in person. A preliminary list of key informants will be provided to the evaluation team by USAID. It is expected that the evaluation team will expand this initial list by using the snowball methodology to discover other Census Bureau E&P users within the USAID and USAID CA community; the evaluation team will complete the original list of key informants in conjunction with GH Tech and the CTO. Based on the complete list, it is expected that each key informant interview will garner at least two more key informants for a total of up to 50 key informant interviews. The evaluation team will design the key informant questionnaire and the methodology to analyze data collected through the informational interviews, and synthesize the results in the final report.

   d. **Comparative Analysis of UNDP and Census Bureau E&P:** The evaluation team will have to collect the background documents necessary to understand the UN E&P system. The evaluation team will also design an instrument for the comparative analysis, collect and analyze data, and synthesize its findings in the

final report. A data collection trip to UNDP may be considered; this decision will be made in consultation between the evaluation team and GH Tech.

V. Duration and Timing

Overall LOE–45 person days

Deliverables

1. **Data Collection and Analysis Plans:** The consultant team will identify questions, select measurement instruments and data sources (including finding the appropriate UNDP background documents), select a design, and develop an analysis plan. All plans and instruments will be shared with USAID clients for input and approval.
2. **Task Summaries and Findings:** As tasks are completed, draft write-ups of findings will be shared with the USAID CTO.
3. **Debriefing:** The evaluation team will prepare a PowerPoint presentation and conduct a debrief with USAID and the Census Bureau to discuss major findings and recommendations.
4. **Draft Evaluation Report:** The draft evaluation report will be submitted to the CTO and the BuCen team for corrections and comments. The CTO will consolidate feedback to the evaluation team. The draft evaluation report will follow the report preparation guidelines, contain clear findings, conclusions, and recommendations, and address the priority questions above. The draft will be submitted in Word format via email.
5. **Final Evaluation Report:** The final report will be no longer than 15 pages, excluding annexes, printed in Times New Roman font 12 point. The report will follow the attached outline, and any modifications to the outline will be discussed with the USAID CTO. The report will include options for how to redesign E&P work in the new agreement with the Census Bureau. These options, to some degree, will be procurement sensitive and may not be discussed with anyone outside of USAID. The recommendations for the follow-on agreement should be a separate section of the report that can easily be removed. The report will be a public report, edited by GH Tech, with 5 hard copies delivered to the CTO by March 30, 2008.

VI. Team Composition and Size: Two-person Team

<u>Team leader</u>

- Skills in understanding demographic data collected through censuses and surveys and how
- such data are utilized in the field
- Demonstrated ability in planning and conducting project evaluations
- Excellent oral and written communication skills in English
- Skills in designing quantitative and qualitative research instruments and methodologies

- Demonstrated knowledge of USAID's policies and priorities in family planning/reproductive health and experience working in developing countries.

Team member #2

- Skills in designing and using software and spreadsheets that process demographic data
- Understanding of industry standards for health-data-processing tools
- Excellent oral and written communication skills in English.

Level of Effort Table			
Tasks	**Person 1 (lead)**	**Person 2**	
	Number of Days	**Number of Days**	**Total**
Background reading	2	2 day	**4**
Data collection and analysis plan	3	3 days	**6**
Data collection (scheduling and interviews)	10	6 days	**16**
Meetings with USAID CTO	1		**1**
Data analysis	5 days	2 days	**7**
Draft evaluation report and presentations/debriefing meetings	5 days	3 days	**8**
Final evaluation report	2 days	1 day	**3**
Total Days	**28**	**17**	**45**

VII. Funding and Logistical Support

- The evaluation team will schedule its own interviews, prepare its own data collection
- instruments (unless otherwise stated), design its own data analysis methodologies, and draft
- and finalize all reports as stated above.
- No international travel required. Travel to DC for key informant interviews and final debrief is expected.
- A data-gathering trip to UNDP headquarters for key informant interviews and other data collection may be considered in consultations between GH Tech and the evaluation team.

VIII. Potential Key Informants

Below is a list of potential key informants. It is expected that the evaluation team will expand this initial list by using the snowball methodology to discover other Census Bureau E&P users. The evaluation team will complete the original list of researchers and demographers at USAID CAs in conjunction with GH Tech and USAID CTO. Based on the complete list, it is expected that each

key informant interview will garner at least two more key informants for a total of up to 50 key informant interviews.

1. Key researchers and demographers at USAID/Washington (ask each for at least two other references)

- Scott Radloff
- Jacob Adetunji
- Bamikale Feyisetan
- OHA person.

2. Key researchers and demographers at illustrative USAID CAs (ask each for at least two other references)

- PRB
- Macro
- CDC/DRH
- Futures/Constella
- EngenderHealth
- MSH
- AIM
- Abt Associates.

3. UNDP E&P staff

IX. Draft and Final Report Outline

1. Executive Summary
2. Introduction
3. Methodology
4. Program Description
5. Summary Findings, Conclusions and Recommendations related to priority questions listed in the scope of work

APPENDIX B: COUNTRIES UPDATED IN THE 2006 IDB UPDATE U.S. CENSUS BUREAU

Angola
Azerbaijan
Belarus
Burma
Cameroon
Dominican Republic
Ghana
Guatemala
Haiti
India
Indonesia
Iran
Kenya
Madagascar
Malawi
Mai
Moldova
Montenegro
Mozambique
Russia
Rwanda
Senegal
Serbia
Sri Lanka
Suriname
Tajikistan
Uganda
Ukraine
Western Sahara
Zambia

APPENDIX C: PERSONS CONTACTED IN PERSON, BY TELEPHONE, AND BY EMAIL

A. U.S. Census Bureau, International Programs Center (BuCen, IPC)

Peter Way, Chief, International Programs Center
Kevin E. Deardorff, Chief, International Assistance
James Gibbs, Chief, Demographic and Economic Studies
Thomas M. McDevitt, Chief, Population Studies Branch
Peter Johnson, Special Assistant, Demographic and Economic Studies Branch
Glenn Ferri, Chief, Methodology and Software Development Branch
Timothy Fowler, Chief, Health Studies Branch
Lorraine West, Chief, Eurasia Branch
Laura Heaton, Statistician/Demographer, Health Studies Branch
Daniel Goodkind, Statistician/Demographer, Eurasia Branch
Bob Bush (formerly head of BuCen IPC/SCILS agreement)

B. USAID (Population and Reproductive Health, except as noted)

Scott Radloff, Director
Ellen Starbird, Deputy Director
Elizabeth Schoenecker, Chief, Policy, Evaluation, and Communication (PEC) Branch
Ritu Singh, BuCen SCILS CTO
Krista Stewart, CTO for DHS
Jacob Adetunji, Sr. Technical Advisor
Mark Rilling, Chief, Commodities and Logistics
Bamikale Feyisetan, Sr. Tech. Adviser, Evaluation, PEC
Marissa Bohrer, Presidential Management Fellow
Ben Gustafson (OHA), CTO for OHA agreement with BuCen
John Novak (OHA)
Paul Bouey, Deputy Director, Strategic Information Unit, Department of State (OGAC contact)

C. The GH Tech Project

Julie Klement, Director
Barry Silverman, Deputy Director
Charles LaDuca, Program Manager
Camille Hart, Senior Program Manager
Caroline (Callie) Curtis, Consultant

D. United Nations Population Division (UNPD), in Division of Economic and Social Development (DESA)

Hania Zlotnik, Chief
Thomas Buettner, Deputy Chief
Gerhard Heilig, Chief, Estimates and Projections Section
Francois Pelletier
Armindo Miranda, Assistant to Director

E. Other contacts (CA, University, other Agencies, NGOs, etc.)

Joseph Chamie, former Director, UNPD/DESA
Stan Bernstein, Senior Policy Analyst, UNFPA

Ruth Berg, Abt Associates, PSP-One Project

Paul Stupp, Senior Demographer, CDC/DRH/DRPET

Naomi Blumberg-David (ex-USAID; ex-MSH)
Issakha Diallo, MSH

Mizanur Rahman, Pathfinder

Rachel Lucas, U.S. Red Cross

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Kenneth Hill, Professor, Harvard University

Audrey Singer and William Frey, Brookings Institution

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