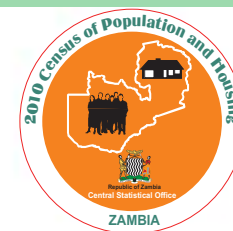


2010 CENSUS OF POPULATION AND HOUSING ADMINISTRATIVE REPORT

CSO Mission Statement

“To coordinate and Provide Timely, Quality and Credible Official
Statistics for use by
Stakeholders and Clients for Sustainable Development”

ZAMBIA CENSUS 2010



**MAKE SURE YOU ARE COUNTED
FOR NATIONAL DEVELOPMENT**

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Foreword

A census is a massive undertaking that takes years of planning and execution before final results are made available to users. It is therefore imperative that such an exercise is properly documented and archived for future reference and to assist in the planning and execution of censuses to come. All critical stages of the census must be documented, challenges faced highlighted, lessons learnt elaborated and recommendations for the future clearly laid out.

The 2010 Census, marked the fifth comprehensive census of the population of Zambia since independence in 1964. Although successfully implemented, several challenges were faced at all stages of the exercise. This report provides a catalogue of some of the major highlights of the 2010 Census implementation, the challenges, lessons learnt and recommendations. The report is part of a series of reports that have been produced from the 2010 Censu.

I hope this report will serve to inform both current and future planners of population and censuses in Zambia and globally on the critical issues that may arise in census implementation.

I look forward to staff of CSO using this report in future census planning.

A handwritten signature in blue ink, consisting of a large, stylized 'J' and 'K' with a horizontal line extending to the right.

John Kalumbi
Director, Census and Statistics

17th September, 2013

Introduction

The Government of the Republic of Zambia (GRZ) through a Cabinet Memorandum of June 2010 accepted the recommendation by the Ministry of Finance and Economic Development that a National Census of Population and Housing be conducted in October 2010. Being complex in nature, the census requires various activities for its success. The stages of the 2010 Census included pre-census preparatory activities including the pilot census, census enumeration, and post-census activities.

The recommendation to conduct a Census to Cabinet was therefore preceded by some technical preparations for the Census. These included Census Mapping/ Cartographic work, which started in March 2008 and concluded just before the data collection started. The field instruments were designed and tested through a Pilot Census, which was conducted in February 2010. Immediately after the Cabinet approval, Census preparatory activities were enhanced nationwide.

Several operational and administrative structures were put in place for this mammoth and challenging national undertaking. The committees to coordinate all aspects of the Census (both technical and administrative) were formed at different levels. The 2010 census operational and administrative structures included a National Census Committee chaired by the Secretary to the Cabinet, a National Census Steering Committee comprised of selected permanent secretaries from line ministries, Provincial Census Committees chaired by Provincial Permanent Secretaries, and District Census Committees chaired by District Commissioners. Several technical committees were also put in place to tackle various technical and operational aspects of the census planning and implementation.

The 2010 Census like the 2000 Census captured data using scanning technology. However, in addition to Optical Mark Recognition (OMR) this census also used and Intelligent Character Recognition (ICR) to capture data. This technology significantly reduces the period of data processing. Data capture was completed within six months from the start of the process.

The financial, material and technical resources for the conduct of the 2010 Census, for all the stages were made available by the GRZ and its Cooperating partners. The Government support accounted for about 80 percent of all the resources required for the Census. Support for the 2010 Census was also received from the Government of the United Kingdom through DFID, the United States Government through USAID, the United Nations System through UNFPA, and the African Development Bank (AfDB).

On 15th October 2010, the Republican President, His Excellency Mr. Rupiah Bwezani Banda launched the start of the 2010 Census enumeration exercise on both radio and television. The launch was preceded with the enumeration of the President and his Household. On Saturday 16th October 2010, the census enumeration exercise started in all districts across the country. The enumeration exercise was completed in most parts of the country by 15th November 2010, the official end date of census enumeration. However, due to some challenges experienced in some areas, enumeration was not completed in a few urban and rural areas. A mop up exercise was subsequently undertaken to ensure that the enumeration covered all the areas. This exercise ended on 30th November 2010.

While the Preliminary Report was released in February 2011, data were captured and processed through 2011 and into 2012. The resulting data lead to the release of the National Summary Report in July, 2012. Subsequently, the two-volume National Analytical Report, covering a range of topics from population distribution to fertility and disability at the national level, was released in March, 2013. The final data products were released in the latter half of 2013, including the Public Use Micro Sample (PUMS) data file, a series of Provincial Tabulation Reports, a series of Provincial Analytical Reports, the Population Projection Report, and the Census Atlas. In addition, special reports on Urbanization and Migration, Orphanhood, Agriculture, and Housing were also released at the same time.

This report contains nine chapters, with each chapter detailing various operational aspects of Census 2010, along with an analysis of the challenges faced, as well as recommendations for Census 2020 in light of these experiences.

1. The Context of Census 2010
2. Planning the Census
3. Census Geography
4. Housing and Population Questions
5. Census Publicity and Promotion
6. Data Collection
7. Data Capture and Processing
8. Data Products and Dissemination
9. Data Evaluation

Chapter 1: The Context of Census 2010

A Census of Population and Housing is the total process of collection, compiling, evaluating, analysing, and disseminating demographic, economic and social data pertaining to all persons in the country at a particular time. It provides essential benchmark data for socio economic planning, political representation, decision making, monitoring and evaluation. It also provides basic data on size, distribution, socio-economic status, and composition of population overtime, as well as is the primary source of data for other demographic and socio-economic indicators. Most importantly, this data is provided for small area administrative levels, such as districts, constituencies and wards, which would not be possible through a sample survey.

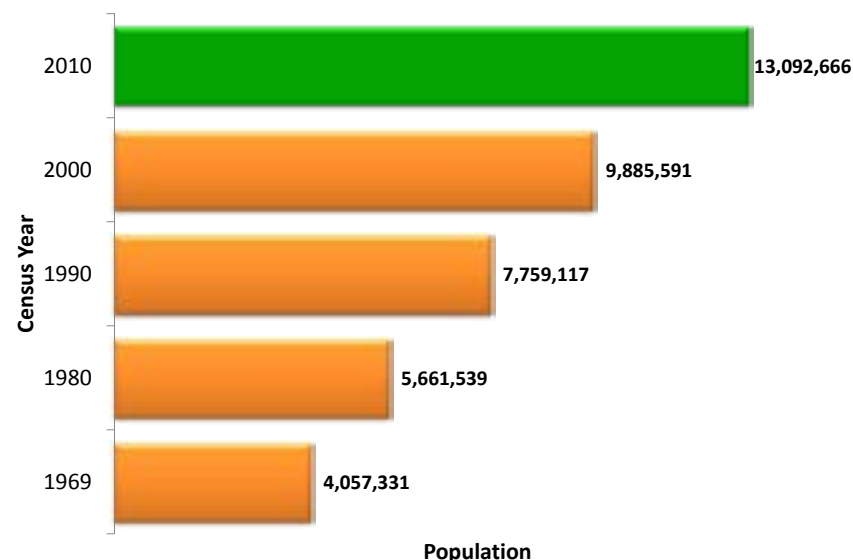
The history of Census undertaking in Zambia is almost as old as the colonial history. The first census in Zambia was conducted in 1911 and covered non-Africans. Other censuses of non-Africans were conducted in the years 1921, 1931, 1946, 1951, 1956 and 1961. These Censuses were a complete count for non-Africans. The category on non-Africans included whites (regardless of origin), coloured (mixed races) and Asians. There was no count taken for Africans. Only estimates based on tax-payers register were made for Africans. However, the basis of the estimates differed from census to census and it is actually not easy to pin point the main base.

The first demographic survey to count the African population was in 1950. The survey used the taxpayers register as a sampling frame. However, since everybody was not registered, the frame which was used did not reflect the true picture of the total African population.

When it became clear that the country's independence was imminent, colonial authorities decided to have a complete Census for the Africans. The first Census to cover the African population was conducted in 1963. After independence, the first full population Census was held in 1969. Since then, Zambia has consistently conducted a decennial census as recommended by the United Nations.

By 2010, Zambia had already undertaken four population censuses after attaining independence in 1964. These Censuses were undertaken in 1969, 1980, 1990 and 2000. In 1963, a total number of 3,499,382 (about 3, 405, 000 Africans) persons were recorded while 4,057,331 (about 3,999,000 Africans) was recorded in 1969. In 1980, the total population of Zambia was recorded as 5,661,539 (about 5,621,000 Africans), in 1990 the population was recorded as 7,759,117 and in 2000 it was recorded at 9, 885, 591.

Table 1.1: Total Population in Zambia from 1967 to 2010.



Source: 1969, 1980, 1990, 2000 and 2010 Censuses

Apart from the 1969 Census, all the national Census enumeration exercises that followed were preceded by the Cartographic Mapping of the entire country.

Conceptualization of the 2010 Census

The census is the largest national resource that acts both as an input in development programmes, and as a measure of the impact of various development programmes embarked on by Governments, NGOs and other stakeholders in Zambia.

The last Census before the 2010 Census was in 2000, a gap of 10 years. It was therefore necessary to conduct another one so as to see the changes in socio economic indicators. The census should therefore not be viewed only as an expenditure item, but also as a strategic investment necessary for national development. It yields vital information for monitoring and assessing the impact of national development programmes. Clearly, investment in the 2010 was imperative for development partners and GRZ.

Legal framework for conducting a Census

In 1964, an Act of Parliament passed to create a department of **CENSUS AND STATISTICS** for the purpose of undertaking a census and the collection and publication of statistical information. The 2010 Population and Housing Census was conducted under the Census and Statistics Act, chapter 127 of the laws of Zambia. The Act empowered the Department of Census and Statistics to conduct Censuses as need arises. The law stipulated the requirement of individuals to provide information to be used for statistical purposes. On the part of the Department of Census and Statistics; the law has a provision for maintaining the confidentiality of data supplied by the individuals. Since its creation, the Central Statistical Office as mandated by the Act has conducted a series of comprehensive censuses in 1969, 1980, 1990, 2000 and 2010.

Objectives of the Population and Housing Census 2010

The main objective of conducting a Population Census was to enumerate all the people in the country in order to provide the government, private organizations, individuals, and other stakeholders with the number of persons in each district, township, locality, village, according to age, sex, and other characteristics.

The specific objectives of the 2010 Census were:

1. To provide accurate and reliable information on the size, composition and distribution of the population of Zambia.
2. To provide information on the demographic and socio-economic characteristics of the population in Zambia.
3. To provide an accurate sampling frame for future inter-censal household and population based surveys.
4. To generate statistics on small areas and sub population groups.
5. To provide a benchmark for research and analysis, particularly for population projections.

Chapter 2: Planning the Census

A Census of Population and Housing is the largest peacetime activity for a country in terms of resources, time and impact. Planning for such a large undertaking should ideally start several years before the census enumeration date. Since a Census of Population and Housing is made up of several interdependent activities, it is essential to prepare a comprehensive work plan drawn up right before beginning preparatory work. A comprehensive work plan facilitates close monitoring of the progress made for each activity to avoid unnecessary delays. With a good work plan, it is possible to correct problems encountered in good time. The work plan includes the duration each activity is supposed to take and the expected outputs. It should serve as a guide for measuring the progress of each phase of the Census.

The cabinet memorandum that gave CSO the authority to conduct the 2010 Census was signed only in June 2010. However, preparatory activities had already begun in 2008 when the proposed plan and budget for the census was drafted. Thus, there was widespread support and commitment of the government to conduct the census much prior to the cabinet approval. Some of the preparatory activities, like mapping, questionnaire design, piloting the census were either well underway or completed by the time the cabinet memorandum was approved.

Work Plan of the 2010 Census of Population and Housing

The Census work calendar can be divided into three stages. These include the preparatory stage which is the pre-enumeration stage, the enumerations stage and the post-enumeration stage.

The pre-enumeration phase includes: mapping activities, establishment of the Census Secretariat and Committees, and development of the whole Census programme. The main activities included Cartographic Mapping and development of all the necessary Census documentation and instrument for the implementation of phase two. This phase also included the implementation of a Pilot Census.

The second phase, enumeration, included the recruitment of different field staff who were involved in Census data collection using the instruments developed in phase one.

The final phase is the post enumeration phase. The successful completion of this phase marked the successful undertaking of the 2010 Census. The phase included the editing of questionnaires, data processing of which the data capture

used the scanning technology, evaluations of the Census through the Post enumeration Survey, Analysis and dissemination of the 2010 census results.

The initial activities of planning for the 2010 Census started prior to 2008, with the preparation of the comprehensive work plan. That is, the calendar of the main activities and sub activities with their starting and expected end dates listed. In the initial work plan, the Pilot Census was scheduled to be undertaken a year before the scheduled Census date which was August 2010.

When the initial work plan was drawn, it was assumed that the resources will be available for undertaking all the Census preparatory activities. However, most of the activities could not start on time mainly because of inadequate resources.

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One of the main activities of the pre-enumeration stage is the Cartographic Mapping, which only started in March 2008. This marked the beginning of comprehensive Census preparations. The preparatory activities progressed slowly, with Cartographic Mapping running behind schedule and the Pilot Census conducted only in February 2010. The delay in the start meant that Cartographic Mapping work had to be intensified in 2010 with a target to complete mapping the country by the time the training of field staff was starting in September 2010. This was followed by the other Census preparatory activities such as planning and consultative workshops on the design of the census instruments, the formation of both the Technical and Administrative census Committees and drawing of the different terms of reference.

The Census Enumeration stage which is the data collection stage started on the 16th October 2010 and it ran for four to six weeks. This involved deployment of staff to the field, data collection, and retrieval of the staff from the field.

The data collection was immediately followed by the post-enumeration activities which included the data capture for the Summary Counts population and retrieval of questionnaires from the Districts. The other activities included production of the Preliminary Report which was disseminated in January 2011, the manual editing of the questionnaires, which started in February

2011, and the scanning which started in March 2011 and ended in August 2011. The scanning was followed by the data cleaning, tabulation and data analysis.

The plan for the work during the pre-census activities, enumeration and post enumeration activities were changed as follows:

The Revised Work Plan			
Activity		Start Date	Completion Date
Pre-Enumeration Activities			
1	Cartographic Mapping	Feb-08	Sep-10
2	Comprehensive Review of Census Manuals and Materials.	Mar-10	Jul-10
3	Preparation of the Data processing plans	Mar-10	
4	Pilot Census	Feb-10	Mar-10
	Procurement of Required Equipment and Computers/software		
5	Field Organization	May-10	Jun-10
Enumeration Activities			
1	Training of field staff	Aug-10	Oct-10
	Delivery of Enumerations documents and field materials to the provinces	Sep-10	Oct-10
2	Enumeration of persons in private households and in institutions	16th October 2010	30th November 2010
3	Retrieval of Census Questionnaires and Summary count Booklets/data	18th December 2010	10th January 2011
Post-Enumeration Activities			
1	Production of the 2010 Census Preliminary Report.	Jan-11	Jan-11
2	Training of P.E.S field staff	Dec-10	Jan-11
3	Enumeration		
4	Retrieval of P.E.S documents		
5	Manual Editing	17th February 2011	26th July 2011
6	Scanning	30th April 2011	30th August 2011
7	Matching of P.E.S and Census questionnaires		
8	Data Reconciliation (Field Work)	4th September 2011	
Analysis and Dissemination			
1	Data cleaning and Tabulations	1st May 2011	30th October 2011
2	Preparation of Census reports	1st November, 2011	1st September, 2013
3	Dissemination	1st July, 2012	December, 2013

Census Cost

The initial budget approved by the Cabinet for census 2010 was 156 million kwachas. However, the revised cost upon implementation led to a total census cost of 217 million Kwachas. The Zambia Treasury provided the supplementary funds to make up the gap. This accounted for about 80% of the Census 2010 costs. Another 20% of census costs were covered by cooperating partners, mainly United Kingdom's Department for International Development (DfID), UN Population Fund (UNFPA), U.S. Agency for International Development (USAID) and African Development Bank (ADB).

UNFPA was one of the first partners to provide CSO with cartographic equipment, vehicles and resources for hosting several workshops.

DfID provided resources for many stages of the census process at a cost of 3 million pounds, including the DRS scanning system for data capture, LAN installation, air conditioners and generators, the refurbishing and renovation of the government stores shed, as well as the printing and publishing of all reports and dissemination materials. DfID also appointed an advisor for logistics and data analysis.

In addition, DfID partnered with USAID to sponsor the US Census Bureau to provide a multi-year program of technical assistance to build the capacity of CSO to successfully implement and complete Census 2010. For a list of assistance, see Annex 11.

Organization of the 2010 Census of Population and Housing

Success in the execution and implementation of the 2010 Census of population and housing can be attributed to the organizational structure that was put in place during its implementation. Through these structures it was possible to efficiently mobilize different Census resources due to effective planning and coordination at both national and sub-national levels. The 2010 Census committees were set up to guide the whole Census programme and monitor its implementation. Special Committees were also formed to handle specific aspects of the Methodology, Publicity, Logistics and Security, and Analysis. These committees undertook activities such as designing of the Census instruments, deciding on the data collection methodology, recruiting staff at different levels nationwide, mobilizing vehicles and, sensitizing the population to cooperate with the Census staff. Provincial and District Committees were also formed to implement the Census at these levels.

The organizational structure of the 2010 Census reflected the serious commitment by the Government through formation of the National Census Committee. This

Committee was chaired by the Secretary to the Cabinet and comprised of all the Permanent Secretaries in all the Ministries and those from the Provinces. The day to day running of the Census was coordinated by a sub Committee of the National Census Committee, the National Census Steering Committee. This Committee comprised 14 Permanent Secretaries from selected line Ministries. The CSO management and the Secretariat made briefings to this Committee on a weekly basis. The briefings included all aspects of the Census implementation process. Generally, this committee had monitoring and advisory roles. At sub National levels, the Provincial and District Census Committees coordinated the Census activities respectively.

The technical sub-committees guided the operations of the Census at the national level. These committees designed the strategies for particular activities. The operations of these sub-committees fed into the operations of the provincial and district committees. The Census technical sub-committees were constituted at both provincial and district levels and these included:

1. *Publicity Sub Committee*
2. *Transport Sub Committee*
3. *Logistics Sub Committee*
4. *Security Sub Committee*
5. *Recruitment Sub Committee*

The Terms of Reference and composition of all the above listed Committees are listed in Appendix 1. The organograms (Figure 1 and 2) show the organization structure of Committees.

Communication between the various groups and levels from the center to the districts was very effective through this structure. Also, the appointment of a dedicated person to deal with census issues in the Secretary to the Cabinet's office was advantageous in bringing resources to bear in a timely manner. Daily communication was maintained to address various issues, such as an effort by a group in Chongwe to boycott the census.

To facilitate the operations at provincial and district levels, CSO in consultation with the National Census Steering Committee, the Accountant General's Office and Cabinet Office prepared operational and financial guidelines. These guidelines guided the operations of the different Census Committees and Census Staff on how to undertake the different Census tasks and disbursement of finances. Adequate training on these guidelines was imparted, so that problems that occurred were resolved at the lower levels to the extent possible. Regional Offices enjoyed sufficient managerial authority to carry out their responsibilities.

Figure 1: National Structure for the 2010 Census

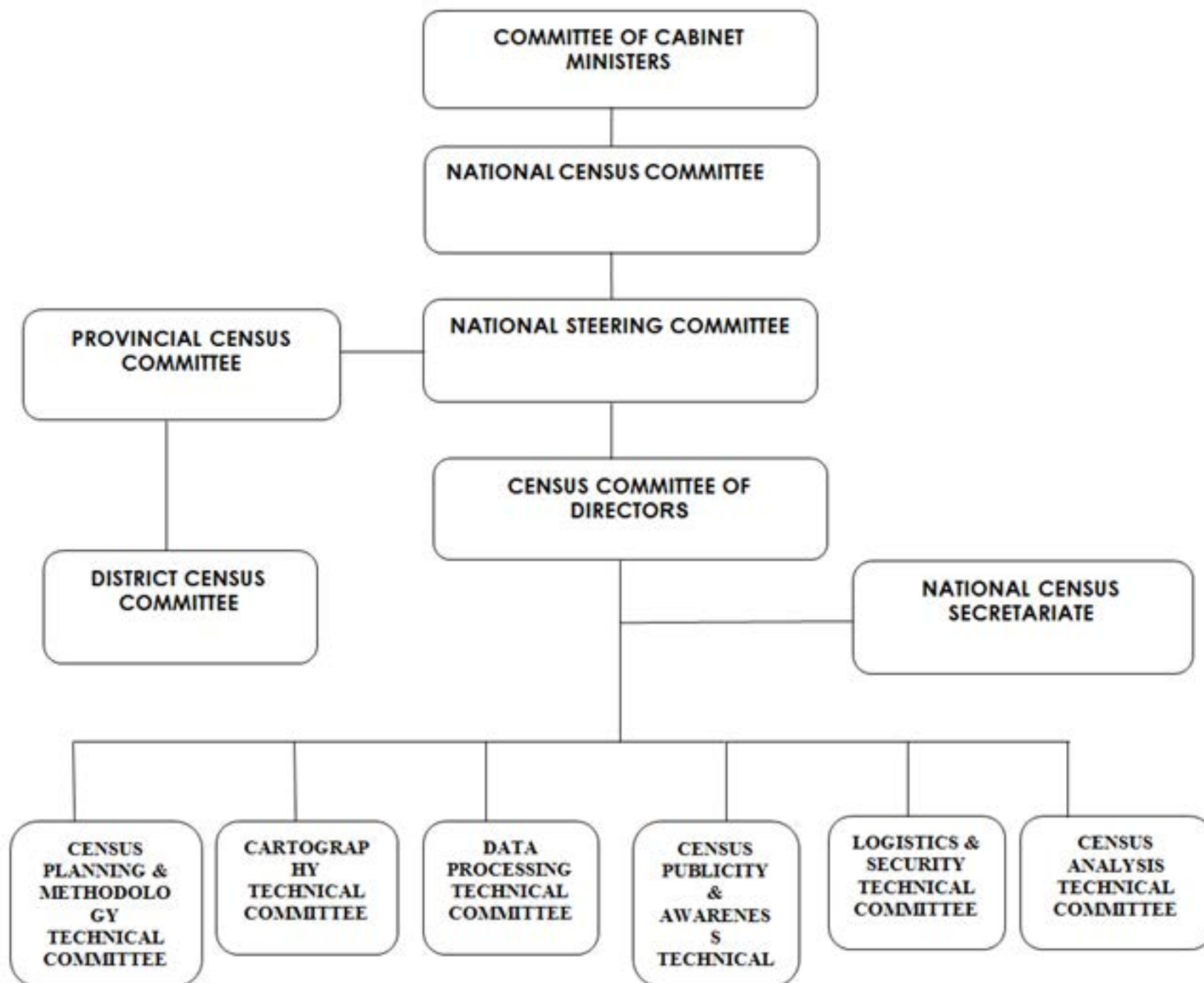
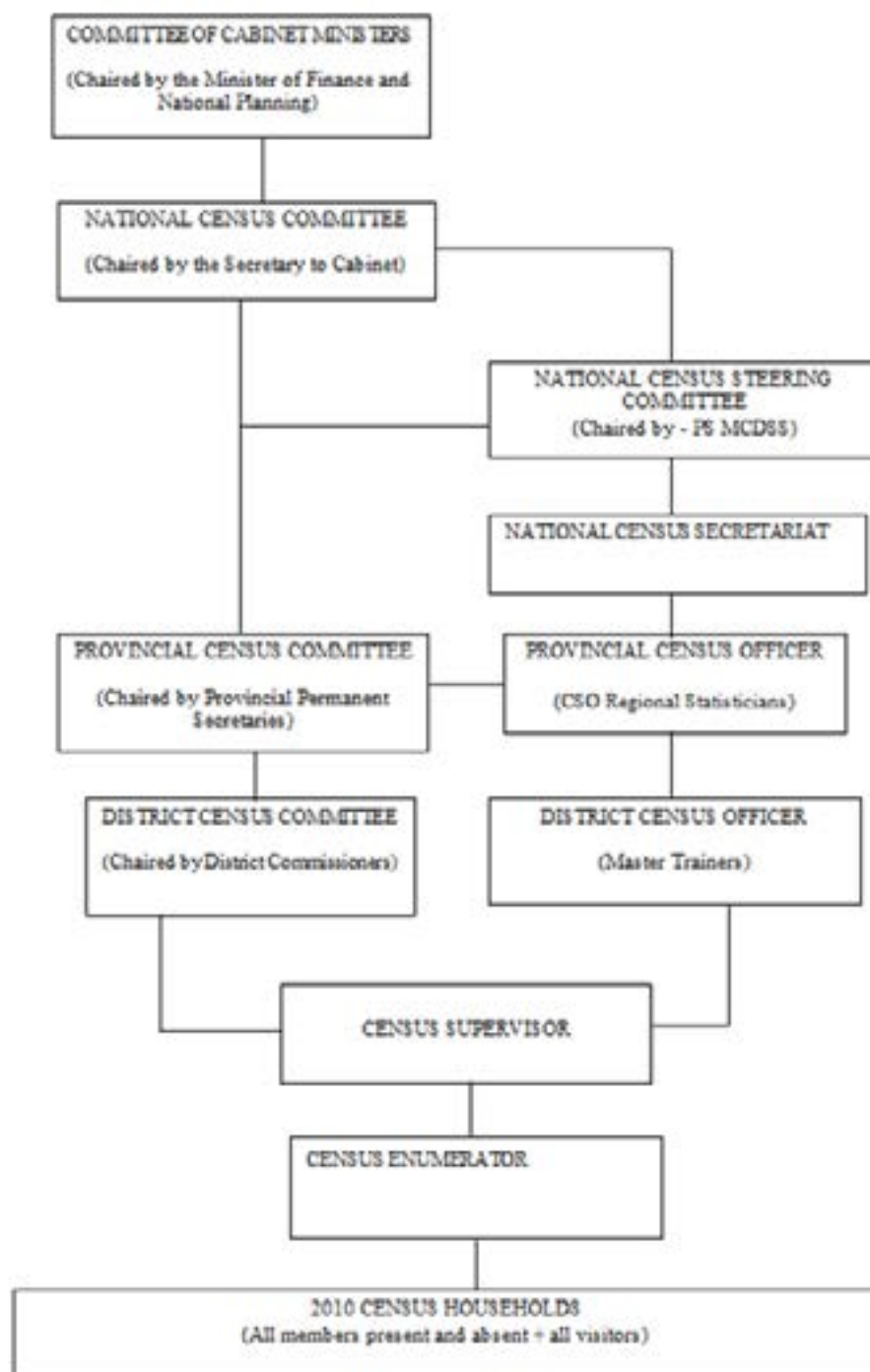


Figure 2: Technical Structure for the 2010 Census



Planning and Consultative Workshops

Prior to the data collection which started in October 2010, a number of consultative meetings and workshops were held where the contents and methodology of the 2010 Census were reviewed and discussed. The 2010 Census adopted the scanning methodology using both the OMR and the ICR technology for data capture. The questionnaire content was discussed and agreed upon. The major additions to the 2000 Census questionnaire were the inclusion on the Deaths of Household members, Maternal Mortality, and Game Ranching. The questionnaire summary is given in Appendix 2. Unlike in the 2000 Census where two questionnaires were used to collect individual and household characteristics information, a single questionnaire was used to capture both individual and household characteristics in the 2010 Census. The 2010 Census used school leavers that had completed their Secondary School Education within 2-5 years prior to the Census as Enumerators while the 2000 used grade eleven pupils.

Challenges in Planning

The most significant challenge faced by CSO in planning for the census was a lack of commitment and resources in a timely manner. The resulting delay led to several compromises that may have affected data quality.

Among the reasons for the delay in commitment and resources, the following are noteworthy-

- Lack of dedicated Census staff or unit at the CSO to advocate for the importance of the census and drive the planning process.
- Change in leadership of CSO in 2009
- Rapidly changing succession of Census Managers
- Schedule of major surveys that compete for time and resources – Living Conditions Monitoring Survey and the Post Harvest Survey were competing for time and resources.

All these factors accounted for the delay in the signing of the Cabinet Memorandum which gave the authority to conduct the Census. It was only signed in June 2010, which then triggered the release of adequate resources and involvement from the cooperating partners. Given that enumeration was scheduled for October, this gave CSO very little time to conduct a quality census. The second challenge was that the work plan and proposal put forth had several shortcomings. There was a lack of -

- Time to test and re-test questions or manuals, except for one pilot census
- A back up plan for data capture, if scanning failed
- A tabulation plan at the time of questionnaire content discussions
- Strategies to address problems related to hard to count populations
- Health insurance coverage for enumerators
- Time to de-brief of enumerators and supervisors upon completion of fieldwork
- Coordination between the Post Enumeration Survey plans and census data collection instruments and methodology.
- Risk analysis and amelioration strategies

Recommendations for Census 2020

While CSO conducted the 2010 Census enumeration on time and delivered the dissemination reports, it faced many challenges that need to be addressed before the next census round.

Serious preparations for the Census have to start many years in advance of enumeration, and dissemination and archiving of data should continue many years after it. Doing a census by relying on temporary staffing with no institutional memory and census-specific skills does not bode well for future censuses. One of the primary reasons that the census delayed was because CSO had many competing priorities in terms of regularly scheduled large scale surveys whereby staff are not available early enough in the census process to plan for the census. In addition, due the lack of dedicated staff and resources, the plan largely mirrored the 2000 Census, with not much thought into doing anything experimental, or new. Many of the problems with delayed planning, resource shortages and cost overruns stem from a lack of adequate and early planning.

The following recommendations are made with a view to institutionalize and leverage the capacity built during the 2010 Census round for better advocacy and planning in 2020 -

1. CSO should establish a Decennial Census Unit that works on current and upcoming censuses. This unit should have a minimum of 3 staff members who are demographers and statisticians. In addition, staff with data processing skills and geography could serve partial time during the inter-censal years, until the next census.
2. Census planning and funding for it should start at least five years prior to census enumeration and continue for three to four years after enumeration

3. Senior management turnover or leadership changes should be prevented during the census years.
4. Plans for the census should include risk management and build in slack so that managers are not forced to crash schedules and impact data quality.
5. There should be time to test and re-test questions or manuals.
6. Alternative data capture systems should be tested and a back-up plan should be in place, in case of failure.
7. A tabulation plan should be created at the time of questionnaire content discussions
8. There should be strategies to address problems related to hard to count populations
9. Enumerators and Supervisors should have health insurance coverage
10. There should be time built in to receive a de-brief from enumerators and supervisors upon completion of fieldwork to document problems encountered in the field
11. Coordination between the Post Enumeration Survey plans and census data collection instruments and methodology.
12. There should be several post data users conferences in post census years to evaluate which data are used and by whom. This will help CSO limit the number of tables.
13. The subsequent chapters will detail each operational phase and analyze the successes and the challenges encountered. Each chapter concludes with recommendations for Census 2020 as it relates to that phase of the census.

Chapter 3: Census Geography

Highlights

- 2010 was the first all-digital Census Mapping Exercise, using satellite imagery for urban areas and GPS in rural areas
- The scheduled completion of the map exercise was affected by software/hardware procurement and transportation
- Planning for the mapping exercise in 2020 should begin in 2015, with procurement occurring in 2017 and deployment shortly thereafter

Description

Since 1980, Zambia has routinely undertaken to map the entire land area of the country as a prerequisite to Census enumeration. Census Mapping (CM) involves updating current national administrative boundaries and creating unique statistical areas for data collection. These statistical areas form the sampling frame for Census enumeration and all statistical sample surveys. The resulting geography is a basis for political and social planning as it provides social economic indicators at lower administrative levels, as well as providing electoral information.

Methodology

The mapping strategy for 2010 Census was Geographical Information System (GIS) driven and involved the use of the Global Positioning System (GPS) and satellite imagery. Geomedia 6.1 provided the GIS platform for pre-Census activities. ESRI ArcGIS was used for post-Census dissemination maps. GPS was used to map rural areas, while urban areas were mapped using satellite imagery. Several strategies using purchased satellite imagery and Google Earth were tested in 2007, well before the start of the Mapping program. These strategies take advantage of geospatial technologies that have become much more widespread since preparatory Census activities in the mid- to late-1990s. They were developed as part of the General Data Dissemination System project funded by the World Bank in 2007. The African Development Bank also funded a consultant to review the methodology and provide suggestions on training and necessary software and equipment in 2007. The most effective strategy involved a two-part approach for urban and rural areas.

The first strategy was employed in urban areas and used imagery to delineate statistical geography. Relatively high-resolution imagery was necessary for this exercise, in this case IKONOS 1-meter imagery. Imagery was procured by GRZ only in 2010, although discussion to purchase the imagery began a year earlier, in 2009. The procurement process requires CSO to deliver technical specifications, while actual acquisition is handled by the Procurement Office of the Ministry of Finance.

This strategy focused on using housing units that were visible on the image to determine the Standard Enumeration Area (SEA) size by inferring the number of housing units. This method was very useful in demarcating SEAs in unplanned settlements where conventional mapping methods could not be used. Demarcation of SEAs took place in 2010 once the imagery had been received and continued through September 2010, only a month before enumeration started. Because of the short time period between completion of digitization in urban areas and the beginning of enumeration, a field verification of the number of people per SEA was not possible in urban areas.

The second strategy was used for rural areas and used Global Position System (GPS) technology. A combination of topographic maps and coordinates obtained in the field were used to delineate SEAs. CSO obtained topographic maps with the cooperation of the Survey Department. These maps were geo referenced between 2007 and 2009.

SEA size was determined by estimating population of villages or isolated households in the field and obtaining the bounding geographic coordinates of an appropriate number of SEAs, given the number of households in the village or household population. The bounding coordinates for road/footpath features, obtained using GPS in the field, were then uploaded into a GIS. These points were overlaid with the geo referenced topographic sheets and the point locations of villages, with associated populations and household counts. Cartographers demarcated SEAs with the proper population, following physical features easily identified by enumerators in the field whenever possible (e.g. roads, rivers, canals, ditches).

The entire country, including rural and urban areas, was demarcated by ward until a district was completed. When a whole district was completed, maps were converted to PDF and printed in A3 Size color maps for use in data collection.

Staffing and Training

The mapping staff required retraining because of the change in the methodology from paper to digital. Staff from the provincial offices was used to collect GPS points in rural areas. Master Trainers were trained in November 2007 on map reading and map updates. This followed the pilot testing of the methodology conducted in March 2007 using GPS and Google Images for Lusaka. Four Head Office Staff were trained in modern demarcation methods in Pretoria, South Africa using Geomedia 6.1 software. Mapping teams in provinces were trained in February 2008 in their respective provinces and then deployed in March 2008. A total of 96 mapping staff (48 Mappers and 48 Assistant mappers) were trained and supervised by CSO cartographers. An additional 50 additional mappers joined fieldwork in 2010. In April 2010 the office engaged four interns from the University of Zambia two officers from the geography department of the University of Zambia and three officers from the Surveyor General's Office to further reinforce the demarcation team at the Head Office. CSO headquarters staff, including interns, also received training on the production of cartographic products for post-Census data dissemination from the U.S. Census Bureau during three 2-weeks workshops held in 2012 and 2013.

Dissemination

The Preliminary Census Report, published in 2010 included some basic maps indicating population distribution. The National Summary Report published March 2012 mapped demographic indicators at the provincial level. The centerpiece cartographic product based on the 2010 Census is a Census atlas published in September 2013, still pending. The Census atlas includes a wide range of demographic, housing, and agricultural variables at the provincial and district geographic levels.

Changes from the 2000 Census

In 2000, GPS was used in the field to aid in the creation of sketch maps, but there was no digitization of the collected points. However, final paper maps were digitized to create a digital database of the 2000 SEA after Census Enumeration with assistance from a consultant paid for by CIDA Zambia. The pre-Census 2000 field mapping exercise also did not cover the entire country, although the 1990 Census had. The number of SEAs increased substantially between 2000 and 2010 increasing from around 16,000 to 25,212. Any changes to the administrative geography of the Republic of Zambia between 2000 and 2010 were delivered to CSO by the Survey Department Office and Electoral Commission of Zambia and incorporated during the digitization process.

Output

At the time of Census enumeration the map demarcation exercise produced a total of 24,750 SEAs in the frame. With field re-demarcation at the time of enumeration the total number of SEAs increased to 25,212. Post Census re-demarcations were necessary to split SEAs that had a large number of households while those with fewer households were merged. This was done to standardise to the extent possible the population in the enumeration areas so that sampling biases are minimized in subsequent inter-censal sample surveys.

Verification of urban SEAs and field maps was restricted to annotation of landmark information to help guide enumerators. The small gap between the completion of digitization and Census deployment prevented verification of SEA content (i.e. population and number of households). Also, rural maps were not sent back to provincial cartographers for ground-truthing. Consequently, at the time of enumeration, some SEAs were found to contain a large population while some had low populations as compared to the rural and urban thresholds of 60-80 households and 120-150 households, respectively.

Challenges in Census Mapping

The mapping programme faced many challenges affecting the initially planned timeline. In 2006, the coordinator of Cartography estimated three years of uninterrupted work is required to successfully conduct a Census mapping exercise. There were two overall major challenges: 1) setting up a GIS supportive environment at the office and 2) maintenance of a steady flow of field logistics to constantly keep field staff in the field.

First, a large, GIS-driven mapping project requires hardware and software, without which the project cannot proceed. The Cartography Office experienced delays in procurement of GIS equipment that included GPSs and the satellite imagery, which were required to implement the project. Software and hardware were only procured in September 2009, while the first batch of imagery was one year late and was received in November 2009. Delivery of large format printers, capable of the A3 format in color only occurred in August 2010.

Second, output from the field was affected by funding interruptions that delayed payment to mappers in the field. The lack of adequate transport and non-availability of field laptops in 2008 meant that time was lost when field workers had to travel back to the provincial centre to upload mapped data to centralized storage. Field mapping activities were originally planned to end in December 2009. However, due to delays, mapping continued up to 15th September 2010, a month before the actual Census date.

There were also other challenges that, while they did not directly affect the timing of mapping completion, should be addressed during intercensal work on cartography or in planning for the next Census. These were:

1. Field workers sometimes confused the number of people in an SEA with the number of households. This leads to incorrect demarcation as either too few or too many residential structures were included in the SEA.
2. Non-residential buildings were included in urban areas when demarcating based on satellite imagery, also affecting the number of households in the SEAs.
3. Provincial staff received training on how to collect GPS data but not on the subsequent demarcation process. This created separation in the level of understanding between provincial field staff and CSO staff that did not exist when using paper maps, affecting data quality.
4. Enumerators were sometimes challenged when interpreting the digitally produced maps. They questioned that the new maps contained as much information as the previous sketch maps. This likely resulted from lack of familiarity interpreting topographic maps, as opposed to pictographic sketch maps (e.g. reading contour lines to recognize a ravine, as opposed to a drawing of a ravine on a sketch map)
5. The Census mapping project requires training and procurement years before the enumeration date. The lack of a Census Cabinet Memorandum until June 2010 made funding for these activities challenging.

Recommendations for Census Mapping

1. The Census mapping exercise was overall extremely successful. The conversion to the creation, maintenance, and dissemination of electronic cartographic data is a substantial undertaking. The 2010 Census provided a catalyst to move CSO towards up-to-date mapping methods and technologies. As the techniques are still relatively new to CSO staff and provincial support staff, the Census mapping exercise provided a learning opportunity out of which the following recommendations are made:
2. The Census Mapping Exercise should be an ongoing program to improve and update statistical geography. This program should accelerate at least 3 years before the Census undertaking to ensure that the whole exercise is completed by the time the Census starts. This will ensure that all the

demarcations and maps are ready in time for the data collection, including a verification that SEA criteria are met.

3. A Decennial Census unit at CSO, if established, should include a professional geographer to plan for the Census Mapping Exercise and coordinate intercensal update activities with the main Cartographic and Mapping Office.
4. A Cabinet Memorandum authorizing pre-Census mapping activities should be issued prior to the finalization of the Census date to reduce complications with funding and procurement. The work accomplished during the pre-Census mapping exercise is not affected by delays of up to a year for the actual enumeration date.
5. CSO should move towards centralized storage of cartographic data in an enterprise environment. This would involve the use of a relational database to house geographic data accessed through a spatial database engine software (e.g. ArcSDE, a component of ArcGIS Server).
6. CSO Cartographic and Mapping Office staff require training during the intercensal period to maintain and improve their skills with modern census mapping and dissemination techniques. Their professional ownership of the process used by CSO to improve geographic data should be encouraged by senior management at CSO.
7. Survey staff should continue to use digital maps during the intercensal period to increase their familiarity with map orientation and feature interpretation.
8. Training of provincial field staff should include an overview of demarcation, including methodology and technology, to increase familiarity and improve data quality.
9. Each field worker should have a motorcycle during field update and verification in 2020 Census to reduce transportation bottlenecks.

Chapter 4: Housing and Population Questions

Highlights

- The 2010 census instrument added new questions on maternal mortality, albinism, birth registration, access to mobile phones, computers and the internet and game ranching
- The length of the questionnaire affected the design and flow making it more difficult to administer
- There is a need to examine the use of questions by data users and rigorously evaluate the necessity of including stakeholder requests for new questions before finalizing the census instrument

Description

The 2010 Zambia Census of population and housing questions in the census questionnaire drew heavily from the 2000 census. However, since countries undergo significant changes in ten years, censuses often collect some new information that is relevant to policy makers to inform the development of the country and well being of their people. During the development of the census 2010 instrument, stakeholders were concerned about producing indicators to monitor progress on the Millennial Development Goals (MDG), as well as address the data needs of the 5th National Development Plan. This section describes the process of the 2010 census questionnaire development, the content of the questionnaire, the challenges encountered and concludes with recommendations for the 2020 census.

Design and Development of 2010 Census Instrument

The Census Secretariat was responsible for the development of all the census instruments. The 2010 Census instruments were developed between September and December 2009. The process involved collaboration with the University of Zambia, Examination Council of Zambia, the Electoral Commission of Zambia and the staff from various branches in CSO. The instruments that were produced include;

a. Instruction Manuals: These manuals were developed to ensure uniformity in the interpretation of the questions contained in the Census questionnaire and to ensure that there was uniformity in the way stipulated procedures on the canvassing, were followed by the field staff. The different manuals that were developed include:-

- Enumerators Manual*
- Supervisors Manual*
- Master Trainers Manual*
- PES Manual*

b. Census Questionnaires: One notable difference between the 2000 and the 2010 questionnaire design was that during 2010 Census, only one questionnaire was used to capture both the household and the individual characteristics while in 2000 two different questionnaires were used.

- Summary Count Booklets*
- Field and Office Control Forms*
- Stickers*
- PES questionnaires*

All the instruments were further refined after the Pilot Census and were finalized by August 2010. The CSO subjected the questionnaire to further review by various stakeholders including all government departments, and cooperating partners. The CSO received very good response from the stakeholders through submissions to the Census Secretariat on what was to be included and what was to be modified before finalization of the questionnaire. These submissions were reviewed by the Census Planning and Methodology Committee and the questionnaire was revised accordingly.

The CSO with all its stakeholders agreed that the 2010 Census data was also going to be captured using scanning technology. It was agreed that both the OMR and the ICR technology were going to be used to capture the data. The finalization of the questionnaire design was an interactive process between Data and Research Services DRS-UK and CSO. This meant upon final agreement of the questionnaire content, the DRS-UK had to type set the questionnaire for capturing using the scanning technology.

Contents of the 2010 Questionnaire

The questionnaire was the main instrument that was used for data collection. As mentioned above, instead of having two questionnaires- one for the household level and one for the individual level - as in census 2000, it was decided that for 2010, both would be combined into a single census questionnaire. The contents of the 2010 questionnaire included all topics that were asked in 2000, as well as some new questions. There were modifications in the response categories and

phrasing used in 2010 for some of the questions that had also been asked in 2000. The new questions that were added relate to maternal mortality, albinism, Orphanhood, birth registration, and ownership of mobile phones, computers and access to the internet. In addition, in the agricultural section, data were collected for the first time on whether the household engaged in game ranching.

A complete listing of the variables included in the 2010 Zambia Census follows

Identification variables: These include the variables related to geography, such as the Province name, District name and Region (Rural or Urban). Constituency and Ward were also included on the identification variables.

Household and Family Structure variables: Membership status of individuals in the household and the relationship to the head.

Demographic and Social variables: Sex, age, place of birth, citizenship, religion, ethnicity, language of communication and migration. Other variables collected include the orphan hood, disability types and causes.

International Migration variables: Country of citizenship and purpose of stay in Zambia.

Education variables: Literacy, school attendance, highest level of education attained, professional, vocational attainment and field of study.

Economic variables: Current activity status (last 7 days), Usual Activity status, employment status, Occupation and Industry of institution in the last 12 month. Fertility and Mortality variables: Ever had live births, number of children still living and those that died. This data was collected for the 12 months preceding the Census. Information on general and maternal death in the household in the 12 months preceding the Census were also collected. The 2010 census included the sex and age of the deceased and cause of death. For deceased women aged 12 -49 years, questions were asked whether the death occurred while pregnant, during child birth or 6 weeks following the end of the pregnancy.

Civil Registration: Questions on whether a person owned a National Registration card and a Voters registration were asked. For children aged below 18 years, birth registration (i.e. whether a child had a birth Certificate) information was collected.

Other Variables: Marital status and age at first marriage.

Household Variables: Type of house, occupancy, ownership/tenancy, number of living rooms and bedrooms, type of materials used for roof, walls and floor, number of persons in the house, sources of energy, (cooking, lighting and heating), water and toilet facilities. Also included were refuse disposal and assets owned by the household.

Agriculture variables: Household involvement in agricultural production (livestock, crop and poultry), fish farming and game ranching.

Concepts and Definitions

The concepts and definitions used in the 2010 census were based on regional and International recommendations, some of which were adapted to suit the local conditions. The different classifications or categories used for certain variables were based on the experiences with the previous censuses, recommendations from various stakeholders and the results of the pilot census. Efforts were made to make the concepts and definitions included in the census easy to understand for both the enumerators and the respondents in the field. Brief explanations on very critical variables were given in the manual for easy reference by the enumerators.

POPULATION

The target population for the 2010 Census was both the De facto and De jure population. Therefore, data on usual members' present, usual members absent, visitors and institutional population was collected.

UNIT OF ENUMERATION

An enumeration area (EA) is a geographical area assigned to an enumerator for the purpose of conducting a census count. It is apportioned taking into account the workload that an enumerator is expected to cover.

Definition of a Building

A building was defined as any independent structure comprising one or more rooms or other spaces, covered by a roof and usually enclosed within external walls or dividing walls which extended from the foundation to the roof. For census purposes one or more structures used for living by the same household on the same premises were treated as one building. Each building was given a separate Census Building Number irrespective of whether anyone was living there or not at the time of enumeration. Abandoned and incomplete buildings in which no one was living at the time of the Census were not given a Census

Building Number.

Certain variations in the definition were allowed such as a structure consisting of a roof with supports only, i.e. without walls, was considered as a building if it was being used for living purposes. Other examples included :

- A house together with detached/independent structures for bathroom, latrine and /or kitchen, formed one building.
- Several huts for the same household constituted one building.
- A servant's quarter in a yard formed a separate building if the persons occupying it were not part of the household in the main housing unit.
- A bungalow (main house) and its detached garage formed one building.
- A block of flats formed one building.

Where there were several structures in an institution, each of these structures were given a separate Census Building number.

Definition of a Household

For the purposes of the census, a household was defined as "a group of persons who normally lived and ate together. These people may or may not have been related by blood, but made common provision for food or other essentials for living and they had only one person whom they all regarded as head of the household." Such people were called members of the household if they normally lived and ate together even if they did not sleep under one roof. There could also have been situations where people lived under one roof but had separate cooking and eating arrangements. Such persons were to be considered as separate households. There could also be a one member household where a person made provision for his/her own food or other essentials for living. Such a person was the head of his/her household.

A household normally occupied the whole of a housing unit or part of it, or more than one housing unit. A household was in most cases, if not in all, identified with a housing unit.

Definition of a Usual a Household Member

A usual household member was defined as a person who has been living with the household for at least six (6) months or had just joined the household and intended to live with the household for six months or longer. He/She may or may not have been related to the other household members by blood, marriage, or may be a house-helper or farm-labourer. A usual household member was defined as a member who normally lived together with other household members in one house or closely related premises and took his/her meals from the same kitchen.

Definition of Head of Household

This was the person all members of the household regarded as the head. He/She was the one who normally made day-to-day decisions governing the running of the household. In cases of the one member households, the member was the head of the household. In the case of a polygamous household, the enumerator was to first establish whether:

1. It was one household with one household head i.e. all the wives ate together and considered the man as the head. In this case, it was only one household with one head and several spouses.
2. It was several households with one head i.e. every wife ate on their own but they all considered the man as the head. In this case, the man was assigned as head in the household where he spent the night before the enumerator's visit, in the rest of households, the spouses were considered as heads.

Population Questions

QUESTION P 2: MEMBERSHIP STATUS

Membership status had three categories:

- *Usual member of the household who spent the previous night with the household (Usual Member Present)*
- *Usual member of the household who did not spend the previous night with the household (Usual Member Absent)*
- *Visitors who spent the night with the household*

The following people were counted as usual household members:

- *Persons whose usual place of residence was the place where the household lived and was present at the time of the enumerator's visit.*
- *Persons whose usual place of residence was the place where the household lived, but were absent at the time of the enumerator's visit, e.g.:*
- *Persons who were temporarily away on vacation, business or pleasure trip or any other purpose within the country who were expected to be back within six months or abroad without the rest of the household and expected to come back;*
- *Students who usually went to their respective households during weekends and during holidays;*
- *Persons working elsewhere who usually went home to their respective households at least once a week;*

- *Patients confined in hospitals for any duration and detainees.*
- *Convicts/Prisoners who had been sentenced for less than six months were captured as usual members absent.*
- *Lodgers of the household who were working, looking for work or studying, and who did not go home at least once a week;*
- *Employees of household – included servants who ate and slept with the household and who did not go home at least once a week;*
- *Persons (other than those in a, b or c) whose usual place of residence was elsewhere, but who had been away from their usual residence for more than six months;*
- *Persons found in the household who had no usual place of residence elsewhere;*
- *Persons found in the household who were not certain of being enumerated elsewhere;*
- *Citizens of foreign countries who had resided or was expected to reside in the country for more than one year from the date of arrival;*
- *Newly born babies and newly wedded persons.*

QUESTION P3: RELATIONSHIP TO HEAD

The 2010 Census used a reference person method to identify the head of the household. The head of household was defined as the person in the household who all the members regarded as the head. There were 13 categories of relationships to the head of household that one choose from – Head of household; spouse; own son/daughter; parent; brother/sister; nephew/niece; son/daughter-in-law; grandchild; parent in-law; cousin; other relative and other. These were the same as in Census 2000.

QUESTION P4: SEX

Two codes were provided for this item, code 1 for Males and Code 2 for Females.

QUESTION P5: AGE

The age was recorded in completed years and ‘00’ was recorded for babies less than a year. In some cases, e.g. where people did not know their age official documents such as the National Registration Card etc., were sought. In certain cases the enumerator had to estimate the people’s ages. The Enumerator was to ask such people how long they had been living in the area, about what time in their life they went there, what they did then, for how long, how old they were when they left their parents’ home, etc. In this manner, the Enumerator was to build the respondents life history. The Enumerator was also supposed to try and determine their age by referring to some historical events that they may remember, e.g., how old they were when the Lusaka-Mongu Road was built

by the Chinese, or when the name of Feira Boma was changed to Luangwa, or when a certain Chief died, or when Katima Mulilo Pontoon disaster occurred, or when Mufulira Mine disaster occurred or when Zambia became independent, etc. Such historical events were meant to help a respondent remember how old they may have been when these events were occurring. The following events calendar was provided for the Enumerator’s reference.

Examples of historical events

1. *World War II – 1935 – 1945*
2. *Federation Of Rhodesia And Nyasaland – 1953-1963*
3. *Zambia got Independence – 1964*
4. *Choma Declaration (One Party State) – 1972*
5. *Mwamba Luchembe attempted a Coup de tat – 1990*
6. *UNIP Lost Power To MMD (Kaunda Lost Power To Chiluba) – 1991*
7. *Mwanawasa Became President – 2001*

The Enumerators were also supposed to use the information of the ages of some other members of the household whose age had already been ascertained in the household or of a neighbour, to determine the ages of other members of the household.

QUESTION 6: PLACE OF BIRTH

Respondents were asked for the district or country that they were born in. This question encountered two problems. First, the design of the questionnaire was such that the space for writing the name of the place was inadequate. Second, the country codes for some countries in the Coding Manual were not accurate or unique.

QUESTION P 7: RURAL/URBAN STATUS OF BIRTH DISTRICT

In this question respondents were asked to identify whether the place of birth was rural or urban at the time of birth. This question was posed to capture rural/urban migration. However, this was a difficult question to answer for two reasons – first, respondent was left to identify if a place was rural or urban; second, a place that was rural at the time of birth may be coded as urban now.

QUESTION P 9: COUNTRY OF NON-ZAMBIANS

For non-Zambians, respondents were asked about the country they were citizens of. While this was an straight forward question to answer, there were two problems encountered – first, there was inadequate space to write the name of

the country and second, the inaccurate codes for some countries in the Coding Manual resulted in poor data.

QUESTION P 10: PURPOSE OF STAY

This question asked respondents to choose between 8 options as their purpose of stay in Zambia – employment; family formation/reunification; settlement; refugee/asylum; investor; tourist; and other. The options for investor and tourist were new in Census 2010 to collect data on increasing numbers of foreigners in Zambia. However, the problem was that most tourists and investors often stay in group quarters like hotels, where only a count of the people was recorded and not individual level detailed data. Thus, though the government was interested in gathering this data, since most of this population were not administered the household questionnaire, the purpose of stay is missing for this population.

QUESTION P 11: RELIGION

Respondents were asked to identify whether they were Catholic, Protestants, Muslim, Hindu, Buddhist, Bahai, Other or None. In the previous census, there were no categories of Buddhist and Bahai; these were added in 2010. Some problems were encountered in the field where some groups who were Christian did not identify as either Catholic or Protestant.

QUESTIONS P 12 AND P13: ETHNICITY AND LANGUAGE

The questions asked for the ethnicity of the respondents and the predominant language of communication. The codes for both these questions were the same in the Coding Manual. The problem with this question was that both the concept and the codes were a mix of ethnicity and language groups. For Zambians, it was ethnic groups, but for non Zambians it was language groups. In addition, the space for writing was limited.

QUESTION P 14: RESIDENCE

Respondents were asked to report where they resided in 2009 in terms of district or country. This question again suffered from the problems of place of birth. There was insufficient space to write the names of places/countries and there were inaccurate country codes in the Coding Manual for countries like Russia.

QUESTION P17: DISABILITY

A person with a disability was defined as a person who is limited in the kind or

amount of activities that he or she can do because of the on going difficulties due to a long term physical condition, mental condition or health problem. Short term disabilities due to temporary conditions such as broken legs and illness were excluded.

Enumerators were cautioned that it was possible for a person to have more than one disability, thus multiple responses were allowed. The following was the list of disabilities that were listed and their definitions.

- **Blind:** Complete loss of sight in both eyes.
- **Partially Sighted:** Loss of one eye or poor sight but does not mean complete blindness.
- **Deaf and Dumb:** Complete loss of sense of hearing and speech. The lack or loss of the ability to hear and speak.
- **Deaf:** Complete loss of sense of hearing. The lack or loss of the ability to hear.
- **Hard of hearing:** Partial loss of sense of hearing but not complete loss of sense of hearing e.g. the person who uses hearing aids.
- **Dumb:** Complete lack of ability to speak.
- **Mental illness:** A condition of mental illness with a substantial, adverse and long-term effect on one's ability to carry out normal day-to-day activities.
- **Intellectual:** Intellectual disability was defined as a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior, which covers many everyday social and practical skills. This disability was said to originate before the age of 18.
- **Speech impairment:** This was defined as a condition of people who fail to produce meaningful sound words.
- **Physically Disabled:** Any person with a physical abnormality relating to the loss of bodily limbs or any deformity in the bodily stature, e.g., the epileptics and leper.
- **Mentally Retarded:** This was defined as any individual that is either very slow to learn or has deficiency of mental intellect (slow in grasping things, difficulties in remembering things, very slow at responding).
- **Other:** Any other disability not mentioned above.

QUESTION P 18: CAUSE OF DISABILITY

Information on the main causes of the disability was sought and the following were some of the causes listed:

- **Congenital/prenatal** –Defined as disabilities which one is born with.
- **Disease/illness** e.g. polio, leprosy, cataract.
- **Injury/accidents** e.g. road accidents, injuries from accidental falls, fire etc.

- **Spousal violence** – e.g. husband/wife battering.
- **Other violence**– e.g. violence perpetrated by a boyfriend or girlfriend,
- **Unknown** – this response was to be shaded in cases where the respondent did not know the cause of disability/ies.
- **Other**, e.g., unsuccessful medical operation, witchcraft, wrongful application of traditional and conventional medicine.

There was the option for marking multiple causes. While this information was collected, there were problems with the way these questions were framed. If one marked multiple disabilities along with the different causes for the disabilities, then it was not clear what the cause of each disability was. Moreover, the categories of intellectual disability, mental illness and mental retardation are difficult concepts to differentiate and explain to a lay person and one who may be answering on behalf of all household members. Such disability data yields information of little value and accuracy.

QUESTION P 19: ALBINISM

Information on whether one was an Albino or not was also collected. This was a new question that stakeholders were interested in because of the stigma and violence in some parts of East Africa.

QUESTION P 24: REGISTRATION OF BIRTH

The question asked if a person had a birth certificate. This was a new question as GRZ was interested in gathering the information on how many births were registered officially. However, the problem was that many people had hospital records of birth and mistook it for a registration of birth. The data thus collected is not reflective of those who actually registered the birth with the local government.

QUESTION P 25: LITERACY AND EDUCATION

Literacy information was collected from respondents aged 5 years and above. Literacy was measured by the question on whether the person was able to read and write in any language.

QUESTION P 26: SCHOOL ATTENDANCE

Education information was collected from respondents aged 5 years and above. School attendance was defined as attendance at any regular public or private educational institution, for systematic attendance at any level of education.

QUESTION P 28: EDUCATION ATTAINMENT

Education information was collected from respondents aged 5 years and above. This was defined as the highest standard, grade or years completed by the respondent at the highest level of school, college or university attended.

QUESTION P 29: HIGHEST QUALIFICATION

The highest degree or diploma earned was asked of all persons age 5 years and above. This was similar to the question in 2000 Census. However in 2010, the category of Degree was differentiated into Bachelors, Masters and Ph.D. degrees.

QUESTION P 30: FIELD OF STUDY

This question asked about the field of study for the highest professional or vocational qualification completed to all persons 5 years or older. Enumerators were instructed to write down the field of study and code it later in the field. However, problems were encountered when coding this question as the Coding Manual had the same code for two fields of study- Economics and Computer Science. In addition, this question could have been asked of persons of an older age group and thus saved time of enumeration.

QUESTIONS P 31 - 35: ECONOMIC ACTIVITY: FOR PERSONS 12 YEARS AND OLDER

In this section, information on whether a person was working or not was sought. If the person was working, information on what type of work he or she was doing was sought. For those who were not working, information on whether this person was seeking work or interested in getting work or whether the person was engaged or involved in some other activity such that he or she was not available or interested in doing work of any economic kind. These questions were asked only of persons who were at least 12 years old on the day of enumeration. The persons who were aged 12 years and older were divided into two categories:

1. Those working, or not working but interested in work (Labour Force); and
2. Those neither interested nor available for work (not in Labour Force).

Those who are in the labour force were further classified as below:

1. Working or work assured but not yet started work.

2. Not working:
 - Able to work and actively seeking work; and
 - Able to and interested in work though not actively seeking work.

Those economically inactive (not in the labour force) included the following categories of persons:

- Mainly looking after own household duties (housewives/homemakers), not persons who help with household chores or looking after children.
- Full-time students;
- Not able to work (disabled, too old, invalids);
- Pensioners (only those solely living on pensions);
- Persons living only on rental incomes, past savings, interest, inheritance gambling income, etc.; and
- Others, who were neither interested nor available for work, such as beggars, vagrants, prisoners, etc.

WORKING FOR PAY OR PROFIT

We defined a person as working if he or she performed some work for pay or profit. Payment may have been either in cash, in the form of goods or services or in any combination of these.

1. A person employed by someone on fixed monthly income or weekly or daily wages.
2. A person who was paid by an employer on the basis of piece work.
3. A person running his/her own business such as a marketeer, a hawker, a cobbler, a tinsmith, a bottle-store operator, a grocery/store owner, etc.
4. Two (or more) partners running a business.
5. A farmer who was tilling his/her own farm, with or without the help of other persons.
6. A farm labourer who is paid partly in cash and partly in terms of farm produce.
7. A person who works in a hotel and gets his wages partly in cash and partly in terms of board and lodging.
8. Students managed to find jobs during school holidays and were working during the reference period. These were classified as working.
9. Persons who had a job and would normally have worked for pay or profit or return in kind but were:
10. Prevented from working by temporary illness, bad weather, industrial dispute such as a strike or a lock-out, on suspension and;
11. Persons, who had got a new job but had not yet reported for work, were classified as working.

12. A person was classified as working if he/she did any work for pay, profit, or family gain any time during the preceding week for a period equal to at least one working day. By 'preceding week' it meant seven days immediately before the day of enumeration.
13. For people in agricultural and allied operations the following activities constituted the working persons during the preceding week for a period equal to at least one working day:
14. Agriculture: Growing of crops, fruits and vegetables, and raising of poultry and livestock.
15. Fishing and hunting.
16. Forestry: Collecting or cutting wood, charcoal burning, gathering of honey and beeswax from trees, gathering of mushrooms, caterpillars, and collecting wild fruits, etc for sale or own consumption.
17. Persons (housewives/homemakers) doing only household duties of looking after their own families were not to be regarded as working. However, if a housewife/homemaker was having paid employment or worked on a family farm or a family business, he/she was regarded as working. Similarly, a housewife/homemaker who looked after another family and was paid for his/her work in cash or kind was to be regarded as working.

QUESTION P 31: ECONOMIC ACTIVITY DONE

Under this question, enumerators were to determine the economic activity category to which the person belonged. The reference period was the last 7 days and all persons who fell under categories 1, 2, 3, up to 8 were treated as the currently economically active population (Labour Force), while those falling under categories 9, 10 and 11 were treated as being outside the labour force. In classifying people's economic activity, an economic activity priority rule was used where precedence was given to employment over unemployment and to unemployment over economic inactivity. That is a person who was both working and seeking work was classified as employed, and a student who was attending school and also seeking work was classified as unemployed.

One effect of the priority rule is that employment always takes precedence over other activities, regardless of the amount of time devoted to it during the reference period, which in extreme cases may be only one hour.

The following are the economic activity categories that were used;

1) Worked - paid non seasonal

This referred to persons who, during the reference period, performed some work for a wage or salary, in cash or in kind. The work referred to in this category was not seasonal but done throughout the year.

2) Worked - unpaid non-seasonal

This referred to persons who, during the reference period, performed non seasonal work, without a wage or salary either in cash or in kind.

3) Worked - paid seasonal

This referred to persons who performed seasonal work for a wage or salary during the reference period.

4) Worked – unpaid seasonal

This refers to persons who performed seasonal work without a wage or salary.

5) On Leave

This referred to persons who had a job and would normally have worked for pay or profit or in kind but were on paid or unpaid vacation or study leave.

6) Unpaid work on household holding or business

This referred to persons who worked without pay during the reference period on a household holding or business.

7) Unemployed and seeking work

This referred to persons who took steps to seek paid employment or self-employment during the reference period. This included people who:

- a) *Registered at an employment exchange;*
- b) *Went to possible employers to ask for a job;*
- c) *Wrote a letter or applied for a job;*
- d) *Asked friends, relatives, neighbours, etc. to help them find a job; and*
- e) *Made any effort to start business e.g. opening a market stall or clearing piece of land say for an agricultural activity.*

8) Not seeking work but available for work

This referred to persons who were not working but would have liked to have a job. Those persons were not sure that there was any job available, or who imagined that they were over qualified, or who just said “Where can I get employment?”

9) Full time housewife/homemaker

This referred to persons who were engaged in household duties in their own home; and not persons who had to help with household chores or looking after children.

10) Full-time students

This referred to persons of either sex not classified as usually economically active who attended any regular educational institution, public or private, for systematic instruction at any level of education during the reference period. Those who were on holiday at enumeration time but attended an educational institution regularly were recorded as full time students.

11) Not available for work for other reasons

This referred to people who were not seeking work and were not housewives or homemakers during the reference period. This includes those who were sick, disabled, retired and also those who may not have wanted to work, beggars, prisoners, vagrants, gamblers, etc.

QUESTION P 32: USUAL ECONOMICALLY ACTIVE POPULATION

The reference period for the Usual Economic activity was 12 months. Persons who fell under the following categories were captured as Usually Economically Active population. The categories included persons who;

1. worked paid non seasonal,
2. worked unpaid non seasonal,
3. worked paid seasonal,
4. worked unpaid seasonal,
5. on leave,
6. unpaid work on a household holding or business and
7. unemployed and seeking work
8. Not seeking work but available for work
9. Full time housewife/homemaker
10. Full time student
11. Not available for work for other reasons

Since this reference period of 12 months was vital in capturing persons in agricultural and allied operations, the following information was sought in pinpointing such persons:-

- Whether the person undertook any regular agricultural work on his own or his family's farm 12 months prior to the Census.
- Whether the person was a farm hand in the 12 months prior to the Census.
- Whether a person was engaged for pay, profit or family gain mainly in fishing, hunting, charcoal burning, wood cutting, gathering mushroom or caterpillars, collecting wild fruits, etc. 12 months prior to the Census.

QUESTION P 33: EMPLOYMENT STATUS

Employment Status meant that a person was self-employed, employed others, was employed by someone or worked on the family farm in the family business without actually being paid.

The Employment Status was determined by the status of the person during the reference period of the last 12 months. If a person worked on more than one job during the reference period, then the Employment Status of that person was determined according to the job on which he/she spent more time. If the person spent the same amount of time in different jobs, then the employment status was determined on the basis of the job from which he/she received more income.

1) Employer

An Employer was defined as a person working on his/her own economic account or with one or few partners. He/she held a self employment job and in his/her capacity had engaged on a continuous basis, one or more persons to work for him/her as employees for pay, either in cash or in kind. Only those who employed others to help run their business or farm were classified as employers.

2) Employee -wage and salary earner

These were defined as persons who worked for others for a wage or salary which may have been paid to them in cash or kind or partly in cash and partly in kind. Salesmen/salesladies who worked for commission were also classified as employees.

3) Self-employed

Persons who were not working for others for a wage or salary but run their own businesses, factories, workshops, farms, and also did not employ others in their establishment were classified as self-employed. These are persons who had their own place of business and determined their own hours of work and work programme. Examples of these were such as Lawyers or Accountants who did

not employ other staff. If that person had members of his household assisting him/her in his/her work without paying them any remuneration did not alter his/her employment status as 'self-employed' because he/she was not employing them.

4) Unpaid family worker

This was defined as persons who normally assisted in the family business or farm, but did not receive any pay or profit for the work so performed.

QUESTION P 34: OCCUPATION

Occupation referred to the type of work done during the reference period by the person employed irrespective of the industry or the status of employment in which the person was classified. The detailed list of occupations with their codes was provided. If a person was involved in two or more occupations at the same time, he/she was assigned the occupation in which he/she spent the larger part of the working time.

QUESTION P 35: INDUSTRY

Industry was defined as the activity of the establishment in which an employed person worked during the reference period. If the person was employed in more than one industry, the industry which related to the occupation already recorded was entered. If the person had the same occupation in different industries, then the current industry in which he/she is working was recorded.

QUESTION P 36: MARITAL INFORMATION

Marital information was collected for persons aged 12 years and older. The following were the categories of marital status.

- **Never married** - Never married category referred to those who have never been in any marital union (marriage).
- **Married** - Marriage was defined as any permanent living arrangement between a man and woman to live together as husband and wife. These included church marriages, other religiously approved unions, civil registration at a Boma or other civil ceremony that may have been performed, and the man and woman were living as husband/wife at the time.
- **Divorced** - This was defined as a man/woman permanently separated from the spouse and has no other spouse now.
- **Separated** - This was defined as a man or a woman who was temporarily out of a marital union, but not legally (Civil or Customary) divorced from his/her partner, and had no other wife/husband at the time of the Census.

- **Widowed** – This was defined as a man or woman whose partner died and had no wife/husband at the time of the Census.
- **Cohabiting (Living together)** - Cohabiting or living together category was defined as a man and a woman living together as a married couple without any legal, customary or religious consent of the union. The dissolution of this union, therefore, does not require witnesses from the afore-mentioned authorities.

QUESTION P 37: AGE AT MARRIAGE/COABITATION

This was a new question asked in 2010. This question was asked of all persons age 12 years or older. While not complicated, since this is a question used for estimating fertility, it should have been asked only of females. It should have been grouped with the fertility questions that follow. Substantial time could be saved if this information had been collected of only females.

QUESTION P 38 – P 45: FERTILITY AND INFANT MORTALITY

In the 2010 Census, data on fertility was asked of all women aged 12 years and above irrespective of their marital status. Information on lifetime fertility and current fertility and infant mortality was collected.

QUESTION P 38 – P 41: LIFETIME FERTILITY

Ever had any live birth – This information was collected for all the eligible women in the household. A live birth was defined as a child who, after being delivered showed signs of life, like crying, movement by involuntary reflexes, etc. If a child never showed any of these actions when it was born, then it was not a live birth. For the women who reported to have had a live birth, more information was sought on the sex and number of those children who were;

- Still alive and living in the same house
- Still alive but living elsewhere and,
- Had died.

Children in this case referred to children the respondent had given birth to and not children she had adopted or those of her husband, brother or any other relative. Children also included all respondents' children, young and adults, born to her before, during or after her marriage.

Number of children born alive and living in the household – referred to the number of children, male and female, born alive to the respondent and living in the respondents household at the time of the Census.

Number of children born alive and living elsewhere– referred to the number of children, male and female, born alive to the respondent but who were living in another household at the time of the Census. These were children of the respondent who could have been living with another household within the same district or in a different district or in a different country.

Number of children born alive but now dead – referred to the number of children, male and female, born alive to the respondent and who had since died.

QUESTION P 42 – P 44: CURRENT FERTILITY

This section was restricted to females aged between 12 and 49 years. It referred to the number of children (male and Females) born alive to the respondent during the 12 months period preceding the census night.

QUESTION P 45: INFANT MORTALITY

Information on Infant mortality referred to the number of respondent's children who had died out of those born alive during the 12 months preceding the Census night.

QUESTION P 47: REGISTRATION CARD

This question collected information on whether the person had a green registration card. While this question was not new in 2010, the word "green" was added to "registration card", because GRZ was interested in specifically those.

FLOW FROM SECTION P TO SECTION H

The instructions at the end of section P to the housing section H was incorrect as it asked enumerators to move to section D. There was no section D. However, there was no problem encountered because of these incorrect instructions.

Housing Questions

QUESTION H 1: HOUSING UNIT

A Housing Unit was defined as an independent place of abode intended for habitation by one household. This was supposed to have direct access to the outside such that the occupants could come in or go out without passing through anybody else's premises, that is, a housing unit was supposed to have at least one door which directly led to the outside in the open or into a public corridor

or hallway. Structures which were not intended for habitation, such as garages and barns, classroom etc., but were occupied as living quarters by one or more households at the time of the Census were also treated as housing units. The following were the types of Housing Units, thus:

- **Traditional Housing Unit:** This was defined as a traditional housing unit indigenous to a particular village irrespective of building materials.
- **Improved Traditional Unit:** This referred to the type of housing also common in rural areas that was considered “improved” by the materials used for either the walls or the roofing. Some of these huts may have had red brick or burnt brick walls and in some cases asbestos or even iron sheets in the roof. They were somewhat like traditional huts but had some improvement that set them apart from typical traditional huts.
- **Mixed Housing Unit:** Mixed housing units were defined as a mixed type i.e. with a unique combination of building materials. An example was that of a conventional housing unit with concrete block walls with an extension of rooms with pole and dagga walls or a “cabin”.
- **Conventional House/Flats (Housing Unit):** A conventional housing unit was defined as a room or a set of rooms and its accessories in a permanent building. It could also be a structurally separated part of the permanent building by the way it has been built, rebuilt or converted. A conventional house could have been intended for habitation by one household and was not at the time of enumeration, or could have been used wholly for other purposes. Examples: bungalows, flats/ apartments, etc. It could have been a single structure, several structures or part of a big structure. If it was part of a structure, then other parts may also have been housing units, like in a block of flats, or be other than housing units, like a shop, an office, etc., or mixture of such units. Places that may not have been originally designed for human habitation such as a barn, warehouse, etc., and later on converted into a housing unit by structural alterations, re-design, etc., to make them fit and intended for habitation were classified as conventional housing units.
- **Mobile Housing Unit:** This was defined as any type of living quarter that had been produced to be transported e.g. a tent, a ship, a boat, a caravan, trailers, boats, etc. occupied as living quarters at the time of the census.
- **Part of Commercial building:** This was defined as a living quarter which was part of a commercial building, e.g. shop owners living on top of their shop or living quarters attached to the commercial building.

- **An Improvised/Makeshift Housing Unit:** An improvised housing unit was defined as an independent, makeshift-shelter or structure built of mostly waste or salvaged materials and without a predetermined design or plan for the purpose of habitation by one household, which was being used as living quarters though it did not comply with generally accepted standards for habitation. Such units were generally found in suburban shanty areas, in some cases located among units that may have been planned and built from regular building materials.
- **Collective living quarters:** Collective living quarters were defined as structurally separate and independent places of abode intended for habitation by large groups of individuals or several households with no common bond, public objective or interest. Such quarters usually contained common facilities such as kitchen, bathrooms, lounge or dormitories, which were shared by occupants. Examples were hotels, motels, inns, lodges, rooming houses, etc., which provided lodging on a fee basis.
- **Institutions:** Institutions were defined as sets of premises in a permanent structure or structures designed to house groups of persons (usually large) who were bound by either a common public objective or a common personal interest. In this type of living quarters persons of the same sex frequently shared dormitories. Examples were hospitals, military barracks, boarding schools, convents, seminaries, prisons, etc.
- **Unintended Living Quarters:** Unintended living quarters were defined as structurally separate and independent places of abode. They may have been built, constructed, converted or arranged for human habitation provided they were not at the time of the census used wholly for other purposes. They may also have been in use for habitation at the time of the census although not intended for habitation.
- **Other:** Other was included as a residual category of living quarters and included bridges, storage warehouses, market stalls, shop corridors, garages, ship containers etc.

QUESTION H 2: TYPE OF MATERIALS USED FOR ROOF

While this question was asked in 2000, the categories of materials were greatly expanded. In 2000, there were 7 materials, in 2010 there were almost double. Six new materials were added - Palm/Bamboo; Rustic Mats; Wood Planks, Cardboard; Ceramic Tiles; Roofing Shingles.

The following types of materials were given as categories for the type of materials used for roof;

- **Thatch/Palm Leaf:** Traditional roofing material which works well at angles of 35o and more with thatch thickness of 12 centimeters to 15 centimeters. The thatch thickness increases with the decline in angle
- **Palm/Bamboo:** A bamboo is a plant which is a type of grass with a hard, woody, hollow stem.
- **Wood Planks:** This was defined as stout length of sawn timber, made in a wide variety of sizes and used for building materials.
- **Cardboard:** This was defined as prefabricated boxes primary used for packaging goods and materials.
- **Metal/Iron Sheets:** These were defined as galvanized iron sheets or could have been corrugated. These were the lightest roofing materials and could be obtained in length from 1.2 metres to 3.6 metres.
- **Wood:** These were defined as processed plank - material from tree trunks used in construction as timber.
- **Asbestos:** This was defined as a mineral fibre that is used commonly in a variety of building construction material for insulation and as a fire retardant.
- **Ceramic Tiles/Harvey Tiles:** these were defined as Roof Tiles; small rectangular roofing materials made from fine concrete quarry and slates.
- **Cement:** Cement was defined as a fine soft, powdery type substance made from a mixture of elements that are found in natural materials such as limestone, clay sand and/ or shale.
- **Roofing Shingles:** Was defined as a roof covering consisting of individual overlapping element that are typically flat rectangular shapes laid in rows from the bottom edge of the roof up, with each successive higher row overlapping the joints in the row below.
- **Other:** This was used as a residual category.

While this question had categories from international recommendations, as well as included local materials, materials uncommon in Zambia filled up space on the questionnaire. In addition, some categories are fine distinctions between

different materials. Unless this is of substantial interest and use for data users or policy makers, space can be optimized by combining categories of materials.

QUESTION H 3: TYPE OF MATERIALS USED FOR WALLS

Generally, during the Census the walls were assumed to be plastered both inside and outside. In 2000, there were 10 materials listed for walls. In 2010, 2 new ones were added – compressed cement bricks and compressed mud bricks. The following were given as categories for the type of walls.

- *Burnt Bricks: these were defined as Bricks molded from seasoned clay and burnt to a temperature of 1,300o C.*
- *Mud Bricks: The technical names of these Bricks are Kimberly brick or Adope brick. These were defined as Bricks made of mud and sun dried.*
- *Compressed Mud: This was defined as an appropriate mix of dirt, clay and aggregate into a compressed block.*
- *Compressed cement Bricks*
- *Concrete Blocks/Slab: This was defined as Building units made out of a mixture of concrete which could be fine concrete or coarse concrete.*
- *Iron Sheets: This was defined as a building material composed of sheets of hot dip galvanized mild steel to produce a linear pattern in them.*
- *Asbestos/Hardboard/wood: These were defined as Heavy thin boards usually 4 millimeters to 8 millimeters in width.*
- *Other: This was used as a residual category.*

Much like the question on roofs, materials uncommon in Zambia filled up space on the questionnaire. In addition, some categories are fine distinctions between different materials, like cement blocks and compressed cement bricks. Unless this is of substantial interest and use for data users or policy makers, space can be optimized by combining categories of materials.

QUESTION H 4: TYPE OF MATERIALS USED FOR WALLS

The following types of materials were given as categories for the type of materials used for floors;

- **Concrete:** This was defined as a mixture of crushed stones, river sand and cement, with the right amount of water. It could be molded into any shape. It was weak under tensile stress and strong under compression.
- **Cement:** Was defined as the building material usually greenish to gray in colour and sometimes light brown. It hardened in moist condition.
- **Brick:** This was defined as Bricks molded from seasoned clay and burnt to a temperature of 1,300o C.
- **Tiles:** were defined as PVC or baked clay. If they were baked clay, they

were called quarry tiles. They had a rough glazed finish on the face and were about 6 millimetres thick or more.

- **Mud:** were usually from treated or seasoned clay mixed with cow dung. It made a hard shiny floor. It was mostly found in traditional houses.
- **Wood (Not Wooden Tiles):** These were usually floors above ground level but were assumed not to be very popular here in Zambia due to the climate.
- **Marble:** Marble are cut from stone (marble stone) in flat sheet and polished to give a shiny finish.
- This was mainly used in high cost building. It could be in the form of tiles or slabs. It made a high durable shine.
- **Terrazo:** These were defined as Floors made out of concrete with a selected course aggregate of 13 millimetres or slightly less. The top is grinded flat with a machine and then polished. The floor finish is usually black or white.

Much like the question on roofs and walls, materials uncommon in Zambia filled up space on the questionnaire. Unless this is of substantial interest and use for data users or policy makers, space can be optimized by combining categories of materials.

QUESTION H 5: TYPE OF OCCUPANCY

Information on type of occupancy for the household was collected and the following were the response category;

- **Single Household:** A Single Household meant that only one household was occupying one housing unit.
- **One Household in Several Housing Units:** This was when one household was occupying more than one housing unit.
- **Shared:** This referred to a situation where you find more than one household occupying one housing unit which was intended to house just one household.
- **Vacant:** A vacant housing unit was one which was not occupied by a household during the time of enumeration.
- **Non-contact:** This was a situation where the house was occupied but the enumerator could not find anyone at home throughout his/her visits during the census period.

- **Non-residential:** This was a building which was not used for habitation.

QUESTION H 7: MAIN SOURCE OF WATER FOR HOUSEHOLD USE AND DRINKING

Four new categories of water source for drinking and household use were added in 2010, compared to the question asked in 2000. The new categories were water kiosk; water vendor; other tap; mineral/bottled water. The following categories were used to collect data for the main source of water for household use and the Drinking;

- **Piped water inside the housing unit:** Was defined as water usually supplied to households through pipes. The pipes were supposed to be connected from the source to the individual housing unit.
- **Piped water outside the housing unit within stand/plot:** Was defined as water usually supplied to households through pipes. The pipes were connected from the source to the individual's stand or plot.
- **Communal Tap:** Was defined as water usually supplied through pipes connected from the source to a public place for a group of people.
- **Protected Well:** The wall of these wells were usually lined with a brick wall or concrete block wall up to the ground level. The finish on top was usually reinforced concrete slab with an opening large enough to let a bucket go through. The opening was always covered.
- **Protected Boreholes:** These were defined as boreholes drilled to a depth not less than 30 metres. The sides were supposed to be cased by iron casing pipes while the last bottom pipe was perforated. The top was supposed to be concreted together with the suction pipe.
- **Unprotected Well:** These were defined as wells which were not lined with a brick wall or concrete wall. The top had no concrete slab though it may have had a sizeable opening to let a bucket go through. The opening may usually be uncovered.
- **Unprotected Boreholes:** These were similar in design to protected boreholes except that the top as well as the suction pipe were left uncovered and large enough to let a jar or small bucket go through.
- **River/dam/stream:** This was a situation where a household drew water directly from a river/dam/stream for home use.

- **Rain Water Tank:** This was defined as a situation where households collected rain water from the roofs. These varied in sizes as there was no standard size.
- **Other Tap:** This was a residual category for any other tap not mentioned above.
- **Water Kiosk:** This was defined as a public water tap run by a water utility company. The public could go to this tap in order to buy water.
- **Water Vendor:** This included water that was bought from individuals or companies and sold to households who did not have water. In some cases wheelbarrows and or tankers were used as the mode of transport to sell to households.
- **Mineral/bottled water**
- **Other:** This was used as a residual category

QUESTION H 8: NUMBER OF ROOMS

A room was defined as a space in a housing unit enclosed by walls reaching from the floor to the ceiling or roof, of a size large enough to fit a bed for an adult. A hut meeting these two qualifications was also treated as a room. Normally, bedrooms and living rooms were included in this definition. Passage ways, verandahs, lobbies, kitchens, bathrooms and toilet rooms were not counted as rooms even if they meet the criteria. A garage and a storeroom meeting these requirements were treated as rooms only if these were actually being used for living purposes at the time of enumeration. A bedsitter, was treated as a bedroom as opposed to a living room.

Study and drawing rooms, living or family rooms, play rooms, etc. were to be considered as living rooms or bed rooms depending on the use and if they meet the above criteria.

There was some confusion with this question as the concept of living room being different from a bedroom is not usual for many regions.

QUESTION H 9: NUMBER OF PEOPLE SLEEPING IN THE UNIT

This was a new question added in 2010 where the respondent was asked for the number of people who usually sleep in the housing unit. The objective of this question is not clear, given the enumerator has already listed the usual members in the household and the members on census night.

QUESTION HH 1: MAIN SOURCES OF ENERGY

Information on the main source of energy used by the household for lighting, cooking and heating was collected. In 2000 there were 7 sources of energy listed and the questions on lighting, cooking and heating were separate, In 2010 there were 6 additional sources added.

Emphasis was given that availability of energy for lighting was what was being determined, therefore, even if a housing unit had the necessary wiring but was not connected to the electric supply system, the household was not considered to be using electricity.

Heating energy referred the source of energy used for heating rooms in housing units during cold season.

The categories included, Electricity, Gas, Wood, Candle, Paraffin, Charcoal, Coal, Solar, Cow Dung, Bio fuel, Diesel, None and Other.

- **Gas:** This was defined as gas that was used as a fuel source such as natural gas, propane, butane or other flammable gases.
- **Bio fuel:** Was defined as any fuel that was derived from plants and plant derived materials e.g. Jathropa.
- **Solar:** Was defined as energy from the heat or light from the sun which could be used to produce heat, light and electricity.

The following were not used as sources of energy for:

1. Lighting – Cow dung, charcoal
2. Cooking – Candle,
3. Heating – Candle,

QUESTION HH 2: ASSETS FOR THE HOUSEHOLD

Information on the assets owned by the household was collected. While the question on assets was asked in 2000, in 2010 the census questionnaire added - ownership of mobile phones, computers and access to the internet. The complete list of assets are the following:-

- Radio
- Television
- Refrigerator
- Telephone
- Bicycle

- Boat/Canoe
- Scotch Cart
- Donkey
- Mobile phone
- Oxen
- Wheel Barrow

QUESTION HH 4: TYPE OF TOILET USED BY HOUSEHOLD

This referred to the type of Toilet facility used by members the households occupying the housing unit. The response categories were as follows;

- Flush Private connected to water sewer system
- Flush Private connected to stand alone soak away
- Flush Communal
- Pit Latrine
- Ventilated Improved Pit Latrine
- Bucket
- Other
- No Toilet facility

Other Questions

QUESTIONS A1 – A 5: SECTION ON AGRICULTURE

The section on agriculture asked the same questions as in 2000, but added new categories of crops, animals and pursuits. If the household was an agricultural household, they were asked what crops they grew, which animals they had and whether they were engaged in fish farming and game ranching. The new crops included in the 2010 questionnaire were coffee; velvet beans; bambara nuts; pineapple and orchard. The new categories for animals were other livestock and other poultry. There was no question in the 2000 questionnaire on game ranching. Census 2010 added this question to the agricultural section.

QUESTIONS M1 – M6: GENERAL AND MATERNAL DEATHS

While the 2000 census asked about death of household members in the year preceding the census, in 2010 the census added questions to estimate maternal death since October 2009. If there was a death in the household, sex, age at death and cause of death were asked for all household members. New questions were added for women who died between the ages of 12-49 years of age – whether they were pregnant, whether the death occurred during child birth and if the death occurred during the 6 weeks following the pregnancy, irrespective of the way the

pregnancy ended.

HOUSEHOLD SUMMARY BOX

The usual members present and the usual members absent along with the visitors, broken down by sex were recorded in the household summary count box. This box unfortunately is missing a question number and is badly placed on the questionnaire due to a lack of space.

INSTITUTIONAL SUMMARY BOX

This box was used by enumerators to identify what type of institutional group it was and record the numbers of males and females that slept there on census night. The institutional categories are – hotel/motel/lodge; hostel/guest house; hospital; learning institution; prison; police cell; refugee camp; and other. This box was also missing a question number and is not placed in an ideal space on the questionnaire because of the lack of space on the questionnaire.

Printing of Census Questionnaires

Upon finalization of all the field instruments, they had to be printed in readiness for the data collection. All the other instruments were printed within the Country apart from the questionnaires.

The company that was contracted to print the Census questionnaires was the Data and Research Services (DRS) of the United Kingdom. The DRS is the same company that was used to process the 2000 Census questionnaires and has been the company used by the Examination council of Zambia for data capture. The contract for the DRS was a complete package with printing of the questionnaires, supplying of scanning equipment including the required software and technical assistance.

The initial lot of the scannable questionnaires provided by the DRS were for the Pilot Census in February 2010. After the review of the Pilot Census and the finalization of the questionnaires, the final questionnaires were printed by DRS and were received in tranches from September and the rest were received within October 2010.

When the Questionnaires were received, they were stored in one location for distribution. The distribution centre was the ZEGA warehouse located at the Lusaka International Airport. The loading for various Provinces and Districts was therefore done from the above mentioned warehouse and trucks went from there to various destinations. A systematic strategy was employed to ensure a logical distribution of the 4,500,000 questionnaires throughout the country. Questionnaires were distributed to all the Districts in good time for the enumeration.

Printing Other Instruments

Printing of other materials was done locally by the CSO Printing Department for the Stickers, Summary Count Booklets, the Master trainers and Supervisor's manuals and Control Forms. The other materials were printed by some local Printers, such as the New Horizon Printing press materials printed included Enumerators Instruction Manuals and some Stickers. Table 2 below gives quantities printed:

Table 3: Quantity of Census Instruments	
Item	Quantity
1. Enumerator's Manuals	34,000
2. Supervisors Manuals	10, 000
3. Master Trainer's Manuals	750
4. Map Reading Manuals	33, 000
5. Summary Count Booklets	45,000
6. Chief's code booklet	9, 000
7. Country Codes Booklets	9, 000
8. Stickers	4,500,000
9. Control Forms	380,000
10. Questionnaires	4,500,000

Additional numbers were printed as demanded due to shortfalls in the field.

Challenges in Questionnaire Design

The foregoing analysis of the content of the census questionnaire makes clear that not only were many new questions added in 2010, but categories of questions that were there in 2000 were expanded upon without removing any of the prior categories. This made the questionnaire very lengthy. Furthermore, since no data users conferences were held on the use of the previous round of census data, there is little information on the need for all the questions asked. Errors in the Coding manual and the questionnaire also render some of the data collected less useful. Finally, conceptual and theoretical issues like the difference between ethnicity and language groups seem to have been insufficiently deliberated upon.

Thus, the main challenges in questionnaire development stemmed from the following factors-

1. Inadequate time to develop the questionnaire
2. Lack of evaluation of use of census data prior to developing the questionnaire
3. Lack of theoretical debates about concepts to be measured and reasons for inclusion
4. Inadequate time to test and retest the census instruments, including the manuals
5. Adding several questions requested by stakeholders without removing any of those that had been asked in 2000
6. Expanding answer categories in questions without removing any of the previous categories
7. Limited space on the questionnaire led to a design where the flow of questions was not ideal
8. Lack of a rigorous review process of all the census instruments led to errors – manuals and questionnaire
9. Lack of space on the questionnaire to write in answers to several of the questions
10. Lack of space on the questionnaire also led to difficulty in recording and marking answers in the field. This led to the need for hiring an army of “reinforcers” that were tasked with either darkening the shading or transcribing before scanning.
11. Heavy respondent burden and interviewer fatigue because of the length of the questionnaire

Recommendations for Census 2020

Many of the challenges discussed above stem from the perceived transient nature of the census enterprise. The census is widely regarded as something that centers around enumeration and thus is regarded as a once in ten year enterprise. However, a good census requires years of planning, experimenting, researching, evaluation and preparation. The US Census Bureau starts planning for a census 12 years before the census. Of the things that can be planned well in advance, questionnaire content takes a lead. A lot of research, evaluation and monitoring goes into question phrasing, clarification of concepts, use of census variables before questionnaire content is decided or manuals created.

However, as long as a census is conducted by cobbling together staff from other units for brief amounts of time, not only is institutional memory of the census process lost, but there is no one to advocate for and engage in census preparation and planning in a timely manner. The transient burst of interest during the census years and such temporary staffing leads to issues such as the ones highlighted in this section.

The main recommendations for questionnaire development for 2020 are the following:-

1. Establish a permanent Decennial Census unit in CSO that is focused on the previous and upcoming census and streamlines the questionnaire development process in a timely manner
2. Involve University professors and other subject matter experts early in the process to clarify concepts and debate content
3. Hold data users conference to evaluate which data were widely used and which were not so that questions can be eliminated
4. Deliberate whether the question needs to be included in the census, when surveys may do as well if not a better job of gathering the data
5. CSO must contain the number of questions by eliminating those that are not used, as well as carefully evaluate any new additions
6. Planning should include time to test and retest any new questions for phrasing and responses. The data gathered should be analysed and evaluated before making the decision to include it.
7. Establish a review process for all census instruments that adheres to rigorous standards so that errors in coding and questionnaire content are corrected before the enumerators are trained.

Chapter 5: Publicity

Highlights

- The Publicity Committee and Zambia News and Information Services had a lead role in developing publicity activities for the 2010 Census.
- CSO developed innovative responses to a perception that the census was not reaching all parts of the country during enumeration including broadcast messages from celebrity figures and address collection boxes in public locations.
- It is strongly recommended that CSO create a permanent Public Information Office to provide a continuous stream of information to the public concerning the importance and uses of statistical information in the development and progress of Zambia.

Description

The main objective of the 2010 Census Publicity Campaign was to sensitise the public on the 2010 Census of Population and Housing in order to solicit their cooperation. The 2010 Census Publicity Committee had to consider and approve proposals related to the Census Publicity and Awareness Campaign activities. The committee worked in collaboration with other Census Committees. A Publicity Strategy Plan was drawn up by the Census Publicity and Awareness Technical Committee. The Committee designed the Census slogan and a logo, with input from CSO. These were featured on all publicity materials which included posters, billboards, t-shirts, stickers, and broadcast advertisements.

Planned Activities

The printed materials—poster and billboards—were produced by CSO up to a year before the census and distributed to government office, schools, hospitals, and other government run locations. Promotion materials—stickers, t-shirts—were produced and distributed to government officials, local chiefs, and other people of influence, close to the time of enumeration in September 2010.

Broadcast publicity activities included television and radio advertising through the Zambia News and Information Services (ZANIS) Public Address Systems, official news media coverage, and launching of the Census count by first enumerating the Republican President and members of his household. These latter activities generated substantial press coverage in the national media.

These activities were coordinated through ZANIS, with input from CSO and the Publicity Committee, as it is the most efficient means for CSO to reach the public. The expense of mass media broadcast limited its deployment to the period immediately preceding and during enumeration.

The Secretary of the Cabinet sent a request for officials at schools, churches, and hospitals to announce the enumeration period and the importance of the census. Messages from trusted officials, such as these, in local areas can substantially improve receptiveness to the census. A longer program of staggered, themed messages can have an even larger impact.

Supplemental and Innovative Activities

Concerns emerged during the enumeration period that news of the census had not fully reach all parts of Zambia and segments of society. CSO and the Publicity Committee devised two clever strategies to attempt to reach everyone. First, they engaged with several national entertainment and sports celebrities to film short advertising spots that were run on the national television and radio broadcast stations. ZNBC and the Government Information Office coordinate this effort. Secondly, CSO placed boxes where people who had not been enumerated could drop a piece of paper with their address written in highly visible areas such as groceries and shopping malls.

The Publicity Committee also coordinated the distribution of materials and ensured visibility at World Population Day 2010, which was Sunday, July 11. The event involved gatherings at government offices, NGOs, and a parade in Lusaka Province, which was covered by national media.

CSO also sought to engage with a private telecom provider to develop a program of publicity activities. These activities were to include a series of SMS pushed out by the provider publicizing the census and emphasizing its important and co-branded advertising and promotion materials. The negotiations were not ultimately successful and were begun only two months before training enumeration. However, the idea for a mutually beneficial public-private partnership was innovative and well-intentioned.

Challenges in Publicity

Publicity and public affairs are not well operationalized in CSO. Individual staff members from functional areas are tasked with publicity when a survey is scheduled to deploy. The publicity plan for the 2010 Census was drafted mainly by reference to the 2000 plan, with some innovative additions noted above. The lack of staff dedicated to marketing and public affairs compresses the publicity timeline, creating logistical pressure to ensure that materials are delivered on time. The ad hoc nature of publicity also affects the success of novel approaches to increasing public awareness, such as the unsuccessful partnering with a telecom provider.

Recommendations for Publicity

1. Establish a permanent Public Information Office. A small staff of three, a manager and two professionals would have a large, positive impact on CSO activities. The staff should include 1) someone with desktop publishing skills and a rudimentary understanding of emerging technologies for publicity, such as SMS and mobile based services and 2) a creative professional to develop slogans and imagery to improve public perception of the census. The manager would be responsible for coordinating publicity efforts with the rest of CSO and, especially, the Director.
2. Develop a Census in Schools program. There are examples of such programs in Southern Africa and they have been demonstrated to improve public awareness and cooperation with the census. The Census in School concepts is not restricted to resource-intensive activities, requiring a large volume of printed materials. Creativity to develop lesson plans and school activities is the primary challenge. A single packet of a few pages of lesson plans and activity ideas distributed to each school can have a large effect. The Census in Schools program should be developed dually by a Decennial Census unit and a permanent Public Information Office at CSO. The Ministry of Education would also be a close partner in the development and distribution of these materials.
3. CSO should continually plan, develop, and deploy activities that increase public awareness of the importance and uses of high-quality, centrally collected statistics. These activities should emphasize the linkages and continuity between census data and intercensal surveys.
4. Begin negotiations with private sector partners well before enumeration, up to two years beforehand for a major negotiation involving co-branding, promotion materials, and advertising. These types of partnerships are effective and should be part of the publicity plan for the 2020 Census.
5. The Census publicity plan should be updated to take advantage of new communications media as part of publicity efforts relating to major surveys during the intercensal period. A permanent Public Information Office would be able to provide institutional memory concerning successful new approaches and the time required for each activity.

Chapter 6: Data Collection

Highlights

- The 2010 Census used the traditional method of data collection of enumerators going door to door and a very systematic and organized operational control system to track the movement of the questionnaires
- Time to prepare for and execute the large and resource intensive phase of enumeration was extremely limited and challenging
- At the end of enumeration, there is a need to have a program to receive a debrief from the field staff to learn all the problems encountered and solutions provided so as to strengthen the planning and execution of the next Census.

Description

Similar to the previous four Zambia censuses, the 2010 Census adopted a traditional census approach. Census enumerators visited and collected information from all the households in their work area. This method of data collection is quite resource intensive, time consuming and logistically challenging with many phases and tasks.

The following are some of the important activities that have to be undertaken-

- A pilot census to test the new question wordings and modifications to the existing questions.
- Stakeholders including the government to agree on the questions to be included in the census.
- Ensure complete mapping for the determination of appropriate census geography to ensure manageable workloads for the enumerators
- Rigorous training of all the field staff especially enumerators who worked on the Census
- Putting in place support activities such as payments, transportation, warehousing and other logistics

- Deploying sufficient numbers of field staff to expedite the data collection.
- Having a comprehensive publicity strategy that highlights the importance of the Census and the need to comply with its provisions
- Adopting the use of improved technology to ensure speedy processing of the information collected during the census
- Making the results available to the public in as timely a manner as possible so as to quickly respond to user needs.

Therefore, a lot of resources went into conducting the 2010 Census to ensure its success.

Pilot Census

A pilot census is a census carried out on a small scale mainly aimed at testing the census methodology, instruments and logistics. The Zambia 2010 Pilot Census tested the census questionnaire, field enumeration procedures and methodology, data processing techniques, coverage and assessing enumerator and supervisor workload.

Two districts were selected from each of the provinces except Central, Copperbelt and Lusaka, where three districts were selected. Both rural and urban districts were selected in each province. In each of the selected districts, mapped and unmapped areas were selected. This was so as to have a feel of enumeration in rural and urban areas, and the mapped and unmapped areas, even though it was anticipated that mapping was going to be completed at the time of enumeration.

Sampling Procedure and Sample Size

The sample for the pilot census was drawn purposively. This was so as to ensure that all types of areas are tested; i.e., rural and urban areas and mapped and unmapped areas. Since the pilot census was conducted with the purpose of testing the instruments and the methodology and not to obtain any estimates from the data, getting a representative sample was less important. In all, 133 SEAs were selected for the pilot census from a minimum of 3 Census Supervisory Areas (CSAs) in each province. The complete list of selected areas is attached in Appendix 3.

Training

The first training was that of Master Trainers and this was done in Lusaka in February 2010 at Zamcom Lodge. This was immediately followed by the joint training of Supervisors and Enumerators in the Provinces.

Data Collection

Data was collected by conducting face to face interviews using the census questionnaire. Two types of questionnaires were used; the scannable type and the ordinary type.

All households in the selected SEAs were visited during the pilot census so as to collect the relevant information from them.

Data Capture

The data for the pilot was captured using scanners. The proposal for 2010 Population Census included the development of a system for capturing and processing the data that was to be collected. The data was captured by using both the Optical Mark Reader (OMR) and Intelligent Character Recognition (ICR) techniques for form processing. This technology was selected so as to reduce manual data entry, and processing time. The use of automatic ICR/OCR/OMR recognition and verification was aimed at improving data quality and to provide clean and coded data for the analysis stage. It took 10 days to scan all the pilot questionnaires.

Lessons Learned

Upon completion of the Pilot Census, the findings were presented and reviewed by all the Pilot Census Master Trainers and the Census Management. The review looked at the successes, constraints and recommendations given in areas such as training and recruitment, mapping, resources used for the pilot census, field instruments and field work.

Some of the lessons learnt during the pilot Census include the following:-

1. During the Pilot, one of the main lessons learned was that the training period of 7 days was not adequate to cover all the materials. It was therefore recommended that training should take at least two weeks. The idea was to give enough time for training, classroom interviews, field practice and field practice reviews.

2. The use of different training skills was highly recommended. That is, the use of different techniques to make the trainees understand the materials such as use of mock interviews in the class, field practice, general translations and classroom reviews of all the techniques.
3. In the Pilot, basic school teachers were used as data collectors and they generally proved to have grasped the concepts efficiently. It was therefore recommended that wherever possible, teachers or any other persons with such qualifications could be used as data collectors during the main census
4. It was also recommended that one of the criteria to be used for selection of the persons to work as data collectors was that the person should be between the age of 18 and 40 years of age.
5. Since the Pilot was undertaken in the rainy season, the field staff had a challenge of too much rain in some places making it difficult for the field staff to carry out the assignments properly. It was therefore recommended that the main census be undertaken during the dry season. This was especially because questionnaires that need to be scanned have to be treated carefully to keep them clean and flat.
6. Publicity during the main census should be an area of focus as it became difficult for a number of field staff to work during the pilot because of inadequate publicity.

Main Census Fieldwork

With the signing of the Cabinet Memo in June 2010, the preparations for the census enumeration exercise began in earnest and CSO had much to accomplish in a short time with Census Day being in October. Recruitment of personnel, procurement of supplies, finalisation and printing of census instruments, finalization and printing of enumeration area maps, arrangements for training at various levels and various towns, getting the infrastructure in the regional offices ready, seeking assistance from various ministries, working on a publicity campaign, processes and systems for making payment, and many other things had to be accomplished in merely three months

Logistics Arrangements and Security during the Census

The Logistics and Security Technical Committee spearheaded the issues relating to the Census on Security and Logistics for various activities. The following are some of the tasks the Logistics and Security Committees at different levels undertook;

- Finding the training venues for field staff
- Finding storage space for various census materials
- Finding service centres for vehicles used in the Census,
- Providing security at all potential areas that needed security presence during the census- such as pay points and to all enumerators that needed police escorts in their work areas during the Census
- Getting all procurements done on time and in accordance with the set guidelines
- Ensuring that all the finances were processed in accordance with the set guidelines

On handling of census finances, it was a requirement that the Provincial administration opened dedicated Census Accounts. It was in these accounts that all the census funds were remitted from the CSO head office. All the Districts Census Offices had a dedicated accountant to handle Census funds.

Transportation During the Census

Mobility during the census preparations and execution of the census was absolutely essential. Through the Controller of Government Transport, the District Census Committees were able to mobilize adequate and reliable vehicles for both preparatory activities and data collection. The vehicles were mobilised from Government Ministries and Departments. This made it possible for almost all the districts to complete the census operations within the stipulated period. Large trucks were mobilised from Lusaka and some provinces to transport the materials to all the Districts in readiness for the enumeration. The transport mobilized included large trucks, 4 wheel drive vehicles, boats, bicycles and helicopter for some areas.

The average number of vehicles that were used was;

- (a) 10 vehicles per District
- (b) 71 vehicles per Province

By mid October when the data collection was starting, almost all the districts had managed to mobilize all the required vehicles. In a few cases, e.g. in Central province, this was not the case and the mobilization was only completed after the data collection had started. On the other hand, some provinces such as Eastern received overwhelming support from other government departments as they released sufficient vehicles for the Census. Vehicles were mobilized at both provincial and district level and shortfalls in some districts were supplemented by the surplus from those mobilised at the provincial level.

Some districts are almost surrounded by water bodies and have very rough terrain. Due to this fact, some districts engaged marine transport to reach areas surrounded by water. Motorbikes were also widely used in the transportation of census staff and materials in some areas.

A list of Vehicles mobilized by head office to transport materials to the provinces is given in Appendix 4.

Transportation of Census Materials and Equipment:

A number of materials were bought for the Census including field Instruments, mattresses, bicycles, batching boxes, mosquito nets, raincoats, carrier bags, stationery, publicity materials etc. The distribution of most of these materials and equipment started in September 2010 and it continued up to the time the Census started. The strategy that was adopted for the delivery of materials was to deliver materials to provinces that are very far away from Lusaka, CSO HQ, first and leave the Lusaka and nearby provinces like Central last. The Carrier bags and some writing boards were received late from the suppliers thus the distribution for these continued even after the data collection had started.

The transportation of the materials was mainly done using big Trucks from other line Ministries mobilized through the intervention of the Secretary to the Cabinet and the Controller of Government Transport. The questionnaires and other field instruments were transported using covered trucks from Ministries of Education. Most of the materials and equipment were delivered to the province before the start of the Census on the 16th October 2010.

Approximately, 713 vehicles that is, trucks, pick-ups, twin-cabs, mini buses etc, were mobilized by the Provincial and District Census Committee through the Controller of Government Transport (CGT).

TRANSPORT USED DURING THE 2010 CENSUS OF POPULATION AND HOUSING			
No.	TYPE OF VEHICLES	QUANTITY.	PURPOSE
1	HEAVY DUTY TRUCKS	52	MATERIAL DELIVERY
2	LIGHT TRUCKS	64	MATERIAL DELIVERY
3	4X4 VEHICLES	492	FIELD OPERATIONS
4	MIN BUSES	42	MATERIAL DELIVERY/ FIELD OPERATIONS
5	BIG BUS	1	FIELD OPERATIONS
6	TRACTOR	1	MATERIAL DELIVERY
7	MOTORBIKES	90	FIELD OPERATIONS
8	BOATS	8	FIELD TRANSPORT
9	TIPPER	1	MATERIAL DELIVERY
10	CARS	2	TOWN F/OPERATION
	TOTAL	713	TRANSPORT EQUIPMENTS

Appendix 5 gives the list of vehicles mobilized by Provinces and District of operation.

Distribution of Materials at Provincial level

The Stores officers from CSO HQ were deployed to all the Provinces to train some government officers identified by the District Census Committees as Stores Officers. These people were oriented on the Stores issuance procedures and record keeping. This worked well in most of the Districts. However, some Districts e.g. in Central province did not have any stores officers trained and this caused a problem when it came to issuance and managing of materials. In such cases, data control clerks had to assume the role of distributing census materials.

At the end of field work, mattresses, bicycles, aprons, badges and maps were retrieved from the field staff. The mattresses and the bicycles were stored at the District Commissioners office, while the aprons, badges and maps were forwarded to the CSO provincial offices. The mattresses and bicycles were distributed to various government institutions in the Districts and the Distribution guidelines were provided by the National Census Committee. The rest of the materials such as mosquito nets were given to field staff as part of their benefits.

Staffing and Recruitment

Recruitment: The recruitment of field staff was done in various stages.

Master Trainers and Assistant Master Trainers: The first cadre of staff to be recruited were the Master Trainers and Assistant Master Trainers. These were recruited through the Permanent Secretaries from the various Ministries and the Provincial Administration. The Permanent Secretaries from the various Ministries were requested to nominate 5 professional staff to be trained as possible candidates to work as either Master Trainer or Assistant Master Trainer. The Provincial Permanent Secretaries were also requested to nominate 2 names of professional staff from each province. The recruitment was done in August 2010.

Supervisors: The Supervisors were mostly basic school teachers recruited through the Ministry of Education at the district level with coordination from the Provincial Permanent Secretaries and the Ministry of Education Permanent Secretary. A few civil servants from other ministries were also recruited as supervisors and these were recruited through the District Commissioners' offices.

Enumerators: For the recruitment of enumerators, advertisements were placed in the media for all the eligible candidates to apply. While in 2000, the enumerators were middle and high school students, in the 2010 Census the decision was made to recruit school leavers as enumerators.

The eligibility criteria for recruiting the school leavers were as follows:

1. School leavers that were considered were those who had completed school within three years prior to year 2010 (i.e. 2007, 2008 and 2009).
2. Applicants were not supposed to be older than 25 years.
3. Applicants were supposed to have had a minimum of full Grade 12 certificate, with a pass in Mathematics and English. Credits in Mathematics and English were an added advantage.
4. Applicants were recruited within the district of residence/local area.
5. Applicants were supposed to be able to speak the local language of the area and were also supposed to be able to translate the English 2010 Census questionnaire into the local language of the local area.
6. Applicants were supposed to be physically fit.

7. Applicants were supposed to be Zambian citizens.

Most of the criteria set were met, however, the criterion of having a credit in Mathematics and English had to be relaxed in some districts as some were not able to find sufficient numbers of applicants with such credentials. The other criterion that was relaxed in some districts was the requirement of applicants to have left school only three years prior to year 2010. Some districts had to extend the period of school completion to 5 years, as they were not able to get the required numbers.

The applications were directed to the District Commissioners. The Recruitment Sub-Committee at District level together with the Master trainers scrutinized all the applications and made the selections. The selection was verified by selected groups of field monitors from the Logistics Committee at national level. The District Recruitment Committee comprised of representatives from the District Education Board Secretary (DEBS), The District Commissioner (Chairperson), The Anti Corruption Commission, The Zambia Police and the Office of the President.

Data Control Supervisors and Clerks: This cadre of staff were recruited from the CSO head office and some from the Provincial offices. The majority of the data control supervisors were IT staff from the Central Statistical Office. The data control clerks were responsible for the distribution of questionnaires and control forms to the enumerators and supervisors. The data control clerks were also responsible for the data entry for the summary count data. The whole recruitment process ended in September 2010.

The details on the numbers of all the field staff recruited at District level is given in Appendix 6.

Training of Census Field Staff:

The training of field staff was done at different stages using a cascading approach for the different levels.

Trainers: The training started with Training of Trainers in August 2010 and this was held at Garden House Hotel (Mumbwa Road). The training was conducted for 14 days.

Master Trainers: Trainer's training was immediately followed by another two weeks training of Master Trainers and this was held in Kabwe, at the Kabwe Trades Training Institute starting at the end of August 2010. During this training, the Trainers ensured that the final 2010 questionnaires and the instructions manuals

were thoroughly reviewed and made sure that emphasis was made on certain procedures that were to be followed such as amount of shading required in the responses indicated in the questionnaire boxes, skip patterns, understanding of the Map reading/orientation. Field practice was another key aspect of the training that was implemented at all stages of training.

Supervisors: The Master Trainers trained the Supervisors mainly within the provincial centres from the 13th to 25th September 2010. This training was for 14 days. Rigorous review of the census questionnaires, the Interviewers manuals and other field instruments was done. Orientation also included supervisory skills, field procedures, mock interviews, translations and field practices.

Enumerators: The Supervisors under the supervision of the Master trainers and Assistants Master trainers trained the Enumerators at District level. The training started on the 1st of October 2010 and it lasted for 10 days. The Enumerators were trained on how to handle all the field instruments especially the questionnaires. They were trained on how to respond to the different type of questions in the questionnaires and on all the other field procedures. Field practice, mock interviews, translations from English to local languages/dialects and Map reading/orientation were very critical in the training of enumerators. There were a number of training centres in each district.

In all, there were 40 Trainer of Trainers, 400 Master Trainers, and Assistant Master trainers 8400 the Supervisors and about 25,000 Enumerators. Appendix six shows staff summary by province.

From the training of Master Trainers onward, the training venues were mainly government institutions from various Ministries and were all made available at no cost. These institutions included farmers training institutions, teachers colleges, TEVET institutions and some church facilities in some provinces. The only costs that accrued to the Census were the costs related to food, cleaning and utility bills for those institutions.

The training centres for field staff are given in Appendix 7.

Deployment of Census Field Staff

The deployment of field staff was done soon after the trainings were completed in all the provinces. About five days were set aside for deployment from the end of training to the start of data collection. The deployment period was the same for all the Districts and this was done in the week before the start of data collection on the 16th October 2010. In places where some materials such as bags had not been delivered to the District, arrangements were made to deliver

these materials to the Enumerators in the field. Deployment during this period was possible for most of the District although it continued after data collection started in some especially hard to reach areas such as those that were remote or had difficult terrain.

Launching of the 2010 Census:

On 15th October 2010, the Republican President, His Excellency, Mr. Rupiah Bwezani Banda launched the start of the 2010 Census enumeration exercise on both radio and television. The launch was preceded with the enumeration of the President and members of his household. On Saturday 16th October 2010, the census enumeration exercise started in all districts across the country.

Census Enumeration

The data collection for the census started on Saturday 16th October 2010 in all districts across the country. The enumeration exercise was completed in most parts of the country by 15th November 2010, which was the official end date of census enumeration. In some areas, challenges were faced mainly because of hardships in access and thus could not complete the enumeration by the 15th November 2010. In these areas, a mop up exercise was done to ensure that all the areas were completed by 30th November 2010, when enumeration activities came to a close. These areas included some rural and urban areas.

Field Editing and Shading of Responses:

During training, it was emphasised to the enumerators and supervisors that the responses and edit in the questionnaires should be properly shaded. In most cases, the field editing, especially the shading was reasonably done. However, in some cases, the shading was poorly done.

Another aspect that needed attention during the enumeration was the recording and shading of the geographical (geo) codes. In some cases, the geo-codes were not properly recorded and thus required manual editing.

Packaging and Retrieval of Questionnaires:

After the enumeration, the Census materials including questionnaires were stored at the District Census Offices which in most cases was the District Commissioners' Office. For the questionnaires in particular, upon completion of editing in the field, Census Questionnaires were packed in batching boxes with a systematic labelling system put in place where a particular label with some

identifiers was written on each box in readiness for transportation to Lusaka for manual editing and scanning. The batching of questionnaires was done at SEA level. All the used materials had to be accounted for before any movements were made to Lusaka.

Field Monitors comprising of committee members from the Data processing, Logistics and Methodology committees with some guidelines on the packaging the questionnaires, Summary count booklets and the Summary count data were deployed to all the districts in the country to retrieve the questionnaires and the data. This exercise was done in the 3rd and 4th week of December 2010. Instructions were given on how to package the data, completed questionnaires, the spoiled questionnaires and the unused questionnaires. Questionnaires were bundled in a particular sequence before transportation. An inventory of all the questionnaires from all the SEAs was done at the District before they were transported back to Lusaka. The field monitors went ahead of the containerised trucks that were going round to all the Districts to collect the questionnaires. The Master Trainers were required to remain in their assigned Districts to assist in accounting for the SEA boxes. They were only allowed to leave for their homes after the questionnaires and the summary count data were collected. All these were transported back to Lusaka and stored at the CSO Government Stores warehouse.

A registration system for the questionnaires was put in place at the Government stores warehouse. All the questionnaires were therefore registered in this system as they were being received from the provinces. The data was handed over to the Data Processing unit at the CSO head office.

Prior to the transportation of the questionnaires, the CSO Government Stores warehouse was renovated in preparation for the storage of the questionnaires upon arrival from the Districts. The storage of the questionnaires at the warehouse was done in a very systematic manner following the province, District, Constituency and Ward. Comprehensive work was done to rehabilitate the warehouse, which included electrical repairs, creating a computer room, a security room, painting walls and repairing the shelves used for the 2000 census.

Appendix 8 shows some key forms that were used in the questionnaire retrieval process. These include the DST 06 and the DST 05 forms.

Operations at the Warehouse

Major warehousing processes included:

- Receiving
- Inspection/ Acceptance
- Registration
- Proper Storage
- Consignment preparation
- Dispatching/ Delivery
- Inventory management

Preparation of CSO Warehouse

For a warehouse to function efficiently, the facility had to be properly prepared. In addition warehouses had to have an automated system, and required staff to work and handle all the warehouse tasks. The following are some of the requirements that were put in place to prepare the warehouse for the storage of the questionnaires;

- Pallets for placing questionnaire boxes
- Racks for storing boxes
- Air Conditioning for the Computer and Security rooms
- Computers
- Putting in place cleaning materials to keep away the Dust
- Networking of the computers
- Warehouse Management team

Warehouse Staff

In order to facilitate all the work that was going on at the warehouse, the following staff were assigned to work at the warehouse from the head office. The staff included the Warehouse Manager, Warehouse Supervisor, SEA Box Registration data capture clerk, Quality control Clerk and Casual workers.

Warehouse Manager

A Warehouse Manager was responsible for overall management of warehouse operations. The responsibilities included;

- Supervising the receiving of Census Questionnaires from the Districts
- Supervising the registration data capture clerk

- Supervising the registration/shelving quality control clerk.
- Supervising casual staffs who were responsible for shelving the registered SEA boxes
- Preparing Reports
- Preparing Consignment list for dispatching SEA boxes for scanning etc.

Warehouse Supervisor

A Warehouse Supervisor was responsible for checking in and out of consignments for scanning as well as helping the Warehouse Manager with other duties. He was also responsible for making follow-ups of SEA boxes at Data Capturing Centre that was based at the CSO HQs.

SEA Box Registration Data Capture Clerk

One Data Capture Clerk was responsible for entering/registering the details of the sea boxes in the registration file as well as backing up of data on external drives on a daily basis

Quality Control Check

The SEA Box Registration Quality Control Clerk was responsible for confirming that the position of SEA boxes indicated in the registration file on the computer was consistent with the position of the boxes on the storage shelves and notifying the Registration Supervisor if they found any discrepancies.

Casual Workers

A number of casual workers were recruited and trained to help with shelving of SEA boxes on the racks under close supervision of the Warehouse Supervisor. The casual workers also helped with the packaging of the questionnaires before they were transported to Head office for scanning.

Warehouse Reception

All questionnaires were received from all the 72 Districts at Government Store (CSO Warehouse) starting from 18th December 2010 to 10th January 2011.

The Standard Enumeration Area (SEA) Boxes were stored temporarily in the holding area in order to counter check what was received using the DST06 form which accompanied the questionnaires. (See Appendix 8 for the shipment form (DST06 Form). The Standard Enumeration Area (SEA) Boxes were bundled

in fives to facilitate easy lifting and counter checking. The system ensured that all SEA boxes were accounted for.

Operational Control

This procedure was followed by registration of Standard Enumeration Area (SEA) boxes in the Tracking System.

Summary Booklet and Control Forms

All Summary Count Booklets and Control Forms received were organized and filed in box files and packaging boxes.

Registration and Shelving of SEA Boxes

During registration, a system was put in place to print barcode labels which were placed inside and outside the SEA box. This was done to facilitate easy identification and tracking of the SEA Box in the registration system. At registration stage, each box was given a unique barcode useful for arranging boxes in a specific order on the shelves. The five digit barcodes were generated after arranging the boxes in alphabetical order from the first province, then district, constituency, ward, CSA, SEA to the last province. The boxes were then placed on the shelves following the label sequence.

Registration

A registration system set up on an excel spreadsheet was used to register all the SEA boxes received by entering the geo-code and using a barcode reader to enter the barcode inside and outside each SEA box. SEA boxes were registered by ward, in strict geocode order.

There was a setup operation when a new ward began and a wrap up operation when the ward was completed. (Spaces were left between wards both in the system and on the racks). See Appendix 9 for number of boxes registered per Province.

Registration was done according to Provinces starting with Central Province. The following are the variables found in the registration system file;

- Row
- Column
- Shelf

- Position
- District Code
- Constituency Code
- Ward Code
- Region Code
- CSA Code
- SEA Code
- Box No.
- Barcode

Shelving

After a ward was registered, boxes were taken for shelving in a systematic manner on the steel racks. The racks were well labeled with the following;

- Row No.
- Column No.
- Shelf No.
- Position No.

In total there were 54 rows in the warehouse containing

- 25,222 SEAs
- 25,265 SEA Boxes
- 150 Constituencies
- 1,421 Wards

Casual workers were trained to help with shelving of SEA Boxes on the racks under close supervision of the Warehouse Supervisor.

Once the boxes were registered and shelved, the questionnaires were ready for the Data Capture operations that included reinforcing the questionnaires with lightly shaded responses before they could be scanned.

Challenges during Enumeration

It is indeed commendable that the enumeration could be executed in a timely manner given the limited time that CSO had after receiving the authorization from the Cabinet. It would not have been possible without the full cooperation of GRZ and the Cooperating Partners who immediately made resources available. In addition, with the technical assistance received from the US Census Bureau and the Logistics Advisor sponsored by DfID, CSO established a systematic and

organized operational control system of boxing and tracking the questionnaires from districts to the Government Stores Warehouse.

However, there were several challenges during the enumeration that could have been avoided if there was additional time for preparing. Some of them are –

1. CSO and other staff had to work overtime and through weekends without a break to be able to conduct the enumeration in October
2. Procurement in a timely manner was a challenge
3. In some districts, census materials like mattresses did not reach in a timely manner
4. Recruitment preparations were challenging as CSO had to advertize for school leavers and design aptitude tests, all in constrained time
5. Recruitment of qualified enumerators was problematic in some areas due to the stringent requirements and lack of time and publicity
6. Training so many staff members across regions was rushed impacting data quality
7. During the first few training sessions, errors were found in the manuals that were then corrected. But some errors remained impacting data quality
8. Training in reading the new digitized maps was emphasized, but there were still problems in comprehension
9. There was a shortage of vehicles in some SEAs, especially in remote areas which reduced the number of interviews that could be conducted in a day
10. In some areas, including Lusaka it was difficult to track residents and a last moment solution had to be instituted in the form of boxes placed in public areas in which people could place their addresses if they had not been canvassed.
11. In other areas, there were problems with some communities being resistant to cooperating with the census enumerators.
12. The shading of responses was too light for the scanning system and this caused delays in processing the data collected

Recommendations for Data Collection

Many of the challenges encountered in the data collection effort during the 2010 Census could have been avoided if CSO had more time to systematically plan and implement the census. The delay in the formal authorization from the Cabinet and thereby resources, made the entire exercise very stressful and demanding on staff members as well as various Ministries and Cooperating Partners.

In light of the experience, we recommend the following for Census 2020 –:

1. The Cabinet Memo should be sent out much earlier for formal authorization and CSO must advocate for the importance of the Census and make a strong case for a much earlier release of resources
2. The Pilot Census should have been conducted at least a year earlier so that questions could be re-tested after modification and the data collected could be analysed so that errors that remained in the questionnaire were detected and corrected.
3. Special attention should be paid to hard to count populations and a publicity campaign or innovative strategies should be devised to target such communities.
4. In 2020 Census, there should be a program to receive a debrief from the field staff to critically analyze the problems encountered and solutions provided so that these can be anticipated in the planning phase for the next census.
5. Finally and most importantly, many of the issues encountered can be addressed and planned for, if CSO establishes a Decennial Census Unit that has permanent staff with experience, authority and responsibility for taking the lessons learned and carrying it forward in 2020.

Chapter 7: Data Capture and Processing

Highlights

The 2010 used scanning technology for data capture that implemented Intelligent Character Recognition (ICR).

Manual edits are a costly and time-consuming process. Steps should be taken during enumerator training and in the field to reduce the necessity of post-enumeration questionnaire edits and transcribing.

More time for planning would allow for a more careful consideration of contractor selection for data processing.

Description

Data processing encompasses all processes from when questionnaires reached the Government Stores Warehouse through the creation of a clean data file for use in data dissemination. During processing, the raw data contained on the questionnaires is scanned, coded, and cleaned so that it can become information accessible to government, NGOs, researchers, and the general public. This section will describe data processing in the chronological order in which each activity occurred. These activities are:

1. Manual Edits
2. Data Capture
 - a. Scanning
 - b. Verification
 - c. Keying
3. Cleaning - Edits and Imputations

Data Processing during the Pilot Census

The data for the Pilot Census was captured using scanners. The scope of work for data processing for the 2010 census included the development of a system for capturing and processing data collected in the 2010 Population and Housing Census. The data was captured by using both Optical Mark Reader (OMR) and Intelligent Character Recognition (ICR) techniques for form processing. This technology was selected to reduce manual data entry and processing time. The use of automatic ICR/OCR/OMR recognition and verification was intended to improve data quality and to provide clean and coded data for the analysis stage. The scanning of all the questionnaires for the pilot took 10 days. The pilot census

served as a proof-of-concept for the approach outlined in the Census Planning document. The results of the census suggested that scanning with OMR/ICR technology was an efficient solution for use in the census.

Manual Edits

Manual edits involve alteration or transcribing of questionnaires to improve the ability of scanning equipment to capture data. The experience from the Pilot Census suggested that the questionnaires coming from the field were not properly shaded, these were darkened. In some cases the questionnaires were too dirty to go through the scanner and these had to be transcribed on to clean questionnaires.

Questionnaires used in the 2010 census were kept at Government Stores in boxes. Questionnaires from one EA were placed in one box or more depending on the size of the EA to constitute one batch. The questionnaires were placed in boxes according to Enumeration Area (EA) code which contained the codes for the Province, District, Constituency, Ward, Region, CSA (Census Supervisory Area) and SEA (Standard Enumeration Area).

A team of Questionnaire editors was constituted who worked on site at the Government Store. The initial number of editor was 100, later increased to 150 to reduce the time required for completion.

Editing was done in the alphabetical order of the provinces starting with Central. Manual editing involved reinforcing the shading and transcribing of bad questionnaires that were dirty. The shading was redone to standards that were acceptable for the scanners to capture information on the forms. Manual editing ran for 5 months, from 17th February to 26th July 2011 and the schedule was initially at least one month ahead of the scanning process. The scanning process almost caught up with manual edits as scanning is rapid once begun.

Training and Direction of Manual editors

The Training of editors was conducted at the government stores warehouse. The Editors were recruited from the persons who participated in the 2010 Census because they had experience on how to handle the questionnaires thus it was easy for them to understand the guideline for questionnaire manual check.

In order to reinforce the capacity of Editors to handle the Questionnaires during the Manual Check exercise, the training was conducted for Supervisors. The Supervisors worked as Master Trainers during the Census Enumeration. Editing guidelines are available in Appendix 10.

The editors also had the following reference materials:-

- Guidelines for Conducting Questionnaire Manual Check
- Enumerators Manual
- Summary Count Booklets

Supervisors and Editors were required to refer to the Summary Count Booklets in cases where their questionnaires from different SEAs were mixed up and when certain information was missing on the questionnaires. A total of 3,189,455 forms were edited. See Appendix 11 for number of questionnaires per Province.

For the movement of questionnaires between the Government Stores warehouse and the HQ, a control form called HQ05 was used. This form was used to record the Geographical Identification of the SEA Box, Number of questionnaires in the box and also indicated the checks that were made on questionnaires. The form also included the Name of editors and Supervisor etc. See Appendix 8 for HQ05 form.

Data Capture

Just like the manual editing, the scanning of questionnaires was done one province after another, i.e. questionnaires were sorted by Ward, Constituency, District and Province before being forwarded for scanning.

Movement of Questionnaires between Warehouse and Scan Site

When transferring the questionnaires from the warehouse for scanning, a consignment list of SEA Boxes for each batch of boxes from the master registration file was prepared to accompany the boxes. The consignment list showed the SEA code and the barcode of every box in the consignment. The same list was used to account for the boxes on return from Head office.

The warehouse team bundled boxes in stack of five for each consignment of 250 boxes, two (2) consignments of 250 boxes per consignment were sent for scanning daily. At scanning stage, a similar order was maintained therefore the questionnaires flow was not disturbed. After being scanned, the questionnaires were returned to the Government Shed for storage.

After editing questionnaires from each box, a form (HQ 05) indicating the number of questionnaires and geo-code (EA code) of the box and the details of the Editor, was placed in the box which was then checked by the Supervisor in order to verify the details submitted.

The boxes were then sent to CSO HQ for scanning, following the same sequence, accompanied by a hard copy of the list of all the EA boxes sent in each consignment. The boxes were bundled in fives following the barcode/geo-code sequence.

At the receiving bay, EA boxes from Government Stores were received and loaded on the unregistered boxes shelves as the consignment list was being checked against the boxes to ensure that all the boxes indicated on the consignment list had been received. The boxes were then registered onto the receiving system and batch headers with unique barcodes for each box were printed.

The system used for the data processing was fed with geo-codes of all areas enumerated prior to the registration process. In cases where registration failed due to EA not being present in the system, the Systems Managers verified the EA with the frame at Government Stores and if that EA existed, the EA was then added in the system and registration of the batch proceeded. In situations where an EA had more than one box, the subsequent box/boxes were given to the System Managers in order for it to be verified using the SEA box registration file and register. The system then combined it/them with the other box/boxes for the EA into one batch. After registration, the boxes were placed on the registered boxes shelves from which they were taken to the scanning room for scanning. When all the boxes in the Receiving bay were sent for scanning, the Systems Managers had to make a request for another consignment to be sent from Government Stores.

At HQ, boxes were received and registered at the Receiving bay then sent to the Scanning room as space became available. Submission to the Scanning room followed the same sequence used at registration.

Description of the Scanning Process

Scanning represents a much more timely process than keying. During the 1980 and 1990 Censuses, it took up to three years to capture information from the Census forms. Such a delay diminishes the value of the census data and reduces the returns of the large public investment made into the Census.

Scanning of the 2000 census questionnaires was done at the Examinations Council of Zambia (ECZ) in collaboration with CSO. The 2010 census questionnaire scanning was scheduled to begin in the month of January, 2011; around the period during which ECZ is usually busy with the processing of various examination answer sheets. Therefore, a decision was made to undertake the entire data processing sequence of activities, from scanning to tabulation, within CSO. The major reasons that led to the assumption of responsibility for scanning by CSO were capacity building in terms of human and infrastructure within CSO and the need to have a control of the entire process. CSO then engaged DRS, a United Kingdom (UK) firm to provide scanning services in terms of provision of scanners, scanning system, training of staff, and technical support for the scanning system application, as well as hardware support for the scanners. CSO procured all the data processing equipment required for the process except the six (6) scanners that were hired from DRS.

Scanning of census questionnaires is a delicate process which requires good handling and storage facilities to ensure a successful scanning operation. In addition to designing the census questionnaires and printing of these questionnaires, the following preparatory activities for the data capture were undertaken:

1. Development of scanning software applications
2. Setting up of the Local Area Network (LAN) and the server
3. Development of strict questionnaire distribution system
4. Transportation of Questionnaires between the Government Store and the scan site
5. Flow of questionnaires during scanning
6. Preparation of the scanning and key correction rooms
7. Procurement of computers and other data processing equipment

Training for Data Processing staff was conducted at CSO Headquarters from 21st to 29th March 2011. Categories of staff included Shift Managers, Network Managers, Receiving staff, Scanning Overseer, Scanning Supervisors, Key Operator Supervisors, Scanner Operators, Key Operators, Manual Entry staff, Hardware Support staff, Transcribing staff and Dispatch staff. The following is the distribution of staff involved in the data capturing process;

DESIGNATION	NUMBER OF STAFF
Shift Managers	4
Network Managers	2
Scanning overseer	1
Scan Supervisors	2
Key Operator Supervisors	14
Key Operators	100
Manual Data Entry staff	4
Hardware staff	2
Transcribers	6
Despatch staff	10
Total	145

All the staff listed above worked under the Supervision of the IT manager and the Systems Analyst. The scanning of questionnaires commenced on 30th March, 2011 and was completed in August, 2011.

Scanning Operational Details

Scanning activities were organised in two (2) six (6) hour shifts with a total of one hundred and forty Five (145) staff involved with five (5) working days. Seventy (72) staff worked in the morning shift from 08:00hrs to 14:00hrs with one (1) hour break while the other seventy (72) staff worked in the afternoon shift from 14:00hrs to 20:00hrs with a one (1) hour break. The Scanning Overseer overlapped the two shifts with working hours between 08:00hrs to 17:00hrs. Census questionnaires were stored at Government Stores warehouse and were transported to CSO HQs for processing based on the laid out flow procedures.

Intake and Registration

As the boxes of questionnaires arrived at the scanning centre they were registered into the system using information relating to each batch, Enumeration Area (EA) information, number of forms, etc. The registration process allowed the system to know when a batch had arrived and was tracked through the system. A batch header sheet was produced on the local PC from which registration was done and printed from a laser printer and this (accompanied) barcode was associated with the batch uniquely identifying it throughout the system. The batch header sheet assisted in the audit trail by having each operator sign it as it passes each stage of the process.

Scanning

Scanning was done using the scanning application, which started with a batch, identified by a header, and the questionnaires in that batch. During scanning, a check was done by the system against the registered data to ensure that the questionnaires being scanned were for the registered area and matched the registered information from the warehouse header. In the case that the system detected a mismatch, corrective action was taken by Shift Managers in collaboration with Government Stores Warehouse Manager.

The scanning room had three shelves; incoming, quarantined and outgoing. Registered boxes from the Receiving bay were loaded onto the incoming shelf for scanning. Scanner Operators were picking one box per scanner, from the incoming shelf, for scanning, after which the box was placed onto the outgoing shelf.

In cases where scanned questionnaires were not recognised, that is, unable to read the barcode, skew test failure, or some other problem; the unrecognised sheets were sorted out onto a different output scanner hopper and were rescanned. All scanned questionnaires had their images captured and stored on the main server.

Batch Verification

After scanning, each batch was verified before progressing further in the processing system. The number of questionnaires scanned was displayed on the screen along with details of the number of questionnaires registered per batch. The verification process assisted in quality control of the batches being processed as any differences in what was expected and what was actually processed could be seen and appropriate action taken in good time.

One of the most significant issues in large scale census processing relates to EA batches either being accidentally mixed or partly processed. The verification process incorporated within the scanning application helped remove and resolve such errors from the processing system.

Character Inspection

Unlike the 2000 census scanning system which only used Optical Mark Recognition (OMR), the 2010 census system incorporated both OMR and Image Character Recognition (ICR); the character inspection process was used to assess hand written characters before proceeding to the next processing stage. Characters that never met the specified level of confidence were passed

to key operators for inspection and corrections. The system provided three (3) classifications for character recognition, and the tolerances for each classification could be adjusted to optimise the recognition process.

The three classifications were:

1. Low confidence – Characters that fell below a predefined level of confidence within the software;
2. Doubtful – Characters that the software believed to have been correctly recognised but was unsure about;
3. High confidence – Characters that the software had high confidence were correct and fell above a predefined confidence level.

The system allowed for the confidence levels to be changed thus allowed flexibility in the system whilst keeping control of the throughput and quality of data.

Key Correction

The scanning process followed some validation rules. In this process, the image of the questionnaire was presented on screen for a key operator to view the data responses that had not passed the validation rules.

The operator could then select the intended data response or navigate through the parts of the form to validate and make amendments as necessary. The system allowed the operator to escalate the unresolved cases to the supervisor.

Exporting Scanned Data into CSPro

An export interface built within the scanning system was used to extract complete sets of data from the MS SQL database. This data was converted into a data file in the format that was agreed upon between DRS and CSO which was to be used as input into Census and Survey Processing System (CSPro). The exportation of data was done at the highest geographical level which is the provincial level.

Edit and Imputation

Raw data from any major data collection activity tends to contain a number of errors, some of these errors are generated by enumerators at data collection stage and some by respondents. Further, mistakes can be introduced in the data processing operation or during coding. It is therefore not possible to find a

perfect Census data set. Census data suffer from many sources of error that may be classified, generally, as coverage errors and content errors.

For the 2010 Census, Zambia had to adopt some approaches for dealing with data gaps and inconsistent responses in order to reduce or minimize these inherent gaps or inconsistencies in the data. Using CSpro, edit and imputation specifications were developed by programmers working together with the subject matter specialists to detect errors in and between data records, which could have been introduced during or after data collection and data capture, a process called editing. The main objectives of the 2010 census data editing were;

- To give users high-quality census data
- To identify types and sources of error and
- To provide adjusted census results that are meaningful and useful to stakeholders, including policy makers and planners

The U.S. Census Bureau, in cooperation with DfID provided considerable support and capacity building during the edits and imputation phase of data processing. These missions introduced CSPro, assisted with the development of edit and imputation specifications, operationalized the specifications into CSPro programs, and ended with more advanced CSPro applications. The edit and imputation assistance missions occurred between March and October 2011.

For more information on the details of the editing and imputation specifications for the 2010 Census, please refer to the 2010 Census Edit and Imputation Specification Report.

Challenges during Data Capture and Processing

Pertaining to Manual Edit

1. **Poor shading added work.** Most of the questionnaires were poorly shaded hence re-enforcement of pencil marks were made in order for them to be captured by the scanners.
2. **A mixture of Geographical Codes** - There were cases where different Geo Codes would be found in the SEA box. The action taken was to verify with the 2010 Census frame and Summary Count Booklets as well as Control Forms used for distribution of forms to field staff
3. **Dirty Questionnaires** - Poor handling of questionnaires by field staff during enumeration or storage contributed to poor state of the questionnaires. The information on the dirty questionnaires was transcribed onto new forms.

4. **Trimming Problems** - There were questionnaires that failed the length test during scanning because they had smaller margins than what was programmed in the scanning process and thus they were rejected by the scanners. However, all the information on the rejected questionnaires was transcribed onto new questionnaires. The province which was mostly affected was from Copperbelt Province.
5. **Questionnaire Visibility** - Some questionnaires were thinner than usual, therefore, marks and prints were visible on both sides and as such, the scanners could not capture the information on those questionnaires. This information was transcribed on new questionnaires. The Province that experienced this problem the most was Luapula.
6. **Partial forms** - During scanning, some questionnaires were detected to be missing one part, either part 1 or 2. This was caused by questionnaire barcodes not matching in cases where one part of the questionnaire was transcribed. The information for the questionnaires which were mostly affected were transcribed on new questionnaires.
7. **Repeating population for Institutional** - Some questionnaire had repeating institutional population. The action taken was to verify duplication of institutional population by retrieving affected SEA boxes from the shelves and checking on Institution Summary Count.

Pertaining to Scanning

1. In cases where the batch was found to have a problem, the batch was placed on the quarantined shelf for the attention of the Shift Managers. Common problems encountered included; batches with bad forms needing transcribing, wrong form count and mixed geo-codes.
2. Those boxes with forms that needed transcribing were taken to the transcribing station. The forms for which the faulty forms are transcribed had their barcodes erased and the digits of the original faulty form written for the Scan Operators to enter when rescanning in order for the system to record the barcode of the original faulty form. This was important especially if only one part of a form had been transcribed. The main aim of doing this was to enable the two parts of the questionnaires to be matched as one complete questionnaire.
3. **Incorrect Counts** - Boxes with a wrong count of forms from Government Stores were sent back to Government Stores for it to be corrected. A verification exercise was done at Government stores to correct the count.

4. Null Characters - After the data was scanned, the DRS system was initially zero filling all the parts which was indicating that there could have possibly be a response but was blank. That is, the system was not following the skip patterns of the questionnaires. This problem was identified at the initial Editing and Imputation specification workshop and after communication with DRS, the problem was resolved. The Provinces that had already been exported, that is, Central and Copperbelt provinces, had to be re- exported.
5. During manual editing, the Editors under the supervision of their Supervisors were instructed to transcribe all the questionnaires that came from the field with too much dirt or debris. From the experience of the Pilot Census data capture, these questionnaires could not be scanned properly. In the initial stages, some Editors who were supposed to transcribe questionnaires only transcribed the part of the questionnaire which had a problem and left the other part. This means that two parts with different barcodes were paired together. This created a problem from the scanning as these two parts could not be paired as one questionnaire because of the different barcodes. They became what was termed as Orphaned questionnaires (meaning only one part of the questionnaire was found). A full questionnaire was identified by the identical bar codes which were repeated on both parts of the questionnaire. After this problem was identified, the editing team were

instructed to make sure all the transcriptions were complete with both sides of the questionnaires transcribed. The Editing team was also came up with a mechanism of matching the orphaned questionnaires which were eventually transcribed onto complete questionnaires and were re-scanned.

6. At scanning stage, some Geo codes could not match with the geo codes that were in the system. These cases were verified with the Cartography section and corrections were made where necessary.

Recommendations for Data Capture and Processing

The contract with DRS was part of the successful completion of the 2010 Census. However, CSO was not able to consider alternatives to DRS because of time constrictions by the time the question of a scanning contractor became pressing. A Decennial Census unit within CSO would be able to more carefully consider the strengths and weaknesses of several contractors, beginning years before enumeration. The decision of a scanning contractor, or the selection of any contractor engaged by CSO, should be the result of careful consideration and planning. A Decennial Census unit would be able to provide the staff time necessary for such consideration.

Chapter 8: Analysis and Dissemination

Highlights

- CSO developed 13 comprehensive reports based on 2010 census data in three years after the census
-
- Competition for staff time from other surveys increases as time from the census elapses
-
- A dedicated census office would have the capacity to integrate the related processes of questionnaire design, tabulation planning, and the dissemination release schedule

Description

Without successful dissemination, the main purpose of a decennial census is defeated. Analysis and Dissemination begin once a clean data file is prepared. During this phase of the census, data collected in the field becomes information legible to policy makers, researchers, development organizations, and the general public. Development of a tabulation plan, creation of tables, and preparation of national and sub-national reports and special topic reports are all part of the successful dissemination of census data. Dissemination generally involves a staggered release schedule; preliminary population counts for the national and first level administrative areas released first, followed by definitive population counts, national and provincial level demographic data, sub-national demographic data, analytical and special topic reports, a census atlas, and a procedural history of the census. The dissemination schedule for the 2010 Census roughly followed this schedule.

Dissemination should include a series of release events to raise awareness about census results and to continue engagement with stakeholders. CSO held several such events as part of the 2010 dissemination program. The Summary Count results were disseminated at Mulungushi Conference Centre on the 12th February 2011. Results from the summary counts were presented at different levels i.e. at ward, constituency, district level, and the provincial and national level. Another event was held at the Inter Continental Hotel on 06 March 2013 for the release of the National Analytical Report and National Descriptive Tables Report. This event was attended by representatives from across the statistical and data users' community in Zambia and was covered in national broadcast and print media.

Dissemination is not only one of the main purposes of the census, but it is an opportunity to demonstrate to stakeholders and the general public the utility of the investment made in conducting and analyzing a census. For this reason, planning for dissemination should not be overlooked. CSO produced a similar suite of products for the 1990, 2000, and 2010 census.

The following is a list of products disseminated by CSO, connected to the 2010 Census, with the month and year of their dissemination:

Report	Includes	Date
Statistical Reports		
Preliminary Report	Population count, density, sex-break-down, and voter count by nation and province	11-Feb
Population Summary Report	Population count, density, national registration card holders, electoral data	12-Feb
National Analytical Report	National and provincial demographic information	13-Mar
National Descriptive Tables Report	Tabular data at national and provincial levels	13-Mar
Provincial Analytical Reports	Provincial and district level demographic information	13-Oct
Analytical Reports		
Report on Housing and Household Characteristics	Tabular data and exposition of data focusing on housing	13-Oct
Report on Migration and Urbanisation	Tabular data and exposition of data focusing on population movement and change	13-Oct
Report on Orphans and Fostered Children*	Tabular data and exposition of data focusing on orphanhood	13-Oct
Report on Agricultural Activity and Households	Tabular data and exposition of data based on agricultural section of 2010 Census	13-Oct
Special Topics		
National Population Projections Report, 2011-2035	Description and results of population projections based on 2010 Census data	13-Oct
Census Atlas	Provincial and district level maps based on demographic, housing, agricultural, and mortality data	13-Oct
Post Enumeration Survey	Description and results from the 2010 PES exercise	13-Oct
*New report for 2010.		

Tabulation

Tables form the foundation of census data dissemination. The first tabulation involved a team of analysts and data processors, who compiled the Summary Count Report at a workshop from the 2nd January 2011 to the 19th January 2011. Tables and charts based on those tables are the backbone of the statistical reports. A recommendation document (Zambia 2010 Census of Population and Housing Publication Plan DFID Census Advisor Deliverable #3, DfID Advisor 2011) published in December 2011 by the DfID technical advisor presented summary guidelines to CSO on the creation of a tabulation plan. These recommendations included criteria for selection of included breakdowns, table appearance, and legibility of the document. Experts from the U.S. Census Bureau, working with CSO in April 2012, drafted the 2010 Census Tabulation Plan. This plan was based on tables published from the 2000 Census, recommendations from both DfID and U.S. Census Bureau experts, and input from official and non-government stakeholders.

Creation of a tabulation plan should ideally begin before questionnaire content is developed. Questionnaires should be drafted based on the data/tables required by stakeholders and policy makers. Unfortunately, in the early stages of preparation, the questions receive a lot more attention than the tables. The content of the questionnaire provides the baseline for the tabular information available during dissemination. Decisions on tables that break down indicators by age or age-group and various cross-tabulations are made by CSO in conjunction with stakeholders. A substantial amount of staff time is required to produce a streamlined tabulation document. Due to severe shortage of professional subject matter specialists, the tabulation plan was not created or reviewed in a timely manner. Competing pressures on the time of staff at CSO had a negative impact on the amount of preparation dedicated to the tabulation plan.

Thus, the Census Planning Document did not include a list of desired tables, only noted that tables would be produced. The tabulation plan for the 2010 Census included detailed age and sex breakdowns for many demographic indicators and a considerable number of cross-tabulations. As such, the national tabulation plan reached nearly 400 pages. Each Provincial Level Analytical Report required 3 volumes because of the number of districts and due to the number of breakdowns (by geography, by age, by sex, by education, etc) and cross-tabulations included in the plan.

Analytical and Special Report Topics

Analytical and special reports provide more in-depth analysis or visualization, in the case of a census atlas, than the statistical reports. Some statistical organizations leave most analysis to data users, except for accuracy assessments, such as is conducted as part of a PES. CSO produced several subject-matter reports, in addition to the PES based on the 2010 Census. A recommendation document (“Plan for Analytical and Population Projection Report,” DfID Advisor 2012) published in January 2012 by the DfID technical advisor offered suggestions on issues and techniques pertaining to each type of demographic indicator (age, sex, mortality, fertility, etc.) The document also makes suggestions concerning the presentation and organization of data within an analytical report. Many of the methodological approaches suggested made in this document were incorporated into the analysis published in the Analytical and Special Topic Reports.

CSO hired interns and engaged with professors from the University of Zambia to supplement staff available for report writing. CSO used the support from the U.S. Census Bureau in order to perform the analysis suggested by the DfID advisor, as technical expertise was not always available at CSO to perform the recommended analysis. U.S. Census Bureau experts, with DfID and USAID support, delivered training on these techniques in addition to providing editorial support during report writing.

In 2000, three (3) staff from CSO traveled to the U.S. Census Bureau to collaborate on the production of analytical reports. This strategy was successful but reduced the capacity building opportunity for CSO staff. In 2010, these workshops were held during February and June 2012 and included permanent CSO staff, interns, and consultants from the University of Zambia. Many of the interns were permanently hired by CSO after the census. This greatly improved capacity during this phase of the census.

Relationship to Other Parts of the Census

In line with staff level limitations at CSO, the same subject matter experts who had worked with programmers during the edit and imputation phase of data processing wrote the national level statistical reports. It therefore did not present a problem when changes or updates to tables were required by subject matter experts. However, the overlap between the staff used for edits and report writing led to a delay in the overall release schedule.

The same staff also developed and wrote the analytical reports. As these reports were written nearly three years after enumeration, overlap with edits was no longer an issue. However, these analysts were needed for the DHS, Agricultural, and other surveys, as wrapping up reporting on the census became a sometimes secondary priority. Competition for staff time with these other important, labor-intensive surveys affected the release of dissemination products.

Modes of Dissemination

Paper dissemination of census data, though a common method of census data dissemination in the developing world, is not the only means. Use of ICT by CSO accelerated during the period from 2000 to 2010, after the 2000 Census when a website for the organization was established. Electronic methods of dissemination can reach a wider audience at a lower price, assuming that the concerned stakeholders have access technology.

The CSO website is challenged by overall internet connectivity in Zambia. However, CSO developed a Table Retrieval System for use on the website, using CSpPro with support from the U.S. Census Bureau. The TRS allows users to select tables included in the statistical reports, organized by geography and table title. User can then download these tables in a format of their choosing.

To mitigate the impact of website unavailability, CSO also intended at the time of writing to create and distribute CDs with electronic copies of the census tables and reports. CD distribution of dissemination materials is a lower-cost solution compared to additional printing runs of paper-bound material.

Challenges during Analysis and Dissemination

The sheer volume of data published represented a challenge to CSO due to the time required for programming. The lack of a written 2000 tabulation plan and the lack of resources to dedicate time to tabulation planning before enumeration contributed to the quantity of tables. Analyst went back to the tables produced for the 2000 census and worked backwards to create a tabulation plan. Thus, it had anything included in 2000, in addition to any questionnaire items newly added in 2010.

1. The lack of a 2000 tabulation plan required CSO to develop one for 2010 in a relatively haphazard manner.
2. The product list was created on an ad hoc basis as the utility and suitability of data was verified during data processing.

3. The tabulation plan was an afterthought, rather than an integrated part of pre-census planning. The questionnaire and product release schedule should be developed as part of the census plan.
4. Resource pressure due to dependence on cooperating partners compressed the time schedule usually allowed for the release of dissemination products.
5. A lack of staff time to review breakdowns and cross-tabulations proposed by stakeholders and data users. The tendency was to include tables rather than reviewing them for their utility and the presence of meaningful variation.

Recommendations for Analysis and Dissemination

The quantity of reports generated by CSO in the years between 2011 and 2013 is impressive. The pace of production, especially given that the same staff were involved on many of these reports, demonstrates the dedication of CSO and its staff to providing quality, timely statistics to the Zambian public, policy makers, the donor community, and other stakeholders. The following recommendations seek to reduce the burden on CSO and its staff during the dissemination phase, when resources for finishing census activities are becoming tenuous:

1. Establish a permanent Decennial Census unit. A Decennial Census unit could begin developing a tabulation plan in conjunction with a dissemination schedule as part of overall census planning. Ideally, the questionnaire should be based on the tabulation plan. Only a dedicated census staff at CSO would have time to engage in these best practices.
2. The loss of institutional memory contributed to the lack of organization relating to the tabulation and dissemination plans. A Decennial Census unit would help address this issue.
3. Conduct several focus groups with attendees drawn from the pre-census data users' conference. These meetings should be run as focus groups to determine which tables and reports proved most useful to stakeholders. The results of these focus groups would provide valuable input when developing the 2020 tabulation plan.
4. Reduce the number of tables based on careful planning and stakeholder feedback.
5. Develop the product release schedule before the census, considering that the same subject matter specialist may be tasked with aiding with edit specifications, writing the statistical reports, and writing analytical reports.

Chapter 9: Census Data Evaluation

Highlights

- The Post Enumeration Survey of the 2010 census data was completed in a timely manner and resulted in a second ever PES Report for Zambia after the one in 1990
- The Matching and Reconciliation process between the Census sample and the PES sample proved to be very time consuming and problematic
- If a PES is conducted after the 2020 Census, CSO should plan to conduct a Pilot PES and train their staff adequately before implementing one.

Description

Ideally, a census should be evaluated for accuracy and coverage, data content and quality, as well as census procedures and operations. However, in countries like Zambia with relatively limited resources it is a challenge to accomplish such a thorough evaluation. The CSO in their original proposal for the 2010 census drafted in 2007, planned to evaluate the quality of the 2010 census data, by doing a Post Enumeration Survey (PES). This was not the first time. Both in the 1990 and 2000 censuses, CSO had conducted a PES. However, there were no published report for 2000 of the analysis and evaluation. The 2010 census was the second to have a published report on the PES after the one published in 1990.

The specific objectives of the PES were to evaluate census results with respect to coverage and response quality of selected variables. In addition, the process helped to evaluate the quality of census enumeration areas which were used as area elements of frames during census enumeration and will be used in drawing samples for the inter-censal household surveys. In general, the objectives of the 2010 PES were to present census data to users with indications of the quality of coverage and levels of agreement of selected items, between the E-sample and the P-Sample. In this context, it provided an independent check on census coverage and response consistency on selected characteristics.

Specifically, the survey objectives included:

- Estimation of the extent of under-coverage or over-coverage of the population at national, provincial and rural and urban domains.
- Establishment of levels of agreement for responses related to sex, age, and relationship to household heads, marital status, age and type of housing unit.

- Identifying improvements needed with respect to future
- In addition, the PES results were to:
- Help in evaluating the quality of enumeration areas and as units in the sampling frames for inter-censal household surveys.
- Allow for an assessment of the effectiveness of the census design, implementation, procedures that would be necessary to improve the planning and implementation of future censuses.

The CSO received assistance from multiple agencies to accomplish the PES. UNFPA and DfID supported the costs of doing the PES and publishing it, AfDB sponsored Dr. Jeremiah Banda and US Census Bureau, through the sponsorship of USAID and DfID provided technical assistance in the form of several short term training sessions during the matching, reconciliation and analysis stage. After some initial problems, the PE survey instrument was designed in December 2010 and the survey was conducted in February 2010. The results of the PES were published in 2013.

This chapter details the conduct of the PES and analyzes the challenges encountered and details the recommendations for the 2020 Census.

Procedures and Preparatory Activities

The validity of the PES estimates is based on the assumption of independence between the census and the PES. Efforts were made to separate the two operations by forming a technical committee; the PES coordination team formed around mid December 2010, whose responsibility was entirely the PES. However, it is not possible to achieve complete independence in terms of human resource due to shortage of staff especially at the senior level. A few of the staff at this level had also participated in the Census at management level.

The PES coordination team had to undergo an orientation workshop for them to understand the importance of the PES. The team was also responsible for finalizing all the instruments, training and supervision of the whole PES process. There are many activities and tasks which were undertaken for the PES to be successful. Listed below are some of the activities:

- Development of the questionnaire
- Review and assembling of Enumeration Area maps
- Development of specification and selection of computer programmes for data capture

- Selection of sample and establishment of estimation procedures
- Production of tabulation and analysis plans
- Writing of field procedures including enumerators' and supervisors' manuals
- Development of matching procedures and matching guidelines
- Recruitment and training of enumerators and supervisors
- Publicity
- PES enumeration
- Training of matching clerks and supervisors
- Initial matching of PES records with those of the census
- Development of guidelines for field reconciliation which followed initial matching
- Training of enumerators and supervisors for field reconciliation
- Field reconciliation to determine final status of cases not matched during the initial match
- Final matching taking into account results from field reconciliation
- Development of specifications for weighting and selection of software for computing sampling errors
- Data processing: training data capture clerks; data capture and editing; and tabulation
- Estimation of coverage and content indices including sampling errors
- Writing of the PES technical report.

Sample Design and Implementation

A stratified cluster sample design was used for the PES. The survey involved the re-enumeration of households and persons in a national representative sample of enumeration areas (EAs) and a two-way matching between 2010 Census and PES questionnaires of the selected sample areas. The population covered excluded persons living in institutions and collective dwellings such as prisons, schools, hotels etc. It was assumed that such subgroup population represents a relatively small percentage of the overall population. In addition, including such subpopulations would have required a special methodology to collect requisite information.

Sample Size and Sample Allocation

The sample size for the 2010 PES was increased from 250 clusters selected in 2000 PES to 300 clusters with the view of improving the reliability of estimates. Adequate samples, depending on previous experience and resource constraints, were therefore, selected in each province and in the rural and urban strata. Sample allocation to the provinces was done using the square root method of optimal allocation. This method is a compromise between proportional and

equal allocation. It included requisite cases in domains that may otherwise have been allocated a relatively small sample due to their size. The estimates of sample allocations by province are displayed in the following table.

Estimates of Sample allocations by Province

Province	H/holds	Population	SQRT METHOD	PPS
Central	243,363	1,267,803	31	29
Copperbelt	384,035	1,958,623	39	45
Eastern	341,443	1,707,731	36	39
Luapula	204,749	958,976	28	22
Lusaka	456,957	2,198,996	42	51
Northern	369,415	1,759,600	36	40
NWestern	140,000	706,462	26	16
Southern	304,606	1,606,793	35	37
Western	191,022	881,524	27	20
Total	2,635,590	13,046,508	300	300

Note: 2010 Census of Population and Housing Preliminary Results used

*PPS means Probability (of selection) Proportional to Size

Training

In early January 2011, a two-week orientation workshop was conducted for Trainers and reviewers of the 2010 PES. This was a joint exercise mainly facilitated by the AfDB Consultant who also led the development and testing of instruments in a field practice. The workshop was held in the outskirts of Lusaka and was enhanced by the presence of four representatives of the Stats South Africa. Joint training of 300 enumerators and 100 supervisors was conducted in February 2011 in Lusaka. After strict selection of capable enumerators and supervisors at the end of training, field staff were posted to respective provinces where they were later deployed to individual work areas. Some provinces such as Southern Province deployed later than others, due to transport constraints.

Fieldwork

Field work was conducted between February and March 2011. A standard PES questionnaire was used for collection of information from the non-institutionalized population in the selected areas, and the exercise was undertaken by 300 enumerators and 100 supervisors.

Two trainers comprising statisticians from both the Province and Headquarters were assigned per province and these remained in the field to check on the quality of the enumerators' and supervisors' work during data collection. The supervisors also remained in the field with enumerators throughout the data collection phase. Every supervisor was assigned 3 enumerators to oversee.

Questionnaires were sent back to Lusaka and stored at Government Stores in readiness for the matching process. However, prior to matching, PES questionnaires were edited and codes checked to correct obvious discrepancies or omissions. For this purpose, PES questionnaires were systematically collected from Government Stores to CSO headquarters and later returned.

Matching

Matching is a stage that follows the PES first enumeration. It is an office procedure involving case-by-case comparison of Census records with those of the PES after data collection. This process involved pairing each PES questionnaire with a corresponding Census questionnaire. CSO undertook this operation manually at the Government Stores. Two main groups of people were engaged and trained for this purpose. Initially, 30 matching clerks and 96 supervisors were recruited for this exercise from within and outside CSO. This formed the first tier. The second tier consisted of a team of reviewers who mainly comprised the PES Survey managers and PES technical team. When the need arose to speed up the work so as to keep to the PES timeline, these numbers were increased so that the total number of matching clerks and supervisors came to 57.

Sorting Questionnaires

In preparation for the matching exercise, arrangements were made to have the Census questionnaires from the 300 Standard Enumeration Area selected for the before PES isolated so that they could be prioritized in editing and scanning. This was to avoid delays in the PES programme because editing and scanning of all census questionnaires was being done systematically province by province in an alphabetical order. Through collaboration with the Census Office and staff responsible for the systematic issuance and movement of Census questionnaires, corresponding Census questionnaires were availed for PES purposes. Care of Census questionnaires was observed and maintained by the PES Team.

The fact that the venue for most PES operations was the same as where the storage and editing processes of the Census questionnaires was taking place facilitated prompt consultations, between the census and the PES team, on any issues arising such as discrepancies in box numbers or mixing of questionnaires.

Training for Matching

A hands-on training approach was used. A matching manual prepared by the technical committee members was used. The experts from US Census Bureau made a recommendation to use a real case as an example which everyone was asked to work through so as to have a common understanding of the matching procedure.

Matching was done systematically province by province, in an alphabetical order beginning with Central Province through to Western Province. Manual editing proved to be very tedious, and required commitment and many man hours from all those involved. The presence of these two experts from the US Bureau was very useful at this stage as they provided valuable advice to enhance the match rates. They shared some of their experiences and also made recommendations for quality control measures.

The Matching Process

The steps in matching the results of the PES with the Census included:

- Identifying the SEA (or SEAs) to be searched,
- searching for the household(s) within the identified SEA (or SEAs),
- sorting of census questionnaire into households,
- pairing of the PES questionnaires with the corresponding census questionnaires,
- and matching of individual characteristics for listed individuals in the PES with individuals listed in the Census.

Identification of EAs to be Searched

The PES sample was passed on to the Census team for them to retrieve the corresponding Census EAs in readiness for the matching exercise. This was done prior to commencement of the matching exercise. These census questionnaire boxes were isolated and kept side by side with the corresponding PES questionnaire boxes at government stores. Retrieval of census questionnaires for PES matching was supervised by management of Census Questionnaire Editing team at the warehouse.

Pairing of Questionnaires

Census questionnaires were split into two before scanning. After scanning, the questionnaires were not put back in the box as pairs. Therefore, time was taken to sort out census questionnaires into households i.e. finding the corresponding half (pair) of each questionnaire. This took about three hours if only one person was sorting one box.

Pairing meant finding a corresponding PES questionnaire for each census questionnaire. The pairing process resulted in two situations namely: (a) Paired households, and (b) Households not paired.

Households not paired were grouped in two, namely:

- (i) PES questionnaires not having corresponding census questionnaires, and
- (ii) census questionnaires not having corresponding PES questionnaires.

A search in adjacent EAs was conducted for all PES Questionnaires not having corresponding census questionnaires. Information from census questionnaires that did not have corresponding PES questionnaires was transcribed onto blank PES questionnaires (Field Re-visit section). These questionnaires with transcribed census information were taken back to the field to confirm whether they were correctly enumerated or not.

Matching of Household Details

This process involved matching of selected questionnaire information on PES questionnaire with census information, particularly type of housing unit and personal characteristics of household members. Only paired questionnaires were subjected to the matching process. Matching of personal characteristics was done in two stages. The first stage applied stringent rules i.e. all characteristics were to match exactly with some relaxation on age and minor spellings on names. The second stage applied relaxed rules which allowed contradictions on some characteristics except for sex. All cases (either the whole household or individuals) with doubtful match status were subjected to a field revisit for verification.

Field Reconciliation

Field reconciliations or field-revisits are follow-up visits conducted in the field in Post Enumeration Survey (PES) sample areas, following the initial matching phase. The aim of field re-visits is to reconcile the PES and Census populations which could not be reconciled in the office during the matching phase. They involve only possible- matched persons and households. Field-revisits permit the identification of erroneous Census enumerations and resolution of doubtful cases, in order to achieve a definitive match.

When the household records in the PES and the Census are compared, some people will be found in the Census but not in the PES. If the respondent gave the same responses in the Census and PES then the records match.

Training

For consistency, a manual was developed to guide the training of enumerators and supervisors for field revisits. A two-days training was conducted centrally at Government Stores in Lusaka for residents of Lusaka and at CSO regional offices for enumerators and supervisors recruited in the provinces. Training in Lusaka took place on 1st - 2nd September 2011. Eastern, Luapula, Western, Northern and North Western teams left for field work on 4th September while the rest were delayed by two days owing to delayed payment of field allowances to would- be field workers. Generally, fieldwork went on smoothly, except for some areas that were not covered due logistical problems. Fieldwork was delayed or temporarily suspended owing to sporadic disbursement of funds for use in purchasing fuel to facilitate transportation of field workers. The last team to come out from the field was from the Copperbelt team which finished its work on 5th October, 2011.

Final Matching

Final matching began for some provinces on 28th September 2011. This was carried out after field revisits when completed questionnaires from some provinces were received. Final Matching was started while data collection was still going on in some provinces. Both the matching and data collection teams had to break for at least five days because of the tripartite elections. Final matching was completed on 12 October 2011.

Data Entry

Data entry was undertaken at CSO headquarters after from the matching process and continued to be undertaken concurrently with the remaining matching and final reconciliation phases. As discussed earlier, the matching process set aside matched questionnaires and marked them ready for data entry. The unmatched cases were set aside for field revisits, and later passed on all cases for data entry having now established and confirmed their status.

Data entry took approximately eight weeks during the period between August and October 2011.

Estimation and Report Writing

The dual system of estimation was adopted. The implicit adoption of this methodology is the assumption of independence between the Census and the PES. In this connection, while complete independence was an ideal situation, the CSO maintained operational independence between the two activities. The assistance of experts and consultants was extremely important at this stage.

Documentation

The PES is a complex undertaking with many decisions made during the various processes. The PES team documented all the decisions that were made, for instance, in order to resolve the difficult matching situations; important aspects that assisted in the field re-visit training and the actual field work. All instructions given to the matching clerks and supervisors, including Reviewers' guidelines have also been documented for uniformity's sake in resolving issues and for future reference. Documentation by the technical team was supported by the resident AfDB PES Technical Advisor as well by the US Census Bureau experts.

Review of the Planning for PES

The PES timeline was developed to run over a period of ten months from January to October 2011. In general, the PES was conducted very close to the target of producing the final report within the year, notwithstanding some challenges.

Resource Requirement

As planned from the onset, the PES budget formed part of the main Census budget. However, during the course of the main Census, the importance of the PES waned and its budget was subjected to a lot of downward adjustments to

meet the census budget constraints. Like the main census, the PES is supposed to follow stages that will lead to a seamless evaluation undertaking. In general, the PES budget included the following components:

i) Human resources

- Professional and technical staff (allowances): Coordinator, deputy coordinator, and other members of the technical team.
- Field Staff: PES enumerators; supervisors; drivers; field reconciliation enumerators; field reconciliation supervisors;
- Office staff: Matching clerks; Matching Supervisors; Reviewers; Data capture operators; Data capture supervisor(s).

ii) Materials and supplies

- Field supplies
- Office supplies

iii) Printing

- Questionnaires
- Manuals
- Control forms
- Reports

The supporting institutions to this budget were GRZ and the UN system through the United Nations Population Fund (UNFPA). Technical assistance was provided by the AfDB and US Census Bureau for the whole duration and at various stages, respectively.

Challenges for Census Data Evaluation

While the PES was done in 1990, 2000 and 2010, this is the second time that CSO has published the results of the PES after 1990. However, several problems were encountered that would have been impossible to resolve without the help of outside experts. While stages of preparation and fieldwork were relatively manageable for CSO with the current levels of skills among the staff, matching, reconciliation and analysis required expertise that CSO staff do not have in house.

In fact, in their assessment in 2009, US Census Bureau experts in light of their experience in such countries had recommended that the Census 2010 data be evaluated for coverage and content using other methods like demographic analysis instead of PES. It is much less resource intensive in terms of time, staffing and funding, as well as possible in countries like Zambia where there are some good alternate sources of data – such as the DHS, the Living Conditions Monitoring Survey.

Among the major challenges encountered–

- Lack of coordination between the Census planning operations and PES operations
- Lack of time and resources to plan and execute a pilot PES
- Lack of staff with the requisite levels of skills and experience
- Lack of time to train staff for sophisticated statistical analysis
- Competing for resources with the main Census
- Relying on a manual matching process over an electronic matching one took much more time and resources than it would have otherwise.

Recommendations for Census Data Evaluation

There are a number of lessons to be learnt from the 2010 PES undertaking. The following section therefore provided some recommendations to aid the next PES undertaking.

1. Planning for a data evaluation should carefully consider all the alternative ways of evaluating data
2. There should be coordination between Census and PES planning and instruments so that while independent in implementation, there is an easier way to match and reconcile the data. As noted above the splitting of the census questionnaire pages for scanning made it difficult in many cases to find the correct questionnaires. Despite the existence of scanned images of the census questionnaires, the system did not allow for an easy way to search through the files.

3. Adequate resources should be set aside for PES in the Census budget.
4. A pilot PES should be carried out subsequent to Pilot Census.
5. Results of the pilot PES should be used to refine and finalise the PES instruments. Furthermore, lessons from the pilot should be used to plan well for logistics and needs of various PES phases.
6. Listing of households in selected EAs prior to enumeration is important to facilitate initial matching and EA boundary inspection.
7. Computer assisted matching should be adopted and tested for future PESs.
8. Some of these challenges could have been anticipated and addressed if there had been a Decennial Census Unit at CSO that took charge of the need to evaluate the census data not only for content and coverage error measurement, but also to evaluate data quality and operations.
- 9.

There is hesitation in some quarters and countries to carry out Post Enumeration Surveys. Many countries in Africa are, however, recognizing the importance of census evaluation. For reasons advanced earlier, the most feasible method of evaluating censuses, in most African countries, is through post enumeration surveys. This is partly because of the paucity of comprehensive and reliable demographic data from administrative records in many African countries.

While it is recognized that a Post Enumeration Survey is a complex undertaking, especially with respect to matching, it can be argued that with careful planning, implementation, and provision of adequate resources such a survey is feasible in a number of African countries. It cannot, however, be overemphasized that a good sample design coupled with the selection of qualified enumerators and supervisors, and their intensive training would go a long way in ensuring the conduct of a successful Post Enumeration Surveys.

Chapter 10: Conclusion

It is indeed remarkable that the 2010 Census was successfully conducted and a large number of reports and products were made available to the public in a relatively timely fashion, given the late start. This could not have been accomplished without the dedication and hard work of the staff members of CSO, the staff of various Ministries of GRZ and the generous support from the Cooperating Partners. The hard work of the various Census Committees at both the center and the regions and the cooperation of the District Commissioners made a significant difference to the implementation of the census.

For the first time in Zambia, mapping was done using digitization and a large number of tabular and analytical reports have been disseminated to the public. In addition, this is the first time that CSO has released a Public Use Microdata Sample (PUMS) File.

This Administrative Report has detailed the various operations that made the 2010 Census a success, but also critically analyzes the various challenges encountered. A common theme running through all the chapters is that the time for planning and execution was limited and dedicated staff was in short supply. Managers were burdened with competing priorities and deliverables from other Surveys. In addition, the Census Manager was changed several times during the process due to the “perceived” temporary nature of the exercise.

In light of this, the most significant recommendation for a better planned, managed and executed Census is that CSO should establish a small but dedicated Decennial Census Unit with a small number of experienced but permanent staff. Inter-censal years are not blank years for census activity. They should be years when CSO should be archiving materials, responding and engaging with the data user communities and government agencies, researching and testing questions, monitoring census data use, being innovative, advocating and planning for an early start of the next census. In addition, the overwhelming support that the CSO receives during the Census is unique and the capacity built every decennial is invaluable. Without a Decennial Unit to harness this capacity, channel the lessons learned, undertake forward thinking planning, research and execution, the capacity built fades away as staff are sent back to their units and assume their regular responsibilities. Institutional memory is lost. The next Census is again temporarily staffed and relies on past documents and practices, since there is little time for innovative thinking and planning.

In conclusion, CSO is grateful for all the cooperation it received to make Census 2010 more successful, and in ensuring the timely release of a range of reports and data products to the public.

Appendix 1: Composition and Terms of Reference for 2010 Census Committees

No.	Name of Census Committee	Census Responsibility	Composition	Terms of Reference
1	Committee of Cabinet Ministers	<p>1. It is the highest census committee in terms of Hierarchy</p> <p>2. To ensure that all the Census Operations move smoothly and according to plan and that all Census issues have the full attention of the President at all phases.</p> <p>3. They brief or report to the President on the progress of the Census process.</p>	<p>Minister of Finance and National Planning – Chairperson</p> <p>Members to be nominated by the President from Ministries closely associated with the census undertaking which include the following;</p> <ol style="list-style-type: none"> 1. Ministry of Finance and National Planning 2. Ministry of Local Government and Housing 3. Ministry of Education 4. Ministry of Health 5. Ministry of Gender 6. Ministry of Works and Supply 7. Ministry of Labour and Social Security 8. Ministry of Community Development and Social Services 9. Ministry of Science, Technology and Vocational Training 10. Ministry of Energy and Water Development 11. Ministry of Information and Broadcasting Services 12. Ministry of Justice 13. Ministry of Defense 14. Ministry of Home Affairs 15. Ministry of Lands 16. Ministry of Agriculture and Cooperatives 17. Ministry of Livestock and Fisheries 18. Ministry of Youth, Sport and Child Development 	<ol style="list-style-type: none"> 1. To be the overall overseer of the Census undertaking 2. To facilitate the administrative and Financial requirements for the proper conduct of the Census 3. To perform any other functions deemed fit by the President
2.	National Census Committee	The National Census Committee is the overseer of the Census activities. The Committee shall ensure that the aims and objectives of the Census are well implemented.	<p>The Secretary to Cabinet-Chairperson</p> <p>Deputy Secretaries to the Cabinet</p> <p>Secretary to the Treasury</p> <p>All Permanent Secretaries of Line Ministries and Provinces</p> <p>Director- Central Statistical Office- Secretary</p>	<ol style="list-style-type: none"> 1. To review and endorse the aims and objectives of the Census and the Census implementation plan; 2. To report to Cabinet on progress of the Census and make proposals for appropriate interventions to be undertaken; 3. To provide financial, logistical, administrative and human resources required for the Census 2010 undertaking 4. To perform any other functions deemed fit by the Committee of Cabinet ministers

No.	Name of Census Committee	Census Responsibility	Composition	Terms of Reference
3	The Census Secretariat or Census Office	The Census Secretariat shall be the Central or core Census Office.	<p>The Director – Central Statistical Office (Chairperson)</p> <p>The Deputy Director – Social Statistics (Vice Chairperson)</p> <p>All Other Deputy Directors at Central Statistical Office</p> <p>The Census Manager (Secretary)</p> <p>The Deputy Census Manager (Vice Secretary)</p> <p>Two Assistant Census Managers</p> <p>All Heads of Branches at Central Statistical Office</p> <p>Demography branch staff- CSO</p> <p>Field Coordinator</p> <p>Administration Branch of the Central Statistical Office</p> <p>Principal Monitoring and Evaluation Officer, Ministry of Health</p> <p>Principal Monitoring and Evaluation Officer, Ministry of Education</p>	<ol style="list-style-type: none"> 1. To prepare the Census Methodology 2. To document systematically all Census materials 3. To implement the recommendations of all the Census Committees 4. To be the Central Office of execution and coordination of all stages of the census undertaking.
4.	The Census Steering Committee	The Census Steering Committee shall be responsible for providing guidance to the Technical Committees	<p>The Director, Central Statistical Office (Chairperson);</p> <p>All Directors in the various Departments of Ministries</p> <p>The Director, Electoral Commission</p> <p>Director, Office of the President, Special Division;</p> <p>NGO Co-ordinating Committee Representative</p> <p>The Director of Zambia Information Services</p> <p>The Executive Secretary, National Economic Advisory Council</p> <p>The Director General, Citizens Economic Empowerment Commission</p> <p>The Chief Policy Analysts, PAC, Cabinet Office</p> <p>The Director of the Population Council</p> <p>Representative –United Nations Population Fund</p> <p>All Deputy Directors, Central Statistical Office</p> <p>The Census Manager, Central Statistical Office (Secretary)</p> <p>The Deputy Census Manager, Central Statistical Office</p> <p>Assistant Census Managers</p>	<ol style="list-style-type: none"> 1. To monitor the operations of the Technical Committees; 2. To review strategies for the proper execution of the year 2010 Census; 3. To scrutinise and endorse all the Census instruments. 4. To perform any other functions deemed fit by the National Census Committee.
5	Provincial Census Committees	The Provincial Census Committee shall advise and assist the Census Office on the Planning and implementation of the Census activities as well as support the execution of the Census in the respective provinces. The Committee shall be responsible to the National Census Committee.	<p>Provincial Permanent Secretaries (Chairpersons);</p> <p>Regional Statisticians, Central Statistical Office (Secretaries);</p> <p>Provincial Heads of Government Departments/Parastatals</p> <p>Provincial Planning Officers</p> <p>Provincial Chief Planners (MoFNP)</p> <p>Provincial Chief Planners (MLGH)</p> <p>All District Commissioners in each province</p> <p>Traditional Leaders Representatives (one for each province);</p> <p>NGOs Representatives (2);</p> <p>Private sector Representatives (2)</p>	<ol style="list-style-type: none"> 1. To ensure proper implementation strategies for the proper execution of field Census activities; 2. To mobilise logistical support for the 2010 Census; 3. To ensure the implementation of the recommendations of the technical sub committees at provincial level; 4. To promote dissemination and utilisation of data/information from the 2010 Census of Population and Housing; 5. To perform any other functions deemed fit by the National Census Committee.

No.	Name of Census Committee	Census Responsibility	Composition	Terms of Reference
6	District Census Committees	The District Census Committees shall advise and assist the Provincial Census Committees on the planning and implementation of the Census activities as well as support the execution of the Census in the field at the district level. The Census Committees shall be responsible to the Provincial Census Committees.	District Commissioners (Chairpersons); District Planning Officers (secretaries); District Heads of Government Departments/Parastatals Traditional Leaders Representatives (one for each district); and NGOs Representatives (2) Private sector Representatives (2)	1. To ensure proper implementation strategies of the Census 2010. 2. To mobilise logistical support for the 2010 Census; 3. To ensure the implementation of the recommendations of the technical sub committees at District level; 4. To promote dissemination and utilisation of data/information from the 2010 Census of Population and Housing; 5. To perform any other functions deemed fit by the Provincial Census Committee
7	Census Planning and Methodology Technical Committee		Coordinator, Demography Division University of Zambia (Chairperson) The Director, Central Statistical Office The Deputy Directors, Central Statistical Office The Census Manager, (Secretary); The Deputy Census Manager The Assistant Census Managers, Central Statistical Office Administrative Officer Ministry of Education Ministry of Finance and National Planning -(Representatives from M&E unit and Population unit Ministry of Health Ministry of Community Development and Social welfare. Ministry of Labour and Social Security Ministry of Agriculture PAC, Cabinet Office The Representative, Electoral Commission; The Representative Ministry of Local Government and Housing; The Representative, Ministry of Home Affairs; The Representative, Department of Immigration; The Registrar-General, Department of National Registration; All branch heads, CSO Demography unit staff - CSO Chief policy analysts, Cabinet Office Representative- UNFPA Representative from International Organisation for Migration (IOM)	1. To consider and approve proposals on the conduct of the census 2. To review and finalise proposals on the conduct of the census. 3. To advise on the scope, coverage and methodology of the Census; 4. To collaborate with other Technical Committees on various Census matters; 5. To periodically provide reports to the Census Steering Committee on methodological matters for their consideration and endorsement. 6. To perform any other functions deemed fit by the Census Steering Committee.

No.	Name of Census Committee	Census Responsibility	Composition	Terms of Reference
8	Cartography Technical Committee		<p>The Surveyor General (Chairperson); Geography Information Officer (GIO) – CSO (Secretary) Director -CSO The Electoral Commission Representative All Deputy Directors , Central Statistical Office The Census Manager, Central Statistical Office; Deputy Census manager CSO The Assistant Census Managers, Central Statistical Office; Cartography unit staff All branch heads-CSO The Ministry of Local Government and Housing Representative; The Surveys Department Representative; Town and Country Planning Representative; The Institute of Industrial Science (Cartography Section) Representative; Lusaka City Council Representative; and The University of Zambia, Geography and Survey departments , Ministry of Education Ministry of Mines-(Geological Survey Department) Zambia Association for Geographical Information System (ZAGIS)</p>	<ol style="list-style-type: none"> 1. To consider and approve proposals on the Cartographic Mapping activities; 2. To review guidelines and procedures for the Cartographic Mapping Exercise; 3. To collaborate with other Technical Committees on various cartographic and map development matters. 4. To periodically provide cartography progress reports to the Census Steering Committee for consideration and endorsement; and 5. To perform any other functions deemed fit by the Census Steering Committee.
9	Data Processing Technical Committee		<p>The Manager – Centralized Computer Services Department, MoFNP (Chairperson); Director-CSO IT manager, CSO (Secretary); All Deputy Directors, Central Statistical Office The Census Manager, Central Statistical Office; Deputy Census Manager - CSO The Assistant Census Managers, Central Statistical Office; All branch heads-CSO The Electoral Commission Computer Section Representative; The Examination Council of Zambia Computer Section Representative; The Deputy Director, Computer Section, Ministry of Home Affairs; The Data processing Unit Staff.</p>	<ol style="list-style-type: none"> 1. To consider and approve proposals on the census data processing activities; 2. To provide the most appropriate, effective and efficient methodology to use in data processing of the Census Data; 3. To collaborate with other Technical Committees on various Census matters; 4. To periodically provide reports on data processing to the Census Steering Committee for consideration and endorsement; and 5. To perform any other functions as directed by the Census Steering Committee.

No.	Name of Census Committee	Census Responsibility	Composition	Terms of Reference
10	Census Publicity and Awareness Technical Committee		<p>The Director, Zambia News and Information Services-Chairperson Director CSO All Deputy Directors The Census Manager, Central Statistical Office; (Secretary) Deputy Census Manager The Assistant Census Managers, Central Statistical Office; All branch heads-CSO The Director-General, ZNBC; MUVI Television The Director, Electoral Commission; The Ministry of Information and Broadcasting Services Representative; The Ministry of Local Government and Housing Representative; The Director, ZAMCOM; Desktop publishing Unit, CSO Public Relations Unit-CSO Protocol officer, CSO The Public Relations Officer, MOFNP; Representative -Times of Zambia Representative-The Post Representative-Zambia Daily Mail Representative from MISA Zambia Demography unit staff-CSO Non-Governmental Organisation Co-ordinating Committee Representative; and Ministry of Community Development and Social Services-Department of culture services The Director, National Registration Department.</p>	<p>1. To consider and approve proposals on the Census Publicity and Awareness Campaign activities; 2. To provide Census Publicity and Awareness strategies for use in the census; 3. To collaborate with other Technical Committees on various Census matters; 4. To report to the Census Steering Committee on matters of publicity and Public Awareness. 5. To participate in the preparation of dissemination materials for the 2010 census of population and housing; 6. To participate in the dissemination of the 2010 Census of Population and housing 7. To perform any other functions deemed fit by the Census Steering Committee.</p>

No.	Name of Census Committee	Census Responsibility	Composition	Terms of Reference
	Logistics and Security Technical Committee		<p>Director HRA MoFNP (Chairperson); Assistant Director HRA- MoFNP Ministry of Home Affairs representative The Director, Central Statistical Office; All Deputy Directors, Central Statistical Office; The Census Manager, Central Statistical Office;(Secretary) Deputy Census Manager The Assistant Census Managers, Central Statistical Office; All branch heads-CSO The Field Coordinator, Central Statistical Office; PAC, Cabinet Office Representative; Electoral Commission representative; The Ministry of Local Government and Housing Representative; Department of Immigration representative; Department of National Registration representative; Office of the President, Special Division Representative; The Ministry of Defence Representative; The Chief Security Officer, Central Statistical Office; Demographer branch staff, CSO; Administration Branch staff-CSO The Director of Planning, Ministry of Works and Supply; The Controller of Government Transport; The Zambia Police Service Representative. Ministry of Home Affairs, representative Transport Officer, CSO Head, procurement, Ministry of Finance Deputy Head Procurement-MoFNP Zambia Public Procurements Authority representative Representative-Anti-Corruption Commission Representative-Ministry of Transport and Communication-Marine Department Senior Internal Auditor-CSO Principal accountant, CSO Accountant (Recurrent), CSO Accountant (Salaries), CSO Director HRA, Ministry of Education,</p>	<p>1. To consider and approve proposals on security and logistical arrangements; 2. To provide strategies on census security and logistical matters; 3. To collaborate with other Technical Committees on various Census matters; 4. To periodically provide reports on logistics and security to the Census Steering Committee for consideration and endorsement; and 5. To perform any other functions deemed fit by the Census Steering Committee.</p>

No.	Name of Census Committee	Census Responsibility	Composition	Terms of Reference
12	Census Analysis and Technical Committee		<p>Coordinator of Demography Unit-University of Zambia-Chairperson</p> <p>Assistant Coordinator of University of Zambia Demography Unit</p> <p>Two Lecturers University of Zambia – Department of Demography</p> <p>The Director, Central Statistical Office</p> <p>All Deputy Directors- CSO</p> <p>Statisticians and Demographers from CSO;</p> <p>Chief Planners from all Line Ministries and government departments</p> <p>Representative- UNFPA</p> <p>Ministry of Finance and National Planning -(Representatives from M&E unit and Population unit)</p>	<p>1.To conduct the analysis of the 2010 census of population and housing in line with national and international standards and guidelines</p> <p>2. To participate in the writing of the various analytical reports, abstracts, summaries, monographs and thematic publications from the 2010 census of population and housing;</p> <p>3. To participate in the preparation of dissemination materials for the 2010 census of population and housing;</p> <p>4. To participate in the dissemination of the 2010 census of population and housing and</p> <p>5. To perform any other functions deemed fit by the Census Steering Committee.</p>

APPENDIX 2: Questionnaire Summary

General Characteristics

1. Questionnaire Identification:

- Province Code
- District Code
- Constituency Code
- Ward Code
- Region (Rural/Urban)
- CSA Number
- SEA Number
- Census Building Number (CBN)
- Housing Unit Number (HUN)
- Household Number (HHN)

2. Area Identification:

- Village/Locality Name
 - Residential Address
 - Chief's Area Code
- ### 5. Interview Status
- Completed (Occupied)
 - Non-Contact (Occupied)
 - Not Interviewed (Vacant)
 - Non-Residential
 - Refused
 - Other

Personal Information

1. General Characteristics:

- P1 Full Name
- P2 Membership Status
- P3 Relationship to Head to Household
- P4 Sex
- P5 Age
- P6 Birthplace
- P7 Place of birth Rural or Urban
- P8 Citizenship
- P9 Country code for non Zambian
- P10 Purpose of Stay
- P11 Religion

- P12 Ethnicity
- P13 Predominant Language
- P14 Residence a year ago
- P15 Length of stay
- P16 Disability status
- P17 Type of Disability
- P18 Cause of Disability
- P19 Albino status

6. For Person less than 18 years old :

- P20 Biological Mother alive
- P21 Biological Mother live in household
- P22 Biological Father alive
- P23 Biological Father live in household
- P24 Possession of Birth Certificate

7. For Person Five years and older - Education:

- P25 Read and Write
- P26 Ever attended school
- P27 Currently attending school
- P28 Highest Level of Education completed
- P29 Highest Professional/ Vocational Education Completed
- P30 Field of study for the highest professional qualification completed

8. For Persons 12 Years and Older:

- P31 What did a person do in the last 7 days?
- P32 What did a person do in the last 12 months?
- P33 Employment Status
- P34 Occupation
- P35 Industry
- P36 Marital Status
- P37 Age at first Marriage

9. For Females 12 Years and Older - Fertility (Own Children Ever Born Alive):

- P38 Live Birth (Ever had a Live Birth)
- Of the Children Born to you Alive; how many are:
 - P39 Still Living with the household (Male and Female)?
 - P40 Living elsewhere (Male and Female)?
 - P41 Dead (Male and Female)?

10. For Females 12 to 49 Years - Fertility (Own Children Born Alive in last 12 months):

- P42 Live Birth (Live Births in the last 12 Months)
- Of the Children Born to you alive; how many are
- P43 Still living with the household (Male and Female)?
- P44 Living elsewhere (Male and Female)?
- P45 Dead (Male and Female)?

11. For Persons 16 Years and Older - National Registration and Electoral Information:

- P46 Do you have a Zambian Green National Registration Card?
- P47 Are you a Registered Voter?

12. Summary Count:

Usual Members Present

- Male
- Female
- Total

Usual Members Absent

- Male
- Female
- Total

Visitors

- Male
- Female
- Total

13. Assignment Record:

- Enumerator Name
- Data Completed
- Supervisor Name
- Date Checked

14. Mark for Continuation Sheet:

15. Housing Characteristics:

- H1 Type of Housing unit
- H2 Type of Roofing Materials
- H3 Type of Materials of Walls
- H4 Type of Materials of Floor
- H5 Occupancy

- H6 (If Shared) What is the Number of Households?
- H7 Main source of water supply used for
- Household use
- Drinking
- H8 Number of Living Rooms and Bedrooms
- H9 Number of persons who sleep in the housing unit
- H10 Does this Housing Unit have a Kitchen?

16. Household Characteristics

- HH-1 Main source of energy used for
- Lighting
- Cooking
- Heating
- HH-2 Does the household Have...? (Listed assets)
- HH-3 How is the Household Refuse disposed?
- HH-4 The main type of toilet used by members of this household.
- HH-5 Is this toilet inside or outside this housing unit?
- HH-6 Is this toilet exclusively used by members of the household?
- HH-7 Is this housing unit owned by any member of this household?
- HH-8 How was this housing unit acquired?
- HH-9 Is this housing provided free by the employer, friends or relative of any member of this household?
- HH-10 Is this housing unit rented from the Employer of any member of this household?
- HH-11 Is this Employer.....?
- HH-12 Is this housing unit rented from.....?

17. Agriculture:

- A1 Has your household engaged directly in any of the following agricultural activities that is, Crop growing, livestock and poultry raising, fish farming and Game ranching since 1st October, 2009?
- A2 On your holding, which of the following crops did you grow since 1st October, 2009?
- A3 On your holding, which of the following livestock/poultry did you raise since 1st October, 2009?
- A4 Has your agricultural holding included Fish farming since 1st October, 2009?

- A4 Has your agricultural holding included Game Ranching since 1st October, 2009?

18. General Mortality:

- M1 Is there any member of the Household who died since October 2009?
- M2 Sex of the Deceased
- M3 Age of the Deceased
- M4 Cause of Death

19. Maternal Mortality:

- M5 Did the death occur while pregnant?
- M6 Did the death occur during childbirth?
- M7 Did the death occur during the 6 week period following the end of the pregnancy, irrespective of the way the pregnancy ended?

APPENDIX 3: Selected areas for the 2010 Pilot Census

Central Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Mumbwa	Shimbizhi	13	rural	2	4	mapped
2	Chibombo	Mashikili	10	rural	2	3	mapped
3	Chibombo	Chikobo	7	rural	3	4	mapped
4	Kabwe	Njanji	7	Urban	1	3	unmapped
	Total Areas					14	
Copperbelt Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Mpongwe	Ibenga	2	rural	1	3	mapped
2	Mpongwe	Ibenga	2	rural	2	3	mapped
3	Luanshya	Buntungwa	2	urban	4	4	unmapped
4	Ndola	Kafubu	7	urban	2	4	unmapped
	Total Areas					14	
Eastern Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Chadiza	Kandabwako	9	rural	1	3	mapped
2	Chadiza	Mbozi	15	rural	2	4	mapped
3	Chadiza	Navuruli	2	rural	1	3	mapped
4	Petauke	Kapoche	1	rural	4	4	unmapped
	Total Areas					14	
Luapula Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Samfya	Kapata	7	Rural	6	4	mapped
2	Samfya	Katanshya	12	Rural	5	4	mapped
3	Samfya	Isamba	13	Rural	3	3	mapped
4	Mansa	Luapula	15	Rural	9	3	unmapped
	Total Areas					14	

Lusaka Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Lusaka	Munali	2	Urban	8	4	Unmapped imagery
2	Lusaka	Silizya	10	Urban	1	4	Unmapped imagery
3	Lusaka	Libala	27	Urban	3	3	Unmapped imagery
4	Lusaka	Chakunkula	5	Urban	2	3	Unmapped imagery
5	Kafue	Nyemba	13	Rural	4	4	mapped
6	Chongwe	Chongwe	9	Rural	1	4	mapped
	Total Areas					22	
Northern province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Luwingu	Chulungoma	18	rural	1	2	mapped
2	Luwingu	Chulungoma	18	rural	3	3	mapped
3	Kasama	Chibumbu	15	rural	2	4	mapped
4	Kasama	Chilunga	1	rural	2	4	unmapped
	Total Areas					13	
NorthWestern Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Mwinilunga	Nyakayesa	3	rural	3	4	mapped
2	Mwinilunga	Ikelenge	4	rural	1	5	mapped
3	Solwezi	Kapijimpanga	8	rural	3	3	unmapped
	Total Areas					12	
Southern Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEAs	Status
1	Kazungula	Nyawa	9	rural	2	3	mapped
2	Kazungula	Katapazi	11	rural	3	3	mapped
3	Choma	Singani	18	rural	2	3	unmapped
4	Choma	Nakeempa	19	rural	2	3	un mapped
	Total Areas					12	
Western Province							
	District	Ward Name	Ward Code	Rural/urban	CSA	SEA	Status
1	Kaoma	Luambuwa	16	rural	4	5	mapped
2	Kaoma	Kanabilumbi	12	rural	1	5	mapped
3	Kaoma	Kanabilumbi	12	rural	3	4	mapped
4	Senanga	Nanjucha	5	rural	2	4	unmapped
	Total Areas					18	
	Total					133	

APPENDIX 4 Vehicles used to transport Materials to the Provinces

NO	FLEET NO.	MINISTRY/ DEPT.	DRIVER	DATE IN
1	GRZ 896CE UD 330 -20 TON	Education HQs	Francis Mambwe -974208157	11/9/2010
2	GRZ 761CB M/BENZ -20 TON	Education HQs	Robert Kandela -97481033	11/9/2010
3	GRZ 762CB M/BENZ -20 TON	Education HQs	Kelvis Sibalwa -977850601	11/9/2010
4	GRZ 917BX UD 250- 15 TON	MOH HQs	Jack Mabona -977820372	12/9/2010
5	GRZ 654BX M/FUSO 15 TON	Works HQs	Mwewa Mumba -955356682	17/09/10
6	GRZ 895CE 20 TON	EDUC	Daison Banda	20/09/10
7	300LTRS GRZ 819BR -HINO 7 TON 250LTRS	HQs Home Affairs (PRISONS)	Humphrey Silavwe -0977798321	21/09/10
8	AD 3371F FAW 7 TON 2X150	Min of Defence (DFMS)	Ssgt SALUVU. -977452825	23/09/10
9	ZNS 510F TATA	Defence	Ssgt MWAPE. B -977196444	23/09/10
10	15 TON 240LTR ZNS 508F 15 TON 240LTRS	(ZNS) DEFENCE (ZNS)	Wo11 Chipulu. E -977826486	23/09/10
11	ZAF 6290F TATA 2X160LTRS 15 TONES	ZAF	Flight Sgt Phiri.G. -97775931	23/09/10
12	GRZ 859BS MITSUBISHI 20 TON 260LTRS	Eastern (HEALTH)	Frazer Mwale -968439375	25/09/10
13	ABT 9763 MITSUBISHI	Eastern	Manuel Phiri -978224411	25/09/10
14	20 TON 400LTRS= 780km GRZ 947BR MITSUBISHI 7 TONE 90LTR -250km	(Health) Eastern (Agric)	Levison Tonga -977481346	25/09/10
15	AD 3509 TATA 7 TON 160 LTRS	Zambia Army	Peter Chiwaya	25/09/10
16	ABT 9806 MITSUBISHI	Luapula	Katongo Davies 0977890618	25/09/10
17	20 TON 400LLRS ABV 1262 MITSUBISHI 20 TON 400LTRS	(M.OH) Western (Health)	Kaluba Lackson -977424069	25/09/10
18	GRZ 203BV MITSUBISHI 10 TON 260LTRS	Lands Survey Dept.)	Kondwelani Daka	27/09/10
19	ABT 9760 MITSUBISHI	Central	Evaristo Chisenga	28/09/10
20	10 TON ABT 9761 20 TON	(Health) Northern Province	-977410791 Kelly Bowa -977815152	9/10/2010
21	GRZ 897CE 20 TON	North Western (PEO)	Sakandula	

APPENDIX 5 Vehicles in Districts

LIST OF VEHICLES USED IN DISTRICTS

CENTRAL PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHIBOMBO	1	GRZ 505 BV	Mitsubishi Colt	Forestry
	2	GRZ 904CA	Yuejin L/ Truck	Council
	3	GRZ 904BN	Mitsubishi	Agric.
	4	GRZ 258BL	L/Cruiser	Judiciary
	5	GRZ 5836BL	Truck	
	6	GRZ 985BN	Mitsubishi	Education
	7	GRZ 654BV	L/Cruiser	Education
KABWE	1	GRZ 916		
	2	GRZ 160BR		Labour
	3	GRZ 177CB		Council
	4	GRZ 655BN		Lands
	5	ABR 1751	L/Cruiser H.T	CSO -Central
	6	GRZ 512BV	Mitsubishi Colt	CSO -Central
	7	GRZ 103CF	L/ Cruiser P U	CSO -Central
	8	GRZ 774BX		Prov. Admin
	9	GRZ 239BV		Prov. Admin
	10	GRZ 423 CA		Prov. Admin
	11	GRZ 260BP		Prov. Admin
KAPIRI MPOSHI	1	GRZ 461CE	L/Cruiser Ht	MACO
	2	ABH 4005	L/Cruiser Ht	Kabwe Trades
	3	GRZ 381BX	Mitsubishi Colt	DC
	4	ZP 3808	Tata Truck	Police Kabwe
	5	ABA6680	L/Cruiser Ht	Health
	6	GRZ 493BF	Truck	MACO Kabwe

CENTRAL PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	7	GRZ 899CE	Yuejin L/ Truck	Council
	8	GRZ 203BV	L/Cruiser Ht	
	9	GRZ 298CE	Nissan H B	ZANIS
	10	GRZ 586CE	L/Cruiser Ht	Veterinary
	11	ABP 2952	Motorbike	CSO -Kabwe
	12	ACJ 6465	Yuejin L/ Track	Local Govt
	13	AAP 9984	Toyota Hilux	Local Govt
	14	ABH 4283	Toyota Col-lora	Local Govt
	15	GRZ 289CF	L/Cruiser P U	CSO HQS
	16	GRZ 273CF	L/Cruiser P U	CSO HQS
MKUSHI	1	ABM 706	Canter L/ Truck	Mkushi High Sch.
	2	GRZ 892CA	Yuejin L/ Truck	Council
	3	GRZ 244CE	Mitsubishi Colt	Agric.
	4	GRZ 600CE	L/Cruiser.Ht	Agric.
	5	GRZ 103CF	L/Cruiser.Ht	Cso -Central
	6	GRZ 987BP	Nissan H B	Education
	7	GRZ 298CE	Toyota Hilax	DA
	8	GRZ 12DC	Motorbike	Agric.
	9	ABF 3611	Ford Ranger	Bwafwano
MUMBWA	1	GRZ 182CB		
	2	GRZ 183CB		
	3	GRZ 181CB		
	4	ABD 2690		
	5	ABA 7513		
	6	AAT 867		
	7	GRZ 587CE		
	8	GRZ 299CE		

CENTRAL PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	9	GRZ 589CB		
	10	ZNS 506F	ZNS	
	11	ZAF 6347F	ZAF	
	12	ZAF 6274F	ZAF	
	13	PS 3164	Prisons	
	14	ABH 1365		
	15	GRZ 947BV		
	16	ABR 4545		
	17	GRZ 272 CF	CSO HQS	
SERENJE	1	GRZ 907CA	Yuegin L/ Truck	Council
	2	GRZ 906CA	Yuegin L/ Truck	Council
	3	ABF 3149	Mitsubishi Colt	Agric
	4	ABD 8242	L/Cruiser. Ht	College
	5	GRZ 372BS	L/Cruiser. Ht Mitsubishi Colt	Agric
	6	GRZ 402CB	Isuzu	DA
	7	ABG 4184	Canter L/ Truck	Ibolelo
	8	ABM 7876	L/Cruiser. Ht	OP
	9	GRZ 136BS	L/Cruiser. Ht	College
	10	GRZ 12DJ	Motorbike	Community Dev.
	11	ABP 7209	Toyota Co-rola	DA
	12	NA	Marine Engine	Fisheries
	13	GRZ 136BS	L/Cruiser.Ht	College
	14	GRZ 90DM	Motor Bike	Agric.

COPPERBELT PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHILILABOMBWE	1	GRZ 600BX	Nissan	DA
	2	GRZ 520CE	Landcruiser	Fisheries
	3	GRZ 753 CA	Toyota Hilux	Education
	4	ACH 8321	Canter	Council
	5	ACX 5747	Coaster Bus	Chilila-bombwe H.Sch.
	6	GRZ 27CT	Motorbike	MACO
	7	GRZ 30DX	Motorbike	Fisheries
CHINGOLA	1	GRZ 559 CE	Landcruiser	
	2	GRZ 375 CA	Landcruiser	
	3	GRZ 315 CA	Maruti	
	4	GRZ 370 CA	Landcruiser	
	5	ABP 9384		
	6	GRZ 39DX	Motorbike	MACO
	7	GRZ 24EP	Motorbike	MACO
KALULUSHI	1	GRZ 235 CA	Nissan H/ Body	Council
	2	GRZ 731 CB	Landcruiser	Lands
	3	ACL 7020	Minibus Coaster	Education
	4	GRZ 45GX	Motorbike	Agric.
	5	GRZ 47GX	Motorbike	Agric.
	6	ABM 2953	Motorbike	CSO
	7	GRZ 568CE	Landcruiser	Livestock
KITWE	1	GRZ 724 CA	Nissan	Education
	2	GRZ 412 BX	Nissan	DA
	3	GRZ 321 BV	Colt	Mine Safety
	4	ABJ 3647	Rosa Bus	Chamboli High Sch.
	5	ACH 7549	Rosa Bus	Hellen Kaunda H. Sch.
	6	GRZ 561 CB	Tata Bus	Kitwe Central Hosp
	7	ACK 2506	Coaster	Mitanto High Sch

COPPERBELT PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	8	ABF 6867	Nissan Bus	DA
	9	GRZ 894CE	Nissan Bus	COSETCO
	10	GRZ 967 BV	Nissan	ZANIS
	11	GRZ330 BV	Rosa	K.T.T.C
	12	ACG 9069	Rosa	Mindolo High Sch.
	13	GRZ 289 CA	Landcruiser	Mine Safety
	14	GRZ 550 BX	Nissan	Labour
	15	GRZ684 BX	Nissan	Forestry
	16	GRZ155 BN	Mazda	Comm.Col- lege
	17	GRZ 193 CB	Yuejin L/ Track	Council
	18	ACG 2275	Toyota Hilux	DA
	19	GRZ 48DX	Motorbike	Council
	20	ABR 1750	Landcruiser	Cso Ndola
LUANSHYA	1	GRZ 882CA	Nissan	Council
	2	AAZ 5515	Canter	Health
	3	GRZ 582CE	Landcruiser	Agric.
	4	ACM 1668	Rosa Bus	Luanshya H.School
	5	ACH 5247	Rosa Bus	Luanshya Boys
	6	GRZ ZANIS	Nissan H.Body	Zanis
LUFWANYAMA	1	GRZ 494BV	Toyota Hilux	Works
	2	GRZ 515BX	Suzuki Maruti	Energy
	3	ABC 7015	Land Cruiser	
	4		Mitsubishi Truck	Education
	5	GRZ 521 CE	L/Cruiser	MACO
	6	GRZ 121 CE	Rosa	MACO
	8	GRZ 66DX	Motorbike	Health
	9	GRZ 67DX	Motorbike	Health
	10	GRZ 76BX	Motorbike	Health
	11	GRZ 78FC	Motorbike	Health

COPPERBELT PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	12	ACM 2042	Motorbike	Education
	13	GRZ 74CF	Motorbike	MACO
MASAITI	1	GRZ499 CA	L/Cruiser	Health
	2	GRZ 523CE	L/Cruiser	Agric
	3	GRZ 934 CA	Canter	Council
	4	ABF 6321	Nissan	Education
	5	GRZ 515BX	Suzuki	Health
MPONGWE	1	GRZ 870CB	Jeep	Comm. De- velopment
	2	AAZ 1064	Colt	Health
	3	GRZ 522 CA	Landcruiser	MACO
	4	GRZ 122CE	Ford Ranger	Legal Aid
	5	ABD 1901	Colt D/Cab	Health
	6	GRZ 78DX	Motorbike	Health
	7	GRZ 36EP	Motorbike	Health
	8	GRZ 64EH	Motorbike	Health
	9	GRZ 76DX	Motorbike	Comm. De- velopment
MUFULIRA	1	GRZ 365CA	Landcruiser	Health
	2	GRZ 404 BS	Landcruiser	MACO
	3	GRZ 566 BK	Rosa Bus	M.T.T. Col- lege
	4	ABR 6874	Nissan H.Body	DATF
	5	ABF 590	Toyota Cor- rola	Zambia Army
NDOLA	1	GRZ 122 CB	Ford Ranger	Legal Aid
	2	GRZ 218 CF	Landcruiser	CSO
	3	GRZ 170 BS	Pajero	Agric
	4	ABR 1750	Landcruiser	CSO
	5	GRZ 920 BN	Mitsubish	Agric
	6	GRZ 164CA	Nissan H.Body	Labour
	7	GRZ 682 CB	Nissan H.Body	Council

COPPERBELT PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
LUFWANYAMA	8	GRZ 683CB	Nissan H.Body	Council
	9	GRZ 560 CB	Tata Bus	Arthur Davi-son Hosp.
	10	ABF 6597	Nissan H.Body	Workers Compensa-tion
	11	GRZ 559 CB	Tata Bus	Arthur Davi-son Hosp.
	12	ACL 1716	Rosa Bus	Ndola Central Hosp
	13	ACL 5231	Coaster Bus	Skills Training
	14	ACG 4469	Coaster Bus	Milemu High Sch.
	15	GRZ 514 BV	Colt	Chifubu High Sch.
	16	GRZ 514BV	Mitsubishi Colt	CSO- NDOLA
	17	ABT 9806	Mitsubishi Colt	Health
	18	ABT 9762	Mitsubishi Colt	Health
	19	GRZ 512BP	Nissan H Body	CSO- NDOLA

EASTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHADIZA	1	GRZ 391BR	Land Cruiser	MLFD
	2	GRZ 165CA	Land Cruiser	MCDSS
	3	ABF 6873	Nissan	DC
	4	GRZ 927CA	Yuigen	Council
CHAMA	1	GRZ 518CE	Land Cruiser	MACO-Chama
	2	GRZ 188CB	Yuegin	Council
	3	GRZ 590CE	Land Cruiser	MACO-Chipata
	4	GRZ 538BV	Land Cruiser	P.S
EASTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE

EASTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	5	GRZ 383CA	Land Cruiser	Health-Chama
	6	GRZ 669BV	Land Cruiser	Zambia Police
	7	ZP 1857B	Land Cruiser	DC
	8	ABG 3375	Land Cruiser	ZAWA
	9	ABX 8571	Land Cruiser	Health
	10	GRZ 297CA	Canter	Council-Chipata
CHIPATA	1	GRZ 388CA	Land Cruiser	Health
	2	GRZ 409BR	Land Cruiser	Agric
	3	GRZ 186CB	Yuegin	Council
	4	AAV 1979	Nissan Patrol	Veterinary
	5	GRZ 728BS	Pajero	Fisheries
	6	GRZ 414CB	Nissan H. Body	Social Welfare
	7	GRZ 374BR	Nissan Dat-sun	Hostels Board
	8	GRZ 472BV	Toyota Hilux	Labour
	9	GRZ 336BM	Toyota Hilux	Lands
	10	GRZ 275BX	Land Cruiser	Roads
	11	GRZ 584BR	Iveco (Truck)	Education
	12	GRZ 328BV	Rosa M/Bus	Chipata Educ. Col-lege
	13	ABX 3020	Coaster M/ Bus	Hillside Secondary Sch
	14	ACK 8494	Hino M/Bus	Chipata Day Sec. Sch.
	15	GRZ 931BL	Mistubishi	CGT
	16	GRZ 740CB		Forestry
	17	GRZ 590		
	18	ABR 80	Land Cruiser	CSO Chipata
	19	GRZ 401BR	Land Cruiser	Agric
	20	GRZ 805BV	Rosa Bus	Chipata Trades Inst.
	21	GRZ 750BG	Land Cruiser	
	22	GRZ 485BR		
	23	GRZ 402BR		

EASTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	24	ABM 3324		Social Welfare
	25	ABM 289	Bus	Lundazi Day Sch.
	26	GRZ 347CA	Landcruiser	Lundazi District Hosp.
	27	GRZ 186CB	Canter	Chipata M. Council
	28	GRZ 391CE	Canter	Chipata M. Council
	29	GRZ 952BR	Bus	Agric.
	30	ABR 269	Bus	Health
	31	GRZ 402BR	Landcruiser	Agric
	32	GRZ 717CE	Landcruiser	Energy
	33	GRZ 409BR	Landcruiser	Agric
	34	GRZ 590CE	Landcruiser	Agric
	35	GRZ 538BV	Landcruiser	Prov. Admin.
	36	GRZ 668BV		Prov. Admin.
	37	GRZ 840CG		
	38	GRZ 391CA		Mambwe
	39	GRZ 931BX		VET.
	40	ABJ 658	Landcruiser	DATF
	41	ABD 4984		ST .Francis
	42	GRZ 552 BV		Prov.Admin
	43	GRZ 571CE	Landcruiser	MACO
	44	GRZ 456CE		Petauke
	45	ABF 3146	Landcruiser	ASIP
	46	GRZ 401BR	Landcruiser	Agric
	47	GRZ 859BF		Agric
	48	GRZ 256BX		Planning
KATETE	1	GRZ 945BV	Nissan H. Body	ZANIS
	2	ABD 4984	Land Cruiser	ST.Francis
	3	GRZ 179CB	Yuegin	Katete Dist.Council
	4	ABG 305	Land Cruiser	Katete Sec.School
	5	ABJ 773	Land Cruiser	DC
	6	GRZ 868CA	Land Cruiser	Katete College
	7	GRZ 277CE	Mitsubishi Truck	DEBS

EASTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	8	GRZ 571CE	Land Cruiser	DACO
	9	ABA 6892	Land Cruiser	DHO
	10	GRZ 862BS	Pajero	DACO
	11	ABJ 2402	Hino Truck	Katete Dist.Council
	12	GRZ 184CB	Yuegin	Katete Dist.Council
LUNDAZI	1	GRZ 299 CB	Land Cruiser	Lundazi Dist. Council
	2	GRZ 319CE	Land Cruiser	Agric.
	3	GRZ 385CA	Land Cruiser	Health
	4	GRZ 398BR	Land Cruiser	Agric.
	5	ABM 355	Toyota Hilux	Com. Dev. Chipata
	6	GRZ 348BX	Nissan Ud 60	Education
	7	ABT 7969	Hino M/Bus	Education Kabinda
	8	ABM 388	Hino M/Bus	Education Lundazi
	9	GRZ 426CB	Canter	Council
	10	AAF 8290	Magirus	Lundazi Day Sec. Sch.
	11	ABD 8548	Benz Truck	COMACO-Works
	12		Fuso F.Truck	Lundazi Boarding
MAMBWE	1	GRZ 783BP	Land Cruiser	Zatec Chipata
	2	GRZ 391CA	Land Cruiser	Health
	3	GRZ 840CB	Land Cruiser	Mwami Govt.
	4	ABF 6320	Nissan H. Body	Dist. Admin. Mambwe
	5	GRZ 150BX	Rosa Bus	DEBS “
	6	GRZ 584CE	Land Cruiser	MACO “
	7	AAT 5082	Tipper Truck*	ZAWA “
	8	GRZ 550	Rosa Bus	High Sch. “
	9	GRZ 41DY	Motor Bike	MACO
	10	GRZ 06CX	Motor Bike	MACO
	11	GRZ 108CB	Land Cruiser	District Admin Mambwe
	12	ABV 6124	Motor Bike	EDUC.
	13	ABT 567	Motor Bike	EDUC
	14	ABD 6283	Land Cruiser	OP

EASTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
NYIMBA	1	GRZ 564CE	Land Cruiser	MIN. OF Livestock
	2	GRZ 394CA	Land Cruiser	Health
	3	GRZ 740CB	Land Cruiser	Forestry Chipata
	4	ABA7470	Land Cruiser	MACO Nyimba
	5	GRZ 319CA	Suzuki	COM.DEV.
	6	GRZ 467BX	Tata Mobile	DC
	7	GRZ 940CA	Yuegin	Council
	8	ABL 3084	Coaster Bus	Nyimba High Sch.
	9	ABF 6868	Nissan H. Body	DATF
	10	GRZ 273BV	Fuso Fighter	MOE
	11	GRZ 33BA	Tata	Nyimba High Sch.
	12	GRZ 393CA	Land Cruiser	MOH
PETAUKE	1	ABA 6684	Land Cruiser	MOH
	2	GRZ 867CB	Isuzu	Com. Dev.
	3	GRZ 669CE	Land Cruiser	MACO
	4	GRZ 100CB	Canter	Council
	5	GRZ 101CB	Canter	Council
	6	GRZ 396BR	Land Cruiser	MACO
	7	GRZ 834CB	Land Cruiser	Nyanje Hosp.
	8	AAV6953	Land Cruiser	ZAWA
	9	ABP 815	Tata Bus	Ukwimi Trades Inst.
	10	GRZ 264CF	Tata Bus	Petauke Boarding
	11	GRZ 456CE	Rosa Bus	Petauke Boarding
	12	GRZ 1-3283	Tractor	MACO
	13	GRZ 381CA	Land Cruiser	MOH
	14	GRZ 563CE	Land Cruiser	Min. Of Livestock
	15	GRZ 459DX	Tata T/Cab	DC
	16	ABC 8739	Mitsubishi Colt	MACO

LUAPULA PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHIENGI	1	GRZ 505CE	Landcruiser	
	2	ABC 4122	Landcruiser	
	3	ABR 174	Landcruiser	
	4	GRZ 368 CA	Landcruiser	
	5	ABL 7552	Nissan H.Body	
	6	ARMY	Tata Truck	
KAWAMBWA	1	GRZ 807CA	Landcruiser	
	2	GRZ816 CA	Landcruiser	
	3	GRZ 507CA	Landcruizer	
	4	GRZ 881BX	Isuzu T/Cab	
	5	GRZ 933CA	Yuegin L/ Truck	
	6	GRZ 411BN	Tata Truck 7-Ton	
MANSA	1	GRZ 570CE	L/Cruiser	
	2	GRZ 216CF	L/Cruiser	
	3	GRZ 661CB	L/Cruiser	
	4	GRZ 807CA	L/Cruiser	
	5	ABR 1749	L/Cruiser	
	6	ABH 4344	L/Cruiser	
	7	ABT 447	L/Cruiser	
	8	ABC 1195	L/Cruiser	
	9	GRZ 448CA	Nissan H.Body	
	10	GRZ 585CA	Nissan H.Body	
	11	GRZ 515BP	Nissan H.Body	
	12	GRZ 927BX	Mitsubishi Colt	
	13	GRZ 942BX	Ford Ranger	
	14	GRZ 867 BH	Leyland Truck	
MILENGI	1	GRZ 508CE	Landcruiser	
	2	GRZ 210CB	Nissan Patrol	

LUAPULA PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	3	GRZ 912CA	Yuegen L/ Truck	
	4	ABA 5011	Landcruiser	
MWENSE	1	GRZ 801 CA	Landcruiser	
	2	AAZ 7242	Nissan	
	3	ABC 3523	Landcruiser	
	4	GRZ 599 CE	Landcruiser	
	5	GRZ 209 BX	Nissan H.Body	
	6	GRZ 654 BX	Yuegin L/ Truck	
NCHELENGE	1	ABC 4121	Landcruiser	Agric
	2	ABC 3776	Nissan	Health
	3	GRZ 471BV	Landcruiser	Forestry
	4	AAV 5165	Nissan H.Body	Council
	5	ABL 7453	Yuegin L/ Truck	Council
SAMFYA	1	GRZ989 CA	Yuegin L/ Truck	
	2	GRZ 207CB	Nissan Patrol	
	3	GRZ 509CE	Landcruiser	
	4	GRZ 866 CB	Jeep	
	5	GRZ 946 BV	Nissan Patrol	
	6	ABC 4954	Nissan H. Boby	

LUSAKA PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHONGWE	1	GRZ 560CE	L/Cruiser	Livestock
	2	GRZ 598CE	L/Cruiser	Agric
	3	GRZ 726CA	Nissan Patrol	DEBS
	4	GRZ 611BR	Nissan H.Body	DA
	5	GRZ 592BV	Nissan H.Body	Local Govt
	6	GRZ 13BR	Nissan H.Body	NISTCOL
	7	GRZ 973BV	Nissan H.Body	ZANIS
	8	GRZ 292BR	Nissan H.Body	MACO
	9	GRZ 370BX	Tata/Twin Cab	DA
KAFUE	1	GRZ 976BN	Nissan H.Body	
	2	GRZ 611CE	Toyota Hilux	
	3	GRZ 719 CA	Nissan H.Body	
	4	GRZ 593 CE	Landcruiser	
	5	GRZ 943CA	Yuejin L/Truck	
	6	GRZ 52DW	Motorbike	
	7	GRZ 55DN	Motorbike	
	8	GRZ 74DY	Motorbike	
	9	GRZ 69DV	Motorbike	
	10	GRZ 71DV	Motorbike	
	11	GRZ 73BV	Motorbike	
	12	GRZ 70DV	Motorbike	
	13	GRZ72DV	Motorbike	
LUSAKA	1	GRZ 409CB	Ford Ranger	DC
	2	GRZ 592CE	Landcruiser	Veterinary
	3	GRZ 159BV	Landcruiser	Health
	4	GRZ 990CA	Rosa Bus	Kasaka Fisheries
	5	GRZ FISH-ERIES	Boat	Kasaka Fisheries
	6	ZP POLICE	Boat	Zambia Police

NORTHERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHILUBI	1	GRZ 700CE	Ford Ranger	
	2	GRZ 290CA	Landcruiser	
	3	GRZ 508BV	Mitsubishi Colt	
	4	GRZ	Boat	
CHINSALI	1	GRZ 571 BV	Nissan H.Body	
	2	GRZ 500 BV	Ford Ranger	
	3	GRZ 508 BV	Mitsubishi L200	
ISOKA	1	ABA 7465	Landcruiser	
	2	ABA 3999	Landcruiser	
	3	GRZ 615CE	Landcruiser	
	4	GRZ 187BR	Nissan Hard Body	
	5	GRZ 500 CE	Ford Ranger	
KAPUTA	1	GRZ 290CA	Landcruiser	
	2	ABK 273	Landcruiser	
	3	ABD 6277	Landcruiser	
	4	ABA 7750	Landcruiser	
	5	GRZ 555CE	Landcruiser	
	6	GRZ 553CA	Landcruiser	
KASAMA	1	GRZ 784BX	Nissan H. Body	
	2	GRZ 555 BX	Nissan H.Body	
	3	GRZ105 CF	Landcruiser-Cso	
	4	ABM 5980	Landcruiser- Cso	
	5	GRZ 519BW	Landcruiser	
	6	ABA 3005	Landcruiser	
	7	GRZ 367BP	Landcruiser	
	8	GRZ 297	Ford Ranger	
	9	GRZ 528 CB	Land Cruiser	
LUWINGU	1	GRZ 236BX	Toyota Hilux	
	2	GRZ 845CE	Toyota Hilux	
	3	GRZ 444CA	Nissan Hard Body	
	4	GRZ 440CB	Landcruiser	
	5	GRZ 346CB	Nissan Hard Body	
MBALA	1	GRZ 949BV	Nissan Hard Body	
	2	GRZ 925BX	Mitsubishi Colt	
	3	ABP 7651	Landcruiser	
	4	ABA	Landcruiser	
	5	ZP 1839B	Nissan Hard Body	

NORTHERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	6	GRZ 513CE	Ford Ranger	
	7	GRZ852 CA	Nissan H.Body	
MPIKA	1	GRZ 569CE	Landcruiser	
	2	GRZ 501CA	Landcruiser	
	3	ZP 3800	Tata L/Truck	
MPORO-KOSO	1	GRZ 309CE	Toyota Hilux	
	2	GRZ 439CB	Landcruiser	
	3	GRZ 511CE	Landcruiser	
MPULUNGU	1	GRZ 694CE	Ford Ranger	
	2	GRZ	Landcruiser	
	3		Tata Twin Cub	
	4	ABM 6933	Landcruiser	
	5	GRZ 937BX	Nissan Hard Body	
	6	GRZ 349CB	Mitsubishi Twin Cub	
	7	GRZ 508BV	Mitsubishi Colt	
	8		Mitsubishi Fuso	
MUNGWI	1	ABT 5003	Mitsubishi L200	
	2	GRZ 908 CA	Fuso Fighter	
	3	GRZ 460 BX	Tata Twin Cab	
	4	GRZ 275BM	Yueui/Light Track	
	5	GRZ	M/Rosa Bus	
	6	GRZ 447CE	Landcruiser	
	7	GRZ 289 CF *	CSO Hqs	
NAKONDE	1	GRZ 963BV	Nissan	
	2	ABF 5474	Nissan Hard Body	
	3	GRZ 944BV	Nissan	
	4	GRZ 960CB	Isuzu Fountain	
	5	GRZ 955CA	Nissan	
	6	GRZ 291CA	Mitsubishi Pajero	
	7	GRZ 717CB	Yuejin L/Truck	
	8	GRZ 436CA	Landcruiser	
	9	ABK 4087	Fuso	

NORTH WESTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHAVUMA	1	GRZ 144CE	L/Cruiser H.T	Health
	2	GRZ 670CE	L/Cruiser H.T	Fisheries
	3	GRZ469CA	L/Cruiser H.T	Fisheries
	4	ARMY	Truck	Zambia Army
KABOMPO	1	GRZ 434BP	Nissan H.Body	CSO –NW PROV
	2	ABA 3022	L/Cruiser H.T	Local Govt Plan-ning
	3	GRZ 862CA	Nissan H. Body	Health PMO
KASEMPA	1	GRZ 467CA	L/Cruiser H.T	MUKINGE
	2	GRZ 499CE	L/Cruiser H.T	MACO
	3	GRZ 985CB	Jeep	MSYCD
	4	GRZ 766BV	L/Cruiser H.T	MOE HQS
	5	GRZ 892BX	Ford	MACO
	6	GRZ 274CF	L/Cruiser P.U.	CSO HQS
MUFUMBWE	1	GRZ 81CA	L/Cruiser H.T	Health
	2	GRZ 468CA	L/Cruiser H.T	Health
	3	ABR 8852	L/Cruiser H.T	Local Govt
	4	GRZ 588CE	L/Cruiser H.T	Agric.
MWINILUNGA	1	GRZ 494CE	L/Cruiser H.T	Agric
	2	ABK 1895	L/Cruiser H.T	Agric
	3	GRZ 490CA	L/Cruiser H.T	Health
	4	ABC 4939	L/Cruiser P.U	Forestry
SOLWEZI	1	ABA 5823	Land Cruiser	Forestry
	2	GRZ 781CE	Land Cruiser	Agric
	3	GRZ 542BA	Land Cruiser	Solwezi Sec Sch
	4	GRZ 648CE	Land Cruiser	DC
	5	GRZ 216CE	T/Hilux	Works
	6	GRZ 217CF	Land Cruiser P.U-	CSO PROV
	7	GRZ 139CE	Land Cruiser	Works
	8	ABC 1111	Land Cruiser	Health
	9	ABK 2278	Nissan H. Body	Agric

NORTH WESTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	10	GRZ 933BX	Nissan H. Body	CGT
	11	GRZ 496BV	Nissan H. Body	
	12	GRZ 386BA	Tata	DA
	13	ABH 975	Nissan H. Body	PEMFA
	14	GRZ 260CB	Nissan H. Body	
	15	ABV 1265	Truck	
	16	GRZ 859BX	Nissan H. Body	
	17	ABR 1746	L/Cruiser H.T -CSO	
	18	ABJ 3728	L/Cruiser H.T	
	19	GRZ 520BV	Mitsubishi Colt	
	20	GRZ 31EC	Motorbike	
	21	GRZ 44EC	Motorbike	
	22	ABM 2951	Motorbike	
	23	ABL 516	Motorbike	
	24	GRZ 862CA	Nissan H.Body	MOF

SOUTHERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
CHOMA	1	GRZ 961BX	Toyota Hilux	Agric
	2	GRZ 579CE	Landcruiser	Livestock
	3	AAV2676	Toyota Hilux	Forestry
	4	AAV884	Toyota Hilux	Forestry
	5	GRZ 581CE	Landcruiser	Kanchomba FTI
	6	GRZ 140BN		Agric
	7	GRZ 374BX	Tata Van	DA
	8	ABD 6307	Truck	Education
	9	ABJ 8004	Truck	Education
	10	GRZ 92CY	Motorcycle	Agric
	11	ABC 7821	L/Truck	Local Govt
	12	GRZ 552CA	Nissan H Body	Local Govt
	13	GRZ 965 BV	Nissan H Body	Agric
	14	GRZ 594CE	Landcruiser	Agric
	15	GRZ 726BV	Tata Van	Agric.
	16	GRZ 145CB	L/Truck	Local Govt
	17	GRZ 96CY	Motorbike	Agric
	18	ABC7821	Ace Bus	Local Govt
GWEMBE	1	ABC 5838	Landcruiser	Agric
	2	GRZ 851CE	Landcruiser	Agric
	3	ABR 8985	Landcruiser	Health
	4	ABJ 8955	Landcruiser	Education
	5	OP	Landcruiser	OP
	6	ABF 2491	Toyota Hilux	Education
	7	GRZ 45ER	Susuki Honda	Education
	8		Speed Boat	ZP
	9		Speed Boat	OOP-SD
	10		Motorbike	Police
TEZHI TEZHI	1	ABR 9805	Landcruiser	DAFT
	2	ABM 6937	Landcruiser	00P-SD
	3	ABF 2469	Toyota Hilux	MOE
	4	GRZ 707CA	Nissan H Body	MOE
	5	GRZ 944CA	L/Truck	Council

SOUTHERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	6	GRZ 851CA	Pajero	MLFD
	7	GRZ 983CA	Landcruiser	MLFD
	8	GRZ 574CE	L/Truck	Uphill High Sch
	9	ABK 6415	Landcruiser	MACO
	10	GRZ 618CA	Landcruiser	MOH
	11	GRZ 30DL	Motorbike	MLFD
	12		Speed Boat	ZP
	13		Speed Boat	OOP-SD
KALOMO	1	ABF 872	Landcruiser	Council
	2	ABG 6079	Landcruiser	Council
	3	ABA 6778	Landcruiser	MOH
	4	GRZ 978CA	Landcruiser	MOH
	5	GRZ 491CD	Landcruiser	MOE
	6	ABF 4328	Toyota Hilux	MOE
	7	ABA 895	Toyota Hilux	MACO
	8	ABV 832	Mitsubishi L200	Livestock
	9	ABF 6855	Nissan H Body	DA
	10	GRZ 458BF	Tata	DA
	11	GRZ 195CB	Yuegin Truck	Council
	12	ABG 8915	Fuso Figther	Kalomo H.Sch.
	13	AJB 7321	Hino	Mwata High Sch.
	14	GRZ 195CB	Yuegin	Council
	15	ABF 1588	Hino	Zimba High Sch
	16	ABG 8914	Rosa Bus	Kalomo School
	17	AD 3117	Truck	Army
	18	PS 21	Motorbike	Prison Service
KAZUNGULA	1	GRZ 895CA	Yuegin L/Track	Council
	2	GRZ 562CE	Landcruiser	Veterinary
	3	PS 3194	Canter/L/Truck	Prison
	4	ABC 114	Nissan	Health
	5	ABV 833	Mitsubishi	Veterinary
	6	GRZ 976CA	Canter/L/Truck	Health
	7	GRZ 219CB	Nissan	Survey

SOUTHERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
LIVINGSTONE	1	AAV 2624	Landrover 110	Social Welfare
	2	GRZ 417BX	Toyota Hilux	Forestry Dept.
	3	ABJ 771	Landcruiser	NAC Office
	4	ABA 7757	Landcruiser	NAC Office
	5	GRZ 401BX	TATA	DA
	6	GRZ 963CB	Jeep	Social Welfare
MAZABUKA	1	GRZ 136CB	4X4	MOH
	2	GRZ 134CB	4X4	MOH
	3	GRZ 495CE	4X4	MACO
	4	GRZ 678CE	4X4	MACO
	5	GRZ 981CB	4X4	MCDS
	6	ABF 7035	4X4	DATF
	7	ABT 4162	4X4	DATF
	8	GRZ 958BV	4X4	ZANIS
	9	PS 3181	Truck	Prisons
	10	GRZ 148CB	L/Truck	Council
MONZE	1	GRZ 123BN	Mitsubishi Van	Agric
	2	GRZ 624CA	Rosa Bus	Comm. Dev
	3	GRZ 447	Nissan .H Body	Agric
	4	GRZ 554CE	Nissan .H Body	Livestock
	5	GRZ 566CE	Landcruiser	Livestock
	6	GRZ 175BR	Landcruiser	College Of Agric.
	7	GRZ 7925BX	Nissan .H Body	Education
	8	GRZ 145CE	Scania Bus	College Of Agric.
	9	GRZ 856CB	Landcruiser	DHMT
	10	GRZ 463CB	Hino Truck	Council
	11	GRZ 393BX	Tata Van	DA
	12	GRZ 449CA	Nissan H.Body	Agric.
	13	GRZ 463CB	Canter	Council
NAMWALA	1	ABA 2090	L/Truck	Health DMO
	2	ABA 6803	Maruti	Health DMO
	3	GRZ 894	Tipper Truck	COUNCIL
	4	GRZ 591CE	Landcruiser	MLFD-DVO

SOUTHERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	5	ABT 1488	M/Sportero	MLFD-DVO
	6	GRZ 12DV	Motorbike	MLFD-DVO
	7	GRZ 13DV	Motorbike	MLFD-DVO
	8	GRZ 75DV	Motorbike	MLFD-DVO
	9	GRZ 10DV	Motorbike	MLFD-DVO
	10	GRZ 11DV	Motorbike	MLFD-DVO
	11	GRZ 08DV	Motorbike	MLFD-DVO
	12	GRZ 09DV	Motorbike	MLFD-DVO
	13	GRZ 71EC	Motorbike	MLFD-DVO
	14		Speed Boat	MLFD-DOF
SIAVONGA	1	GRZ 863BX	Mitsubishi L200	Veterinary
	2	GRZ 834CA	Maruti	Comm.Dev.
	3	ABA 6691	Landcruiser	Health
	4	GRZ 965CE	Landcruiser	Agric.
	5	GRZ 291BX	Nissan H Body	ZANIS
	6	ABF 6860	Nissan H Body	DA
	7	GRZ 579BV	Nissan H Body	DA
	8	GRZ 832CA	Landcruiser	Mtendere Mis-sion Hosp
	9	GRZ 914CA	Yuegin L/ Truck	Council
	10	AAG 8086	Sisu Truck	Council
	11	ZP 5603	Speed Boat	Zambia Police
	12	GRZ 49DK	Motorbike	Veterinary
	13	GRZ 19EN	Motorbike	Veterinary
SINAZONGWE	1	ABJ 655	Landcruiser	DATF
	2	GRZ 423BX	Isuzu D/Cab	VET.
	3	AAK 5663	Toyota L/ Truck	Fisheries
	4	GRZ 896CA	Canter	Council
	5	GRZ 525CE	Landcruiser	Education
	6	ABJ 8960	Landcruiser	Education
	7	ABR 2862	Landcruiser	OP
	8	GRZ 829CN	Toyota Hilux	Education
	9	GRZ 297CB	Isuzu D/Cab	ZANIS

WESTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
KALABO	1	GRZ 232BX	Landcruiser	
	2	GRZ 537CA	Nissan Hard Body	
	3	GRZ 280CE	Mitsubishi L200	
	4	GRZ 743BX	Landcruiser	
	5	GRZ 292CF	Landcruiser	
KAOMA	1	GRZ 817 BA	Landcruiser	
	2	GRZ 394 BX	Tata D/Cab	
	3	GRZ 504 CE	Landcruiser	
	4	GRZ 982 CB	Jeep	
	5	ABD 4830	Mitsubishi Colt	
LUKULU	1	GRZ 663BS	Landcruiser	
	2	ABX 712	Landcruiser	
	3	GRZ 898BX	Landcruiser	
	4	GRZ 614CA	Landcruiser	
MONGU	1	GRZ137 BS	Landcruiser	
	2	GRZ 592 CA	Landcruiser	
	3	GRZ 289 CA	Landcruiser	

WESTERN PROVINCE				
DISTRICT	SN	REG	TYPE	SOURCE
	4	ABV 1262	Mitsubishi Truck	
	5	GRZ 224 CB	Nissan Patrol	
	6	GRZ 876 BX	Landcruiser	
SENANGA	1	GRZ 403BX	Tata D/Cab	
	2	GRZ 955BV	Nissan	
	3	GRZ 502 CE	Landcruiser	
	4	ABT 4540	Nissan	
	5	GRZ 147 CE	Landcruiser	
SESHEKE	1	GRZ 282CE	Mitsubishi	
	2	GRZ 503CE	Landcruiser	
	3	GRZ 800CA	Landcruiser	
	4	ABP 6075	Landcruiser	
SHANG'OMBO	1	GRZ 886 BV	Nissan H. Body	
	2	ABJ 2704	Landcruiser	
	3	GRZ 983 CB	Jeep	
	5	GRZ 538 CB	Landcruiser	
	6	GRZ 897 BX	Landcruiser	

APPENDIX 6 Staff Summary by Province

Province	Provincial Census Officers	Deputy provincial Census Officers	Master Trainer/s	Assistant Master Trainers	Supervisors	Enumerators	Mappers	Data Control Clerks	Drivers
Central	2	1	6	21	947	2,792	19	18	73
Copperbelt	2	1	10	26	1,060	2,979	20	36	67
Eastern	1	1	8	29	1,323	3,829	18	25	45
Luapula	1	1	7	19	752	2,220	15	24	36
Lusaka	3	1	10	27	790	2,370	15	23	38
Northern	2	2	13	35	1,381	4,082	24	36	60
North-western	1	1	7	22	411	1,167	15		28
Southern	1	1	11	26	994	2,882	21		47
Western	2	1	7	21	637	1,914	14	25	39
Totals									

APPENDIX 7 Training Centres for Field Staff

1. Central Province

- 1.1. Kabwe Trades Training Institute
- 1.2. Nkhrumah College of Education
- 1.3. Kabwe Trades Training institute
- 1.4. Neem Tree basic
- 1.5. PEDESA
- 1.6. Nkumbi International College
- 1.7. Kalilwe Basic School
- 1.8. Malcolm Moffat

2. Copperbelt Province

- 2.1. Cotseco
- 2.2. KTTC
- 2.3. IBTC
- 2.4. TVTC
- 2.5. KVTC
- 2.6. Nortec
- 2.7. Kitwe Nursing School
- 2.8. ZIBSIP
- 2.9. Ndola Central Hospital
- 2.10. Mufulira Teachers Training College

3. Eastern Province

- 3.1. Chadiza Basic School
- 3.2. Chama basic school
- 3.3. Chama Farmers Training Centre
- 3.4. Chipata College of Education
- 3.5. Chipata Trades training Institute
- 3.6. Katete Agriculture and Cooperative College
- 3.7. Katete Boma Basic School
- 3.8. Katete Farmers Training Centre
- 3.9. Lundazi Day Secondary School
- 3.10. Lundazi Community Development centre
- 3.11. Lundazi Farmers Training Centre
- 3.12. Jumbe Basci School
- 3.13. Nyimba Basic School
- 3.14. Petauke Day Secondary School
- 3.15. Mziya Basic School
- 3.16. Petauke Farmers Training Centre
- 3.17. Petauke Trades Training Institute

4. Luapula Province

- 4.1. Puta Basic School
- 4.2. Kawambwa Basic School
- 4.3. Impota Basic School
- 4.4. Mansa College of Education
- 4.5. Samfya Basic School
- 4.6. Mansa Nursing School
- 4.7. St Paul's Nursing School
- 4.8. Kashikishi Basic School
- 4.9. Mansa Trades Training Institute

5. Lusaka Province

- 5.1. Lusaka Trades
- 5.2. NISTICOL
- 5.3. Local Government Centre
- 5.4. Chainama Hills College
- 5.5. NRDC
- 5.6. Thorn Park

6. Northern Province

- 6.1. Lukashya Trades Insititute
- 6.2. Kasama Teachers' Training College
- 6.3. Farmers' Training Institute (MUSA)
- 6.4. Ituna High School
- 6.5. Mwaba Basic School
- 6.6. Mishishi Basic School
- 6.7. Chinsali Basic School
- 6.8. Chiwanda Basic School
- 6.9. Farmers training Centre
- 6.10. Luangwa Council Guest House
- 6.11. Kaputa Basic School
- 6.12. Mantapala Basic School
- 6.13. Kaputa Skills Training Center
- 6.14. Kasama Teachers Training College
- 6.15. Luwingu Youth Resource Centre
- 6.16. Katopola basic School
- 6.17. Luwingu High School
- 6.18. Lunzuwa Agriculture Training Centre
- 6.19. Zambia College of Agriculture
- 6.20. Mpika Farmers Training Centre

- 6.21. Mporokoso Basic School
- 6.22. Kapumo Farmers Training Centre
- 6.23. Outward Bound (In Mbala District)
- 6.24. Lukashya Trades
- 6.25. Ntindi Basic School
- 6.26. Nakonde Basic School

7. North-western Province

- 7.1. Solwezi College of Education
- 7.2. Kyafukuma
- 7.3. Chavuma Basic School
- 7.4. Kabompo Catholic Training Centre
- 7.5. Kabompo Council Guest House
- 7.6. Kasempa Farmer Training Centre
- 7.7. Kalende Bible College
- 7.8. Mwinilunga Trades Institute
- 7.9. Mwinilunga Farmer Training Centre
- 7.10. Solwezi College of Education
- 7.11. Kyafukuma Farmer Training Institute
- 7.12. Zambezi catholic Training centre
- 7.13. Zambia Development trust

8. Southern Province

- 8.1. Kasiya Secretarial College
- 8.2. Kanchomba and Mawagali
- 8.3. St. Patrick's Basic School
- 8.4. Up-Hill Basic School
- 8.5. Farmers Training Centre,
- 8.6. Kalomo High school
- 8.7. Mwata High School
- 8.8. Bwacha High School
- 8.9. Council hall
- 8.10. Conga Basic School
- 8.11. Livingstone Institute for Business Engineering
- 8.12. DALICE
- 8.13. Nakambala Basic School
- 8.14. Farmers Training Centre
- 8.15. Monze town Basic school
- 8.16. Monze Basic school
- 8.17. Farmers Training Centre
- 8.18. Siavonga Basic School
- 8.19. Sinazongwe Basic school and Fisheries Training Centre

9. Western Province

- 9.1. Mongu Teachers Training College
- 9.2. Mongu Trades Training Institute
- 9.3. Lewanika School of Nursing
- 9.4. Kalabo Basic School
- 9.5. Kalabo High School
- 9.6. Kaoma Trades Training Institute
- 9.7. Kaoma Education Resource Center
- 9.8. Sesheke Basic School
- 9.9. Senanga Trades Training Institute
- 9.10. Senanga Education Resource Center
- 9.11. Senanga Catholic Church Hall
- 9.12. Senanga UCZ Hall Senanga Basic school
- 9.13. Senanga Council Chamber 1
- 9.14. Lukulu Basic
- 9.15. Shangombo Basic
- 9.16. Shangombo incomplete District Hospital Buildings

APPENDIX 8 Shipment Form (DST06)

CENTRAL STATISTICAL OFFICE 2010 CENSUS OF POPULATION AND HOUSING SHIPMENT CONTROL FORM - DCO TO CSO HQ SEA BOX SHIPMENT CONTROL FORM DST06											
District (Code) _____ (____) Ward (Code) _____ (____) Page ____ of ____											
COMPLETE AT DISTRICT CENSUS OFFICE						COMPLETE AT LUSAKA WAREHOUSE					
Vehicle Plate No: _____						Vehicle Plate No: _____					
Date and Time Loading Began: _____						Date and Time Vehicle Arrived: _____					
Date and Time Loading Complete: _____						Date and Time Off-Loading Began: _____					
Date and Time Vehicle Departed: _____						Date and Time Off-Loading complete: _____					
INSTRUCTIONS For each SEA included in this shipment, write the CSA and SEA codes 'cc-s' in the 'SEA Code' column, the number of boxes for this SEA in the 'No. of Boxes' column and the bundle number for this SEA in the 'Bundle No.' column. If boxes for a SEA are in two bundles, write both bundle numbers separated by ', e.g., '2-3'.											
SEA Code	No. of Boxes	Bundle No.	HQ Only	SEA Code	No. of Boxes	Bundle No.	HQ Only	SEA Code	No. of Boxes	Bundle No.	HQ Only
			1				26				61
			2				27				62
			3				28				63
			4				29				64
			5				30				65
			6				31				66
			7				32				67
			8				33				68
			9				34				69
			10				35				70
			11				36				71
			12				37				72
			13				38				73
			14				39				74
			15				40				75
			16				41				76
			17				42				77
			18				43				78
			19				44				79
			20				45				80
			21				46				81
			22				47				82
			23				48				83
			24				49				84
			25				50				85
											86
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											88
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											91
											92
											93
											94
											95
											96
											97
											98
											99
											100
For the District Census Office							For CSO Headquarters				
Name: _____							Name: _____				
Designation: _____							Designation: _____				
Date: _____							Date: _____				
Signature: _____							Signature: _____				
Mobile No: _____							Mobile No: _____				

HQ05 FORM
Central Statistical Office
2010 Census of Population and Housing
MANUAL SEA BOX AND QUESTIONNAIRE CHECK FORM
HQ05

DATE STARTED: _____
TIME STARTED: _____

DATE STARTED: _____
TIME COMPLETED: _____

BATCH NUMBER													
--------------	--	--	--	--	--	--	--	--	--	--	--	--	--

PROVINCE:
CONSTITUENCY:
REGION:

DISTRICT:
WARD:
CSA:

SEA:

NUMBER OF QUESTIONNAIRES IN THE SEA:					
FINAL CHECKS AND SEPARATION			None	Few	Many
Stray marks on forms erased					
Light marks re-enforced					
Light handwritten numbers reinforced					
	Yes	No	Separate pages – Align clock tracks facing down		
Age and relation okay?					
Damaged pages					

NAME OF EDITOR:

SIGNATURE:

DATE: / /2011

CODE:			
-------	--	--	--

NAME OF SUPERVISOR:

SIGNATURE:

DATE: / /2011

CODE:			
-------	--	--	--

APPENDIX 9: Boxes Registered per Province

Province	Number of SEA'S	Total SEA Boxes Registered
1. Central	2,780	2,783
2. Copperbelt	2,975	2,980
3. Eastern	3,932	3,933
4. Luapula	2,253	2,256
5. Lusaka	3,041	3,043
6. Northern	,4071	4,077
7. North Western	1,175	1,177
8. Southern	3,093	3,110
9. Western	1,902	1,906
TOTAL	25,222	25,265

APPENDIX 10: Guidelines for Questionnaire Manual Check

1. Check that the Geo-code has been entered appropriately. The Geo code on the questionnaires should tally with what is on the SEA box. Please ensure that the code that has been written in the box is what has been shaded as well. If not consult your supervisor.
2. Please check the relationship status on all the questionnaires e.g. Head of household. If head of household is not indicated consult your supervisor.
3. Check that the Census Building Number (CBN) is serially numbered on all the questionnaires.
4. Shading should be appropriately done on all the questionnaires. Ensure that marks that are lightly shaded are reinforced so that they can be visible.
5. Ensure that where there are missing codes, the code is entered accordingly e.g. district, occupation, industry, field of study etc.
6. Questionnaire Continuation: Where more than one questionnaire has been used, ensure that you shade on all questionnaires used on "MARK HERE IF MORE THAN ONE QUESTIONNAIRE"
7. Ensure that the Household summary count in the questionnaire tallies with the household roster and membership status.
8. Count the questionnaires in your SEA and fill-in this and other relevant information in the HQ 05 form.
9. Please let's all follow these guidelines to make sure that we all do a good job.

APPENDIX 12: Total Number of Census Forms

Province	Number of SEA'S	Total SEA Boxes	Total Forms Edited
1. Central	2,780	2,783	302,879
2. Copperbelt	2,975	2,980	469,891
3. Eastern	3,932	3,933	392,963
4. Luapula	2,253	2,256	260,684
5. Lusaka	3,041	3,043	543,602
6. Northern	4,071	4,077	440,405
7. North Western	1,175	1,177	176,007
8. Southern	3,093	3,110	375,004
9. Western	1,902	1,906	228,020
Total	25,222	25,265	3,189,750

APPENDIX 13: DfID and U.S. Census Bureau Assistance

Number	Activity	Date
1	Assessment	Jul-10
2	Training of Trainers	Aug-10
3	Operational Control	Sep-10
4	Key-Based Census Data Entry Application	Oct-10
5	CSPRO Workshop	Mar-11
6	Development of Census Edit and Imputation Specification and Program	May-11
7	Development of Census Edit and Imputation Specification and Program (Continuation)	Jul-11
8	Production Census Editing	Oct-11
9	Advanced CSPRO Workshop	Jun-13
10	Introduction to GIS	Jul-12
11	Review and Development of the Census Atlas	Mar-13
12	Census Atlas Review	Aug-13
13	Management Review	Mar-12
14	PES Matching Preparation	Apr-11
15	PES Matching Production	Aug-11
16	PES Reconciliation	Oct-11
17	PES Analysis	Nov-11
18	PES Analysis II	Nov-12

Number	Activity	Date
19	Reviewing and Programming the Census Tabulation Plan	Dec-11
20	Review of Census Provincial Level Tabulation Plans	Apr-12
21	Analytical Reports	Feb-12
22	Review of Census Analytical Reports	Jun-12
23	Demographic Analysis	Jan-12
24	Data Archiving Workshop (USA)	Aug-12
25	Developing a Table Retrieval System	Aug-12
26	Census Data - Web Dissemination	Aug-12
27	National Population Projections	Nov-12
28	Sub-National Population Projections	Mar-13
29	Sub-National Population Projections Follow-Up	May-13
30	Public Use Micro-data Sample (PUMS) Selection	May-13
31	Census Procedural History	Aug-13

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