



Republic of Botswana

PROJECT DOCUMENT

2011 POPULATION AND HOUSING CENSUS

Ministry of Finance and Development Planning

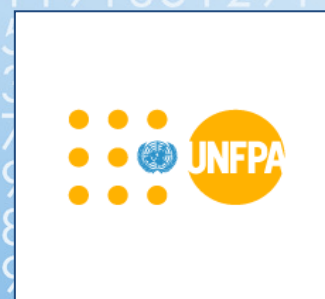
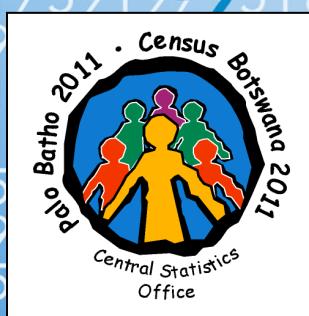
2011 Census Slogan:

Palo yame, tsela ya ditlhabololo

My count, a guide to developments

August 2009

CSO in Collaboration with UNFPA



PROJECT DOCUMENT

2011 POPULATION AND HOUSING CENSUS

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PREFACE

The CSO in collaboration and support from UNFPA embarked on the development of a comprehensive Census Project Document that will also serve as source for support and resource mobilization for all processes of the 2011 Census undertaking.

Botswana has a tradition of preparing project documents for the census. Census project documents have been prepared for the 2001, 1991 and 1981 censuses. It is hoped that the document will assist in resource mobilisation especially from development partners to participate in this massive project during the current global economic challenges.

This Document covers the evaluation of the 2001 census processes, the expected structure of the 2011 National Census Secretariat, roles and responsibilities of different census committees, the institutional capacity assessment of the CSO for a successful conduct of the census in order to find response to needs' requirements and to proactively fill the gaps. The project document also provides different strategies as census implementation guide and the needed Technical Assistance.

The Document provides recommendations to be implemented for the success of the 2011 Census.



Anna Majelantle
Government Statistician

August 2009

LIST OF ABBREVIATIONS AND ACRONYMS

CCC	Census Central Committee
CEDA	Citizen Entrepreneurial Development Agency
CCPA	Census Communication, Publicity and Advocacy
CCPAC	Census Communication, Publicity and Advocacy Committee
CSC	Census Standing Committee
CSO	Central Statistics Office
CSPPro	Census and Survey Processing System
CTA	Chief Technical Adviser
CTO	Central Transport Organization
DC	District Commissioner
DCO	District Census Officers
DCC	District Census Committee
DEO	Data Entry Operators
DIP	Digital Image Processing
DIT	Department of Information Technology
DLO	District Lands Officer
DO	District Officer
EA	Enumeration Area
EAS	Enumeration Area Supervisor
GDN	Government Data Network
GIS	Geographic Information Systems
GPS	Global Positioning System
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
ICPD	International Conference on Population and Development
ICT	Information Communication Technology
IMIS	Integrated Management Information Systems
IMPS	Integrated Microcomputer Processing System
IPC	International Programme Centre of the US Census Bureau
ISSA	Integrated System for Survey Analysis
IT	Information Technology
LAN	Local Area Network
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MFDP	Ministry of Finance and Development Planning
MLG	Ministry of Local Government
NCC	National Census Coordinator
NCS	National Census Secretariat
NCAC	National Census Advisory Committee
NDP	National Development Plan
NEPAD	New Partnership for Africa Development
NGO	Non-Governmental Organization
OCR	Optical Character Recognition
OS	Operating Systems
PC	Personal Computers
PES	Post Enumeration Survey
PHC	Population and Housing Census
PM	Project Memorandum

PS	Permanent Secretary
RISDP	Regional Indicative Strategic Development Plan
SADC	Southern Africa Development Community
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for the Social Sciences
TO	Technical Officers
TOT	Training of Trainers
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNV	United Nations Volunteers
USAID	United States Agency for International Development
WAN	Wide Area Network

EXECUTIVE SUMMARY

The Botswana 2011 Census Project Document is the fourth of its kind in the country's forty years of census taking since independence. In consistency with established United Nations guidelines on census taking, the project document considers census as a process which comprises several phases and which involves the government and its development partners. From the 1990 round of censuses, the United Nations recommends the holding of Population and Housing Censuses (PHCs) that are meant to capture important household and individuals' demographic and socio-economic data as well as data on housing quality and housing amenities. The 1991 PHC of Botswana was the first such census within the said United Nations framework which has undergone several editions to capture recent perspectives.

Since its independence in 1966, Botswana has successfully conducted decennial censuses from 1971 through 2001. The country's political stability and economic buoyancy have been supportive of the census exercise whose results have not had any major shortcomings. In a significant move within the context of regional integration, the Southern African Development Community (SADC) decided to harmonise the census process of its member states from the 2000 round of censuses. The Republic of Botswana thus responded to this regional requirement in the 2001 census, the country's fourth census since independence and the first in the edition of the SADC-wide rounds of censuses.

In 2001, the total direct cost of the 2001 PHC was approximately 47.9 million Pula for a population of 1,680,863 inhabitants. This budget was fully funded by the Government of Botswana and didn't include census indirect costs by the Government such as SADC collaboration effort, UNFPA missions and printing and publicity. According to the projections prepared by the CSO, the 2011 PHC is expected to count 1,826,022 people at an estimated total cost of 243,575,993 Pula. UNFPA technical support through short term and long term consultancies and advisory missions are not included in this cost. While the government of Botswana will be funding the 2011 Census as in the past, there might be a need to look for donor assistance especially because of the current global economic challenges

1. BACKGROUND AND JUSTIFICATION

1.1 Background of the 2011 Census Taking

Botswana has a long history of census taking since the colonial period. In the colonial period the country conducted censuses at irregular intervals: in 1904, 1911, 1921, 1936, 1946, 1956 and 1964.¹ Since independence in 1966, the country has carried out four decennial censuses, the last one in 2001 when the SADC recommendation took effect in relation to the SADC Millennium Census Project 2000.² Several episodes of census taking imply that the CSO has acquired a strong institutional memory for the exercise in which it has attracted support from UNFPA and other development partners. With an experienced team, reinforced by international experts, where necessary, the CSO should continue embracing modern technologies that accelerate the census process and permit quick dissemination and utilization of the census results.

The 2001 PHC was Botswana's fourth census since independence and the first in the edition of the SADC-wide round of censuses. The SADC initiative involved harmonisation of concepts and definitions, synchronised data collection, training of personnel and dissemination of census results among the member states. Several reports were published on the 2001 census, two of which underline their utility as census products: Administrative and Technical Report 2001 which retrospectively analyses the whole census cycle and the Analytical Report of the 2001 PHC which presents detailed analysis of demographic and housing variables. A review of all published reports revealed their strengths and weaknesses, the latter including providing statistical compendiums without accompanying textual explanation, technical demographic analysis that is not user friendly and some editorial lapses.

1.2 Justification

Information generated from a PHC serves various purposes. Some of these are discussed below.

1.2.1 Evidence-based decision making, policy-making, planning and administration

Botswana has had successive National Development Plans (NDPs). Currently, it has developed NDP10 (2009-2016) through the prisms of Vision 2016 and the Millennium Development Goals (MDGs) which of necessity rely on population data at national, district and sub-district levels. The 2011 PHC is particularly important because it will inform mid-term review of NDP10 as well as evaluation of both Vision 2016 and MDGs expected to end in 2016 and 2015 respectively. Population data will inform various development planning frameworks, and development will, in turn, influence demographic phenomena. The 2011 PHC will complement data from surveys that the country has undertaken and those it will carry out in future.

1.2.2 Research

The 2011 PHC will provide data for further analysis, leading to published material, policy documents and research on issues generating interest and arousing curiosity.

¹Detailed information on census taking in Botswana is contained in Republic of Botswana (2003) *Administrative and Technical Report*, pp. 4-7.

²The SADC initiative was in the context of the 2000 round of censuses which saw Botswana become one of the first countries in the pack to carry out a census.

Researchers will find the census data invaluable for more in-depth analysis, comparison with the 2001 census results and to attract further research.

University academics and students constitute a special group that will benefit greatly from the 2011 PHC from which they would be expected to publish *academic and policy papers*, prepare dissertations/theses and launch new research interests/agenda.

Governmental and non-governmental institutions would find the census data useful for their work relating to their specific mandates. For instance, education, health, housing and vulnerability issues would receive more professional or expert treatment by institutions and individuals who are best suited to handle them. Outcomes of such research and analysis would inform policy and programmes requiring data updates.

Equipped with the latest technologies, the CSO will be able to manipulate the 2011 census data better, using the GIS among other technologies to enhance expeditious utilisation of the data collected. To meet the demands of data users, the CSO *should complete quickly* the data warehouse project currently underway. The warehouse will facilitate holding of diverse datasets on population and related issues which researchers could easily access for further analysis.

1.2.3 Service to stakeholders

Apart from the public sector, the private sector requires population and housing data for it to meet their clients' needs. Moreover, it is necessary to know the size, gender dimension, age distribution, human resource-enhancers (education and health and other population attributes) of the country's labour force and market assessments, for instance.

1.2.4 Formulation of housing policy and programmes

Formulation of housing policy and programmes represents one of the principal uses of PHC. Housing data from the census will enable planners and policy makers formulate meaningful housing policy and design; appropriate programmes to meet the demand for housing, especially in urban and rural villages; and the housing quality in these localities.

1.2.5 Vulnerable population data and their utility

The 2011 PHC will collect data on different categories of population with varying types of vulnerability. Among the special groups are minorities, the disabled, orphans, youth and women. Their demographic and socio-economic attributes require special treatment in policy and programme terms, which must be factored in the country's development process at all levels.

1.2.6 Diversification in the development sphere

Over the last few years, the country's development policy has been emphasizing diversification to reduce exclusive reliance on diamonds. The 2011 PHC will generate data that will inform different development frameworks aimed at diversification in the country, among them Small and Medium Enterprises (SMEs), the Citizen Entrepreneurial Development Agency (CEDA), youth-based cultural (including art) programmes and other emerging economic pursuits. Botswana's well-developed livestock and mining industries, which have made the country become a middle-income

economy, are the backbone of its promising future to which the 2011 PHC data will contribute considerably.

In a nutshell, the Botswana 2011 PHC, linked to other surveys taking place in the country, will respond appropriately to the NPD 10, Vision 2016 and the MDGs.

1.3 Project Development Objectives

The 2011 PHC will provide Government and other development partners with data for purposes of policy formulation, socio-economic and health planning, service delivery and indicators for measuring progress towards the attainment of key Government targets and time-bound targets. This Census will also provide data supportive of national priorities and contribute towards more efficient compilation and use of administrative data.

It will result in sustainability of data collection and analysis in the future through increased capabilities, better sampling frames for future surveys, quality maps, and expanded data processing facilities. These constitute the major components of an integrated national statistical system.

Specifically, the census data will be an important tool for measuring and assessing development frameworks including the NDP10, the MDGs and Vision 2016. All of these lay emphases on combating HIV/AIDS, reducing poverty and food insecurity, reducing maternal mortality, reducing gender inequality and inequities, including gender-based violence, improving adolescent and young people reproductive health and reproductive rights, reducing regional imbalance in development and improving service delivery through a policy of decentralization.

1.3.1 Ultimate objective

The overall goal of the 2011 PHC is to contribute to the improvement of quality of life of the Botswana through providing the Government and other stakeholders with relevant, reliable and timely data and information for development planning, policy formulation and services delivery as well as for monitoring and evaluation of development programmes and plans.

1.3.2 Specific objectives

By the end of the 2011 census cycle, Botswana will be well placed to:

- Have increased availability and accessibility of accurate, timely and reliable data on demographic and socio-economic characteristics, for evidence based decisions, policy formulation and monitoring and evaluation of development frameworks at national, sub-national and sectoral levels;
- Have increased knowledge of stakeholders, at all levels, on population characteristics, patterns and trends;
- Have increased utilization, at all levels, of data and information for designing, monitoring and evaluating development programmes and plans;
- Have strengthened national capacities in data collection, processing, analysis, dissemination and utilization, including geographic information system (GIS), as well as in census strategic planning and management.

To achieve the objectives, a number of activities and sub-activities will be undertaken. These are given in the Census Work plan, in Annex. I. Some of the activities will include the census motto/slogan, which reads as “My count, a guide to developments” which translates into Setswana as “Palo yame, tsela ya ditlhabololo”

1.4 Census Project Components

A population census is the total process of collecting, compiling, evaluating, analyzing and publishing or otherwise disseminating demographic, economic and social data pertaining, at a specified time, to all persons in a country. The essential features of a population census are individual enumeration, universality within a defined territory, simultaneity and defined periodicity.

The population census is the largest data collection undertaking in a country by a government. Not only does it cover the whole country, but it also provides information on every person, from the newly born babies to the oldest person in the country as well as for nationals and non-nationals.

The population census provides information on the geographic and administrative distribution of the population in addition to the demographic and socioeconomic characteristics of all the people in the country. The data from the census are classified, tabulated and disseminated so that political leaders, election officials, planners, national organizations including NGOs and civil society, regional and international organizations can use the data in decision-making. For the purposes of good governance, census poverty maps can play an important role in guiding the distribution of resources and allocation of public spending to reduce poverty. Census results are also used for review of power sharing such as allocation of parliament seats by administrative sub-divisions and also representation at local government level through councillor wards. However, utilization of census results in the election process should be at the aggregate levels. Micro level data (individual records) shall be protected by the Statistics Act and will not be used for any other purpose except for research and statistical analysis.

The census process involves several components which can be grouped into five broad stages:

1. Planning and Management
2. Preparatory Work
3. Field Operations
4. Data Processing; and
5. Census Products and Dissemination

The census process will require enormous resources – personnel, materials and equipment, transport, etc. For this reason, Government commitment and support is essential. Timely disbursement of resources is also essential to ensure adherence to the very tight census schedule of activities.

A summary of the major activities with timelines is provided in the table below.

BOTSWANA 2011 POPULATION AND HOUSING CENSUS			22 - 31 August 2011 Enumeration	
#	STAGES	COMPONENTS	START	END
1	PLANNING AND MANAGEMENT			
1.1	Legal, Organizational, Fund Raising		Oct 08	Jun 09
1.2	Establish Census Secretariat		Apr 09	Apr 09
1.3	Develop Strategic Direction		Apr 09	Jun 09
1.4	Establish Census Committees		Apr 09	Oct 09
1.5	Establish District Census Offices		Jul 09	Nov 09
1.6	Establish Procurement Office		Apr 09	Jun 09
1.7	Capacity Building		Jan 09	Mar 12
2	PREPARATORY			
2.1	Develop Census Operations Strategy		Apr 09	Aug 09
2.2	Census Communications, Publicity and Advocacy		Jan 09	Aug 11
2.3	Cartography and GIS		Jul 09	Apr 11
2.4	Printing of Census Documents		Jun/Jul 10	Jan/Jun 11
2.5	Procurement of Equipment and Materials		Apr 09	Jun 11
2.6	Pilot Census		22 Aug 10	31 Aug 10
2.7	Planning for Post Enumeration Survey		May 11	Jun 11
3	FIELD OPERATIONS (Pilot, Census & PES)			
3.1	Recruitment of Field Staff		May 10	Sep 11
3.2	Training of Field Staff		Jul 09	Sep 11
3.3	Storage and Distribution of Questionnaires etc to Field		Apr 11	Jul 11
3.4	Assignment of Tasks and Deployment of Field Staff		Jul 10	Sep 11
3.5	Census Field Enumeration		22 Aug 11	31 Aug 11
3.6	Retrieval and Storage of Questionnaires from Field		Sep 11	Mar 12
3.7	Post Enumeration Survey		21 Sep 11	30 Sep 11
4	DATA PROCESSING			
4.1	Develop Data Processing Strategy/Agreed Strategy		Apr 09	Jun 09
4.2	Develop Data Processing Operations and Cycles		Nov 10	Jan 11
4.3	Procure Data Processing Equipment		Apr 09	Sep 10
4.4	Recruit and Train Data Processing Staff		May 11	Jul 11
4.5	Data Capture	Pilot Census Main Census	Oct 10/ Oct 11	Nov 10/ Mar 12
4.6	Edit and Validation of Data	Pilot Census Main Census	Dec 10/ Mar 12	Jan 11/ May 12
4.7	Post Enumeration Survey Processing		Nov 11	Jan 12
5	CENSUS PRODUCTS AND DISSEMINATION			
5.1	Provisional Results		Sep 11	Sep 11
5.2	Develop Census Products (Analysis, Tabulation, Databases)		Apr 09	Mar 11
5.3	Develop Strategies for Dissemination of Census Products		May 09	Mar 10
5.4	National Dissemination		Aug 12	Sep 12
5.6	Launching of Census Atlas		Jan 13	Dec 14
5.7	Launching of Botswana Redatam-based IMIS		Aug 12	Sep 12
5.8	Launching of Botswana Census-INFO CD-ROM		Aug 12	Sep 12
5.9	Development of Sampling Frame		May 12	Jul 12

1.5 Resource Mobilisation

Botswana's past development record ranks it as an upper middle-income country that does not need financial resources for an important national exercise such as census. Unfortunately, the country's strong economic base has not been matched with human resources that, on its own and without a guide such as the project document, can run a successful census without compromising its other national obligations. Moreover, the country's development stands to be adversely affected by the current world economic downturn which will compel it to take austerity measures as it plans for the 2011 PHC. Although Botswana undertook the 2001 PHC without relying on external support, it will be forced to seek such support from its development partners, the relevant one in connection with the 2001 PHC being UNFPA.

1.5.1 Census Budgeting and Cost Control

Effective planning and control of the census operations are not possible without a very careful financial estimate of the cost of each census operation, including all of its components, no matter how small.

Information on expenditures from the previous census classified by census phases, starting with the expenditure for different elements of the preparatory work and ending with expenditure for the dissemination of the census results, provided an important basis for estimating the budget of the census. Figures from the previous census will of course have to be modified in order to take into account quantitative and qualitative changes in hardware and software, changes in wage rates and the costs of equipment, supplies and so on, planned changes in census content, methods and procedures, and anticipated changes in the population itself (for example, total size, percentage urban, and average household size), all of which may affect the cost structure of the census.

To obtain the information needed to monitor the costs of the current census and that needed to plan for the next, detailed and precise data were required on the following: (a) number and cost of census staff classified by function and manner of payment; (b) type of equipment and material used for the census, manner of acquisition (in other words, purchase or rental) and cost; (c) office space (surface measurement), classified by use and type of cost (in other words, for construction or for rent); (d) type of services used for census operations.

1.5.2 Project Costs by Component

The estimation of the census budget items was a participatory exercise conducted by the CSO which involved the persons at the administrative and supervisory levels who will be responsible for the execution of each operation. The CSO presented the census plan and budget to the Government of Botswana with adequate lead time, to facilitate the appropriation of sufficient resources from the national budget and, if necessary, from the international development community.

The total estimated cost of the census operation is 243,575,993 pula. The budget summary breakdown by year and by census main areas is given below (Table 1).

While the government of Botswana will be funding the Census as in the past, there is a need to source donor funding especially because of the current global economic challenges.

Table 1: BUDGET SUMMARY BY MAJOR ACTIVITY

2011 PHC BUDGET SUMMARY							
	MAJOR AREA	2009/10	2010/11	2011/12	2012/13	2013/14	Total (incl VAT and Contingency)
i.	Planning, Preparation, Management, Publicity, Enumeration, Analysis & Dissemination	2,218,977	32,407,758	176,054,140	2,584,560	363,000	213,628,436
ii.	Cartographic Activities	10,933,514	7,888,737	1,869,212	321,988	0	21,013,452
iii.	Data Processing Activities	826,481	7,661,905	445,720	0	0	8,934,106
	TOTAL	13,978,972	47,958,401	178,369,072	2,906,548	363,000	243,575,993

2011 PHC BUDGET BREAKDOWN		YEAR WISE SUMMARY					ITEM WISE SUMMARY			
		1	2	3	4	5	6=1+2+3+4+5	7=6 x 0.1	8=(6+7) x 0.1	9= 6+7+8
i.	Census Planning, Management, Publicity, Enumeration, Analysis & dissemination	2009/10	2010/11	2011/12	2012/13	2013/14	Total (Amnt)	10% VAT	10% Conting. (Amnt+VAT)	Total (Amnt+Vat+conting.)
1	Personnel - salaries, allowances, overtimes, subsistence, etc	910,760	10,615,200	91,835,437	501,600	0	103,862,997	0	10,386,300	114,249,297
2	Transport - Hired vehicles and fuel	4,800	13,441,040	48,650,205	0	0	62,096,045	6,209,605	6,830,565	75,136,214
3	Materials/Supplies/Equipment for Pilot, Census & PES	24,400	931,430	2,318,302	60,000	0	3,334,132	333,413	366,754	4,034,299
4	Printing of Census materials - Questionnaires, manuals, etc	1,702	464,000	3,290,000	0	0	3,755,702	375,570	413,127	4,544,399
5	Training Facilities - Private Venues - for DCOs & Tos - 3 trainings (1 per year)	616,000	616,000	616,000	0	0	1,848,000	184,800	203,280	2,236,080
6	Training Facilities - only food budget required - Pilot	0	620,520	0	0	0	620,520	62,052	68,257	750,829
7	Training Facilities - only food budget required - Census	0	0	5,178,480	0	0	5,178,480	517,848	569,633	6,265,961
8	Training Facilities - only food budget required - PES	0	0	609,720	0	0	609,720	60,972	67,069	737,761
9	Publicity (Cartography,Pilot,Census,PES,Products)	59,000	760,100	1,077,820	20,000	0	1,916,920	191,692	210,861	2,319,473
10	Capacity Building - Demographic analysis	300,000	150,000	50,000	200,000	0	700,000	70,000	77,000	847,000
11	Data Processing & Analysis of Pilot, Main Census & PES	0	150,000	150,000	1,200,000	0	1,500,000	150,000	165,000	1,815,000
12	Dissemination - Printing Census products and dissemination seminars	0	0	72,001	200,000	300,000	572,001	57,200	62,920	692,121
	Sub-Total	1,916,662	27,748,290	153,847,965	2,181,600	300,000	185,994,517	8,213,152	19,420,767	213,628,436
	10% VAT (Less Personnel)	100,590	1,713,309	6,201,253	168,000	30,000	8,213,152			
	10% Contingency (Sub total + VAT)	201,725	2,946,160	16,004,922	234,960	33,000	19,420,767			
	Total	2,218,977	32,407,758	176,054,140	2,584,560	363,000	213,628,436			
ii.	Cartography	2009/10	2010/11	2011/12	2012/13	2013/14	Total (Amnt)	10% VAT	10% Conting. (Amnt+VAT)	Total (Amnt+Vat+conting.)
13	Personnel	3,856,133	4,690,040	1,461,567	0	0	10,007,740	0	1,000,774	11,008,514
14	Transport	1,039,500	1,386,000	0	0	0	2,425,500	242,550	266,805	2,934,855
15	Materials and Supplies	519,126	354,839	0	0	0	873,965	87,396	96,136	1,057,497
16	Equipment & softwares for GIS & Cartography	3,627,195	410,106	216,106	216,106		4,469,513	446,951	491,646	5,408,111
17	Printing	5,500	5,000	0	0	0	10,500	1,050	1,155	12,705
18	Training - Cartography fieldwork staff	239,065	0	0	0	0	239,065	23,907	26,297	289,269
19	Publicity - Cartography	0	0	0	0	0	0	0	0	0
20	Data Processing and Analysis	100,000	100,000		50,000		250,000	25,000	27,500	302,500
	Sub-Total	9,386,519	6,945,985	1,677,673	266,106	0	18,276,283	826,854	1,910,314	21,013,452
	10% VAT (Less Personnel)	553,039	225,595	21,611	26,611	0	826,854			
	10% Contingency (Sub Total + VAT)	993,956	717,158	169,928	29,272	0	1,910,314			
	Total	10,933,514	7,888,737	1,869,212	321,988	0	21,013,452			
iii.	Data Processing	2009/10	2010/11	2011/12	2012/13	2013/14	Total (Amnt)	10% VAT	10% Conting. (Amnt+VAT)	Total (Amnt+Vat+conting.)
21	Personnel	0	50,932	0	0	0	50,932	0	5,093	56,025
22	Transport - fuel & driver overtimes for transporting night shift data entry staff	0	0	196,364	0	0	196,364	19,636	21,600	237,600
23	Materials and Supplies	0	100,000	100,000	0	0	200,000	20,000	22,000	242,000
24	IT Equipment & softwares for Census data processing	543,042	675,820		0	0	1,218,862	121,886	134,075	1,474,823
25	Systems development for data processing, analysis and verification		5,510,031	72,000	0	0	5,582,031	558,203	614,023	6,754,258
26	Capacity Building - IT staff	140,000		0	0	0	140,000	14,000	15,400	169,400
	Sub-Total	683,042	6,336,783	368,364	0	0	7,388,189	733,726	812,191	8,934,106
	10% VAT (Less Personnel)	68,304	628,585	36,836	0	0	733,726			
	10% Contingency (Grand Total + VAT)	75,135	696,537	40,520	0	0	812,191			
	Total	826,481	7,661,905	445,720	0	0	8,934,106			
	Grand Total	11,986,223	41,031,057	155,894,002	2,447,706	300,000	211,658,989			
	10% VAT (Less Personnel)	721,933	2,567,489	6,259,700	194,611	30,000	9,773,732			
	10% Contingency (Grand Total + VAT)	1,270,816	4,359,855	16,215,370	264,232	33,000	22,143,272			
	Grand Total	13,978,972	47,958,401	178,369,072	2,906,548	363,000	243,575,993			

1.6 Sustainability and Critical Risks

Sustainability of the project will be ensured by a number of factors including national commitment, donor commitment, capacity building, and quality assurance. National commitment should be reflected through legal actions (Acts and formation of census committees), human, financial, and other resource allocation. Donor commitment is reflected through financial resources and providing technical support. National capacity development will be central to the various levels of census planning and implementation including cartography/mapping fieldwork, data collection, data processing, evaluation and analysis of data and dissemination of results.

Quality assurance procedures (well-designed and tested tools and plans, spot checks, internal consistency and range checks, independent verification and supervision) will be built in. So far no stakeholder (Government departments, NGOs, and civil society organizations, groups, influential individual and international organizations) has expressed concern that its interests are threatened by the census project. On the other hand, the mood is positive and there is expectation that the census will produce credible and useful results beneficial to all sectors of the Botswana society.

As shown below, there are, however, a number of challenges and potential risks that need to be taken into account.

Table 2 Risks and Risk Mitigation Measures		
	Risk	Risk-mitigation measures
1.	Delays in decision-making regarding the timetable for implementing the various census activities may affect efficient and effective implementation of the census.	Adherence to the Census timetable is emphasized.
2.	<i>Mapping, listing and enumeration of special groups:</i> Special groups such as the homeless and illegal immigrants. The risk here is the possibility of not having adequate census coverage for each of them, especially the dispersed San people.	Better planning, advocacy and collaboration with representatives of these groups where possible will be addressed.
3.	Displacement of people after cartographic work.	Consultation with relevant stakeholders will be held. Updating of cartographic work will be undertaken before enumeration in areas where it is deemed necessary.

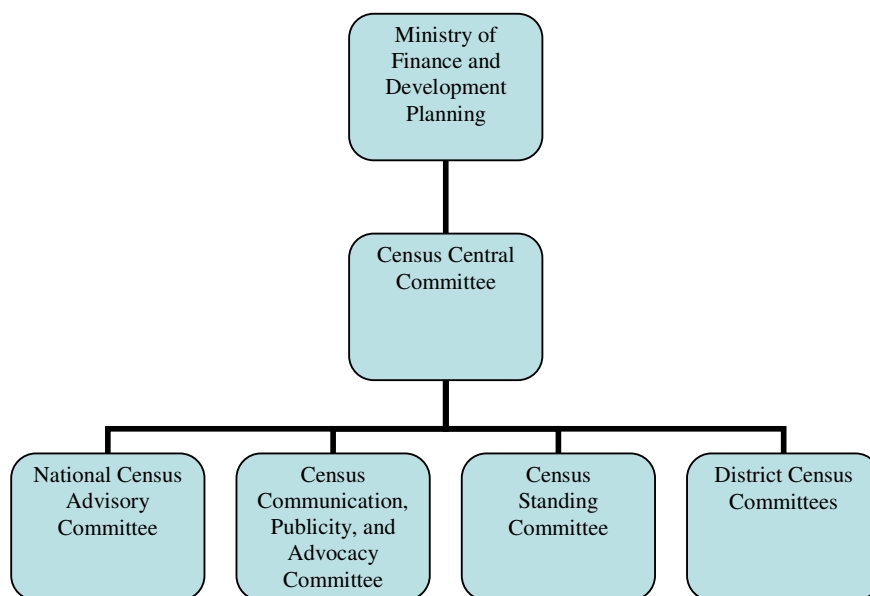
2. STRATEGIES FOR CENSUS PLANNING AND MANAGEMENT

Conducting a census requires developing a clear census management framework, which outlines the census management structure, the key activities, responsibilities and critical dates, as well as capacity enhancement and resource mobilization. This structure clearly outlines the supervisory and implementation responsibilities of the various stakeholders.

2.1 Census Supervisory Structure

The census supervisory structure shows the various organs which will supervise the implementation of 2011 Botswana census activities. The supervisory authority is anchored within the Ministry of Finance and Development Planning (MFDP).

2.1.1 National census supervisory structure



2.1.2 Census Central Committee

The Census Central Committee (CCC) is the apex committee of the 2011 Population and Housing Census. The Permanent Secretary (PS) in the MFDP charged with conducting population and housing censuses (PHCs) will provide the overall oversight of the 2011 PHC. In the present MFDP set up, this responsibility falls under the Secretary for Economic and Financial Policy and the secretariat will be the National Census Coordinator. The duties of the committee will include:

- Attending all the Census Central Committee meetings
- Formulating census policies in collaboration with stakeholders;
- Lobbying for and mobilising resources from the government, development partners and private sector; and
- Providing leadership that will guide successful execution of the 2011 census activities.

2.1.3 National Census Advisory Committee

The National Census Advisory Council (NCAC) will be the advisory organ on census matters and is expected to:

- Formulate all the relevant census policies;
- Advise the National Census Secretariat;
- Liaise with all stakeholders to provide the required support to the census; and
- Advise appropriately the Minister and the PS in charge of the census.

The NCAC will comprise high-level representatives of relevant stakeholders from the public sector, development partners and civil society. The NCAC will be chaired by the Government Statistician and the secretariat will be the National Census Coordinator.

The NCAC will provide guidance on sectoral technical issues through stakeholder representation regarding development of the census instruments, support the national management institutions already mentioned above and to ensure efficient management of the 2011 PHC. Each of them will consist of a broad section of stakeholders of the census exercise.

2.1.4 Census Communication, Publicity and Advocacy Committee

The Census Communication, Publicity and Advocacy Committee (CCPAC) will be responsible for informing and preparing the general public on the activities of the census and the need for everyone to cooperate during the census exercise. A publicity and advocacy expert will head this Committee. Specific roles of this Committee will be to:

- Develop a communication, publicity and advocacy strategy;
- Develop communication, publicity and advocacy materials;
- Develop strategy for disseminating census results;
- Prepare press releases;
- Organize workshops, seminars and public meetings for the purpose of informing the general public; and
- Train members of District Publicity Sub-committees or various census committees and stakeholders under the District Census Committees (DCCs).

This Committee will work closely with the other committees, i.e. the Census Standing Committee (CSC), and the DCCs to incorporate technical aspects of the census in various publicity materials.

Further, this Committee will keep the NCAC informed of progress on matters relating to communication, publicity and advocacy. On the other hand, the NCAC will assist the CCPAC to formulate policies and strategies to enhance fulfilment of its mandate.

2.1.5 Census Standing Committee

The Census Standing Committee (CSC) comprises CSO members and will be charged with all the technical aspects of the 2011 census guided by input from the NCAC. It will be the responsibility of this committee to review all the census instruments, which will include questionnaires, manuals and control forms. The Committee's duties will be to:

- Review and finalise the census instruments;
- Recommend the best practices for preparatory activities, data collection and processing;

- Review and finalise quality assurance guidelines; and monitor and evaluate all the technical activities of the census at all stages.
- Train field staff at various stages of census processes
- Arrange transport requirements at all stages of census fieldwork – pilot and main census enumeration
- Procurement of stores, material, supplies and equipment required for census taking
- Ensure timely delivery of census materials to districts
- Ensure smooth conducting of the main census enumeration as per schedule
- Release preliminary results of the census

2.1.6 District Census Committees

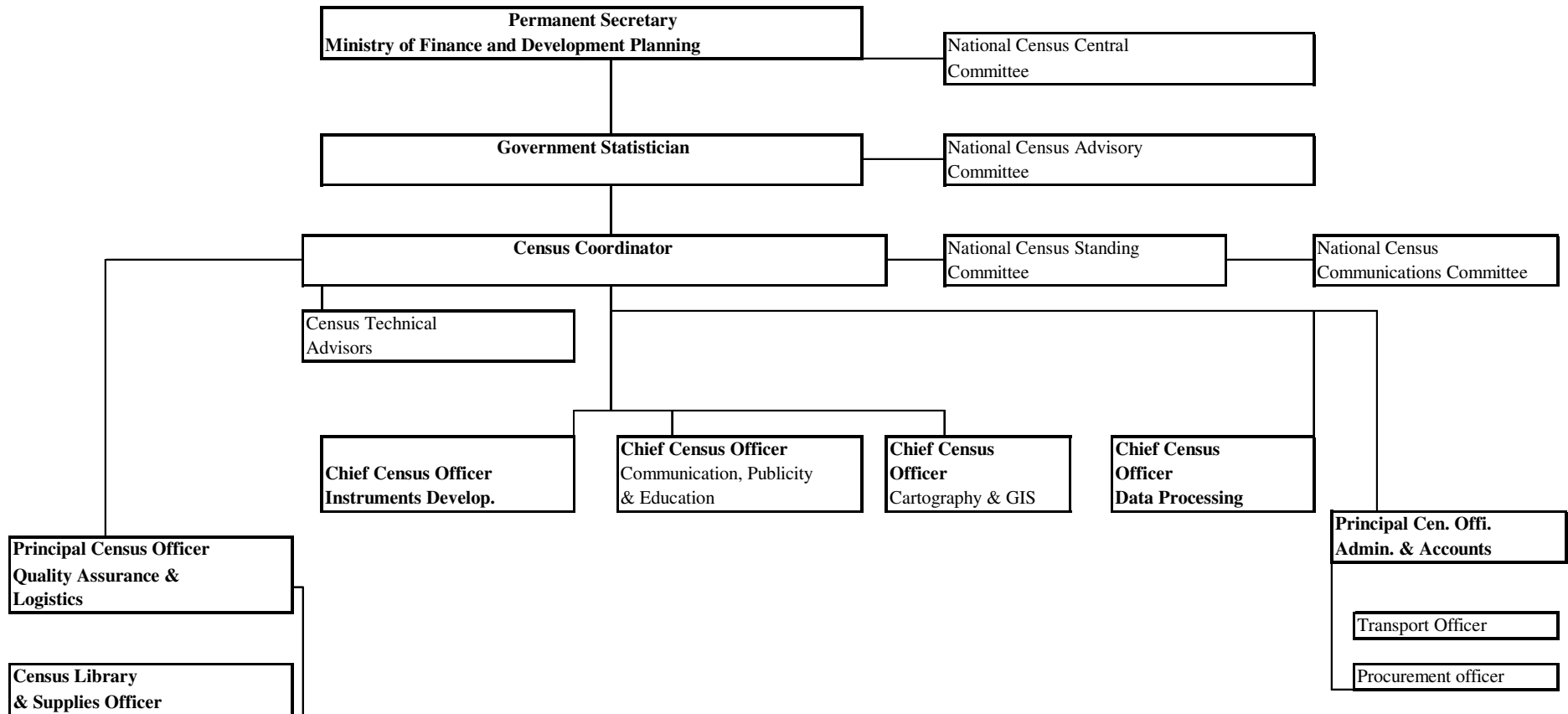
District Census Committees (DCCs) will be established to supervise the implementation of census activities at the district level. District Commissioners will in collaboration with the Council Secretaries, appoint District Census Officers (DCOs) from among the District Administration and District Council Administration. The DCOs may not be the District Commissioners or the Council Secretaries. The District Commissioners will chair the DCCs of their respective districts. The functions of the DCCs will include:

- Providing oversight support to the District Census Offices (DCOs);
- Providing support for publicity and advocacy activities within their respective districts;
- Making security arrangements in their respective districts;
- Ensuring the safety of all census materials and instruments in the DCOs; and
- Providing logistical support during recruitment, training and enumeration and payment of field staff

2.2 Census Management Structure

The Central Statistics Office (CSO) has direct responsibility for implementing the 2011 PHC. The Government Statistician is therefore the Chief Census Officer. CSO will initiate the legal basis for undertaking this exercise through a Legal Notice to be published in the Government Gazette in accordance with the country's Census Act. Implementation of the 2011 PHC activities is envisaged through establishment of various offices as shown below.

CENSUS OFFICE March 2009



The functions of the various offices to manage the 2011 census are detailed as follows.

2.2.1 The Government Statistician

The Government Statistician will be the overall coordinator in charge of the 2011 Census, responsible for providing advice to and supervision of the National Census Coordinator.

2.2.2 National Census Coordinator

The National Census Coordinator (NCC) will manage the day-to-day activities of the National Census Secretariat (NCS). He/she will be answerable to the Government Statistician, supervise the CSO census staff and liaise with the Chief Technical Adviser (CTA) and other technical experts in the NCS.

The NCC's specific functions will include:

- Providing day-to-day professional, technical and administrative support;
- Mobilizing and ensuring proper usage of resources for the census;
- Provide Secretarial services to the CCC and NCAC;
- Coordinating the census office and all stakeholders; and
- Providing necessary link and updates to the Government Statistician.

2.2.3 National Census Secretariat

The National Census Secretariat (NCS) will bring together all the heads of key sections in CSO (GIS/Cartography, Census, Data Processing, Admin/Finance etc). The Census Coordinator will chair secretariat meetings. The key responsibilities of the Secretariat will be to monitor and evaluate the implementation of census activities. In particular, the secretariat will:

- Spearhead the development of census instruments;
- Supervise the design and production of census maps;
- Supervise the recruitment of census personnel;
- Supervise the training of census personnel;
- Supervise the procurement of census materials;
- Supervise the dispatch and receipt of all census equipment, materials and instruments;
- Oversee the enumeration exercise;
- Develop a tracking system;
- Supervise data processing, analysis and dissemination of census results;
- Develop quality assurance guidelines and monitoring mechanisms;
- Develop Terms of Reference for technical assistance where necessary; and
- Draw the agenda for the CSC.

The NCS will host the CTA and all other technical advisers, and will be represented in both the NCAC and the CSC. The NCS will have several units responsible for the implementation of procurement, logistics, publicity, materials' development and testing and the District Census Offices (DCOs).

2.2.4 District Census Offices

The District Census Offices (DCOs) will be outreach units of the CSO and will coordinate all pre-enumeration, enumeration and post enumeration activities in the district. This will ensure better supervision of the implementation of the census by the CSO. They will work in close collaboration with the District administrations.

2.2.5 Technical Experts

Technical experts will be appointed in the NCS through cooperative arrangements of the CSO and UNFPA to be responsible for all technical tasks pertaining to the 2011 PHC. They will include a CTA responsible for all census activities, providing support to the NCS, advising the Government Statistician and the NCC as necessary and directly supervising other technical experts. The latter will include the Cartography Expert and Data Processing Expert on a consultancy basis. They will all be housed at the NCS.

All CSO professional officers and senior technical officers, referred to as Technical Officers (TOs) will be responsible for advising districts on census technical matters during the pilot and the main census enumeration periods. The TOs will also be responsible for training of census DCOs, supervisors and enumerators.

2.3 Strengthening CSO and National Capacities

In its present form, the CSO capacities need to be built for the implementation of the census exercise. Its regular staff will have to undergo training in the latest methods of census taking and make study tours to countries that have already adopted the latest methods long before the first phase (pre-enumeration) of the 2011 PHC. The countries to be visited include Mozambique in 2009 and Malawi in 2010 in the SADC region. The officers will also gain through short term training courses, time resource permitting. Capacity strengthening of all personnel working at, or closely related with, the NCS will prepare them adequately for the 2011 PHC. With the CTA, Census personnel will be train in areas in which they will be assigned in the census cycle.

2.4 Timely Execution

All planned activities will take place as scheduled in the detailed work plan. Those in charge of respective activities will be required to be proactive, i.e. to act quickly as appropriate thereby avoiding delays that might disrupt the work at hand.

2.5 Communication, Publicity and Advocacy Strategy

For the census exercise to succeed, the entire population has to co-operate and participate willingly. Special attention will be given to sensitisation and education of the general public on the importance of the census not only to them individually but also to the national development programme. When an informed public both understands and appreciates the importance of census and the use of data it generates, CSO and the NCS will easily cooperate with enumerators during the entire exercise. The NCS will ensure the setting up and operations of communication, publicity and advocacy committees at national and district levels. A Census Communication, Publicity and Advocacy (CCPA) strategy will guide all work in this area.

2.6 Improved Services to Stakeholders

Census stakeholders in Botswana seem to be more involved in pre-enumeration and enumeration phases of censuses than in the post-enumeration phase which among other things encompasses dissemination of results. However, they need to be involved in the post-enumeration to ensure that the exercise is brought to a logical conclusion. It is at this stage that the stakeholders require special service in terms of the tabulations generated in the interest of their routine work and additional analyses to be undertaken for more census results. They also need to be involved in the dissemination of census results.

2.7 Strategies for Data Analysis and Preparation of Reports

Much as data analysis is the work of regular CSO staff and/or outsourced institutions, it should include those identified to prepare reports to bring the two parties together in a viable working relationship. Without that happening, there will be disparity and tensions between the two interrelated activities. It is at this stage that demographers and other social scientists should engage with data analysts to produce useful data on which to prepare reports. All basic and analytical reports prepared must be identified long before data analysis takes place, but some would subsequently be prepared to meet particular stakeholders' needs.

2.8 Strategies for Dissemination of Census Results

Dissemination of the 2011 PHC will take different forms, including the CSO printed reports. Although the Communications, Publicity and Advocacy (CPA) strategy elaborates dissemination strategies, suffice it to say that dissemination will entail more regularly used channels such as calendars, diaries and radio, which do not require advanced numeracy and literacy.

2.9 Resource Mobilisation Strategy

The Government of Botswana is totally committed to ensuring successful conduct of the census exercise. The budget of the 2011 PHC is allocated as part of the budget ceiling of the Ministry of Finance and Development Planning (MFDP). Botswana currently faces the economic constraints faced by many countries. As such, the Government of Botswana finds it difficult to fully fund the census. If necessary, UNFPA, the CSO and the NCS will collaborate and develop a workable resource mobilisation strategy.

2.10 Capacity Building of CSO

The CSO has a regular staff complement of 278 (see Table 2.2, in Annex II). The vast majority of personnel are artisans in the job categories B1 and B2 who possess anything up to the Certificate in Population and Socio-economic Statistics; they are followed by professional staff in the C category with either diploma qualifications or first degrees. In the minority are personnel in the D category; and the two chief executives, both the Government Statistician and the Deputy Government Statistician, are in E1 and E2 categories respectively. Majority of professional officers have post graduate. The CSO will identify personnel for specific roles in the census, who will be trained and deployed as appropriate.

For CSO to undertake the 2011 census effectively and efficiently, it needs to strengthen its current human and technical capacities. Capacity building will be undertaken through various short- and long-term training courses to equip staff with relevant skills in data collection, processing, analysis, dissemination and utilization. The training plan should include courses in areas such as:

- Census planning;
- Quality control and assurance;
- Census Data Processing
- Demography and demographic data analysis;
- Sub-national population projections;
- Sampling and statistical methods;
- Information technology, LAN and internet software;
- Integrated Management Information Systems (IMIS);
- Geographic Information Systems (GIS);
- Advocacy and publicity;
- Strategic management;
- Report writing; and
- Data dissemination and utilization of census results.

Capacity building at the CSO will also be strengthened through staff study tours to countries that have undertaken censuses using new technologies for data collection, production of enumeration area maps, data capture, analysis and dissemination. During such tours, the participants are expected to learn the experiences, challenges and best practices on the application of these new technologies. It is suggested that study tours take place in the initial stages of the preparatory work to provide time for lessons learned to be applied in the 2011 PHC. In addition, development partners and government should provide technical assistance in the form of short- and long-term advisers and consultants in the following areas:

- Overall Census organization supervised by the CTA;
- Cartography and GIS including maintenance of GIS software and hardware;
- Advocacy and publicity;
- Information technology including IMIS; and
- Census data analysis and utilization.

2.11 Possible Constraints

The CSO should take into account other factors that are beyond its direct control but which are bound to influence the planning and execution of the census exercise. The value in considering such factors is that the risks associated with them can then be identified and appropriate risk-management guidelines developed. Failure to identify such constraints early enough is likely to impact negatively on the census exercise at a time when there would be little or no scope to react or where the cost may be prohibitive. Major constraints include:

- Cost;

- Timely availability of resources;
- Government decisions;
- Production capacity;
- Logistics capacity;
- Insecurity;
- Public attitudes and
- Adherence to census plan

3. COMMUNICATION, PUBLICITY AND ADVOCACY (CPA) STRATEGY

For the census exercise to succeed, the entire population has to co-operate and participate willingly. It is therefore necessary to sensitise and educate the public on the need for and importance of the census. An informed public will understand and appreciate the importance of census and the use of data collected. To achieve this, the NCS, supported by CPAC, must develop a nationwide publicity and educational campaign to make the public aware of the importance of the Census to their daily lives and to the future of the nation.

3.1 Communication, Publicity and Advocacy Officer

CSO has to appoint an officer responsible for CPA during the entire census cycle. This officer's responsibility will be to organize and coordinate as well as prepare and implement appropriate publicity and educational programmes for all communities at both national and sub-national levels. In addition, the District Census Offices will coordinate and implement publicity strategies at the district level.

The publicity campaign will cover the full period of the Census, and will therefore continue, albeit with different emphasis, through the duration of the Census project and will terminate with the publication of Census analytical reports.

3.2 Communication, Publicity and Advocacy Strategies

The CPA methods to be used for publicising the 2011 PHC are highlighted below.

3.2.1 Publicity Unit

The publicity section will develop and distribute different forms of publicity material. These will include the following:

- Public addresses in different settings;
- Public address to the Council, Parliament and the Parliamentary Population Committee to enlist their support in census operations;
- Batswana's traditional system of communal meetings in the "Kgotlela meetings", which provide opportunities for the CPA strategy; and
- Production of census pamphlets and booklets (in English and Setswana).

Census Slogan

The census slogan/motto has been adopted and reads as:

English: *My count, a guide to developments*

Setswana: **Palo yame, tsela ya ditlhabololo**

The message in the slogan is that the individual understands the purpose for which the census is being conducted and they want to be counted as their count gives aggregated information that will be used to guide evidence based decision making, policy and program formulations to bring developments to the people.

3.2.2 Electronic Media

Radio

Radio Stations in the country will relay broadcasts on the preparation, conceptions and results of the census through publicity and education campaigns.

Television

The local television stations — will prepare, produce and transmit news bulletins, documentaries and advertisements on the census.

Cellular

With the support of cell phone companies — messages and reminders will be continuously sent to all subscribers during the enumeration period on the importance of the census, and for having all the households enumerated and everyone in the population counted.

3.2.3 Print Media

Newspaper articles

Botswana newspapers — will publish articles, announcements and features about the census. They will work closely with NCS, the CCPAC and the CSC to produce relevant materials.

Advertisements

CSO will undertake various forms of advertisement. These should include printing of T-shirts and producing caps, pens and other merchandise about the census.

Newsletters

The CCPAC will produce periodic newsletters informing the public on issues regarding the 2011 PHC.

3.2.4 Educational Programmes

School Lesson Notes

School lesson notes will be produced for incorporation into the curriculum during the 2011 school calendar year through collaboration with the Ministry of Education and Skills Development.

Essay competitions

The CCPAC will organise essay, poetry competitions targeted to the youths (primary and secondary schools).

Music and drama festivals

To deepen widespread appreciation of the census, the CCPAC will be required to suggest appropriate themes for the 2011 census songs, videos and drama.

3.2.5 Internet

Census publicity materials should be produced and regularly updated and uploaded on the websites of the CSO and other government agencies. This will entail creating a special 2011 PHC page/link in the main CSO website.

3.2.6 Public areas

Publicity campaigns for distribution of Census materials in main public areas such as shopping malls, traffic T-junctions, trade fares and CSO field trips on other assignments like price collection.

4. CARTOGRAPHY/ MAPPING STRATEGY

The cartographic field mapping forms the fundamental core to the success of any population and housing census. The primary objective is to delineate enumeration areas (EA) in the country to facilitate the smooth counting of inhabitants during enumeration period and fundamentally to ascertain that all areas are covered and that everyone in the country is counted with minimal possibility of under or over counting.

The role of maps in the census is twofold: (a) to support enumeration activities and (b) to present aggregate census results in cartographic form. Advantages of the enumeration maps include: (i) Ensuring full and unduplicated coverage; (ii) Estimating travel time and costs; (iii) Assigning geographical codes; and (iv) Establishing the numbers of field officers to be hired and materials to be procured.

During the enumeration exercise, these maps are used to guide the enumerators to and within the enumeration areas. Enumeration area maps also provide a basis for producing thematic maps for spatial analysis of the census and provide a sound basis for developing a national sampling frame. The spatial census database can be combined with other datasets to generate thematic indicator maps, which can be included in a Census Atlas depicting several socio-economic indicators including poverty and literacy levels that enhance understanding of the spatial dimensions of diverse issues in all sectors of the Botswana economy.

4.1 Planning the Mapping Exercise

The 2001 census cartography fieldwork was successfully conducted in terms of planning, resources available (technical and material), logistics, management and timely delivery of quality products. Based on this experience, the census mapping for the 2011 census is scheduled to start in July 2009 and is expected to be completed by April 2011 and would last for 22 months. The fieldwork will be done for 18 months and the 4 months reserved for the finalization of fieldwork materials printing and other logistical issues.

4.1.1 Inventory of Existing Facilities

The success of cartographic mapping will depend on the availability of mapping equipment and other supporting materials such as base maps, vehicles, GPS, computers and peripheral devices, stationery and so on. An inventory of available items was made as basis for determining additional equipment requirements.

The Project Memorandum (PM) of the Cartography Section indicates that currently the CSO does not have any vehicles for the field mapping. The section has ArcGIS software with one (1) Arc Info licence and nine (9) Arc View licences, running on nine (9) 1.6 GHz 80 GB desktop computers. The unit has one large format printer (A0) and a large format scanner. A server has been requisitioned, tendered for and the tender awarded, only awaiting delivery.

In terms of personnel, the unit has two professional GIS analyst, one statistician majoring in Demography and Environmental Science with experience in GIS technology, four technicians with diplomas in Geoinformatics and two technical assistants with short courses in GIS. These are professionals who require support from

artisans most of whom require additional training. Certificate-level artisans are incapable of working without close supervision and guidance from professionals.

4.1.2 Cartographic Needs Assessment

A comprehensive needs assessment was undertaken to determine the existing capacity (both technical and human) of the Cartography Section. This assessment aims not only to improve the production of EA maps for the 2011 PHC, but also to lay a basis for the section to effectively function after the 2011 census in facilitating data analysis and results dissemination. The needs assessment involved evaluation of the five functional components of digital mapping, namely computer hardware, software, data, personnel (live ware) and procedures. This evaluation revealed that the CSO Cartography Section requires strengthening in all the five components.

About 45% of the country's enumeration area maps for the 2001 census, which have been digitised, contain sufficient details to guide enumerators to and within the EAs. However, some of these maps will need modifications of the EA boundaries to reflect changes in population. There is thus still a lot of work to be done in the field and in data automation in order to cover the entire country with digital maps, besides automating the remaining 55%.

Suggested more efficient procedures:

To increase efficiency, a parallel process of field mapping and map production should be adopted. This requires the formation of two types of mapping teams, i.e. field mapping teams and GIS map production team. The former will be responsible for updating the EA maps on the basis of agreed numbers of households, areas and distances that form a manageable enumeration units, and the latter will automate the field maps received to produce current enumeration area maps.

Upgrade in hardware, software and human resources:

Each field mapping team should be headed by a supervisor who will manage five mapping assistants in the field. An experienced CSO officer should head the GIS map production team. The section requires 25 four-wheel drive (4WD) vehicles fitted with communication equipment to enhance communication during the field work. Field mapping teams will also require global positioning systems (GPS). Each team will have two GPS sets.

Requirements for the GIS laboratory:

The section uses ArcGIS software, with one Arc Info licence and nine Arc View licences. This means they have only one Arc Editor licence, the licence which hosts the boundary creation and editing facilities.

To expedite the map production process, the GIS facility should have different types of software configuration. Notable ones include: two (2) Arc Info, eight (8) Arc Editor and five (5) Arc View licences. This configuration provides a total of ten licenses capable of creating and editing spatial data in order to automate the EA boundaries data.

Further, it is recommended that the unit acquires digital image processing software, such as ERDAS Imagine. This will enhance the unit's capacity to update the digital

database using the now readily available high-spatial resolution satellite images, such as Quick Bird and IKONOS.

To run the GIS software recommended, the unit will purchase 10 computers (3.0 GHz 2 Core Duo Processor, 3 GB Ram, 300 GB and 19" TFT Monitors) or better. For map reproduction, the unit should acquire a colour photocopier, with A3 capability. The unit should also acquire at least 20 Global Position Systems (GPS) for use in field mapping.

4.1.3 Preparation of Relevant Documentation for Mapping

Several instructional and guideline documents will be prepared for field mapping, map preparation and production together with forms to facilitate the collection of data in the field and maintain records in the office. These documents include: mapping instructions manual; map production specifications manual; household listing forms; mapping field return recording forms; map editing guidelines manual, and various maps - topographical maps (digital and analogue), aerial photographs and satellite images, and physical plan maps.

4.1.4 Publicity and Advocacy Campaign for the Cartographic Fieldwork

Working with the GIS/Cartography Section, the Census Communication, Publicity and Advocacy Committee (CCPAC) will lead campaigns to sensitise and educate the public on the need to cooperate and support the mapping teams before the cartographic mapping starts.

4.2 Mapping Capacity Building

Based on the needs assessment, there is need for enhancing human, technical and procedural capacities at the CSO Cartography Unit.

4.2.1 Recruitment of Permanent Staff

There is need to recruit at least two cartographers/GIS Analysts on permanent basis to boost the manpower in the Cartography unit.

4.2.2 Recruitment and training of GIS personnel on data capture and map production

Experienced cartography personnel from the CSO identified by the NCS will be deployed in the field to lead the mapping teams. This will require ten (10) additional personnel for map preparation and production in the GIS laboratory.

Those recruited should be in possession of at least a first degree in geography/mapping or related earth sciences, and will receive a 3-4 week in-house training on map production with special emphasis to census mapping.

4.2.3 Recruitment and training of personnel on field mapping

The enormity of the tasks of field mapping requires a large number of personnel. Since the GIS/Cartography section cannot raise the required number of personnel for field mapping, it is proposed that suitable temporary staff, comprising high school leavers or graduates should be recruited. The recruited staff will receive three-weeks training on

field mapping techniques, including map reading, aerial photo interpretation and the use of global positioning systems (GPS).

4.2.4 Training on digital image processing

The permanent Cartography Section staff will update the database continuously to reflect any changes in settlement patterns. One of the most commonly used data sources for database updating is digital imagery from either satellite remote sensing or digital aerial photography. The staff in this unit will undergo a 3-4 week in-house training on digital image processing.

4.3 Field Mapping

Cartographic mapping should commence early enough to ensure that all EA maps are ready three to four months before the census begins, in conformity with the United Nations recommendations.

The Cartographic Unit will constitute a total of nine mapping teams under the leadership of staff from the section. Each team will consist of temporary mapping assistants recruited to undergo a 10-15 day training before being engaged in the exercise.

Cartographic fieldwork will commence with the completion of household listing forms. This will be preceded by a census CPA campaign for the household listing to ensure notification of all the stakeholders. A total of nine teams each consisting of a team leader and five mapping assistants will undertake the work.

4.4 GIS Map Production

Successful census taking depends on high quality maps. The development of a GIS database at EA level has been on-going since after the completion of the 2001 census which demonstrates the CSO commitment to the 2011 PHC.

In view of the foregoing, there is need to undertake cartographic mapping for the 2011 census which will provide an opportunity for a complete update of all administrative areas and EAs in the country. Map production will entail conversion of the EA boundaries field data, which may be in the form of marked analogy maps, GPS coordinate data or imagery (satellite images or aerial photographs) into digital data through digitisation (tablet or on-screen), key-board entry or scanning.

These boundary data, combined with topographic (depicting relief features, rivers, etc.) data as well as infrastructure data (roads, power lines, etc.), will create suitable maps for guiding the enumerators to and within the enumeration areas. Finally, the enumeration area boundary data will be aggregated into sub-district, district and national levels to form the spatial digital database for storage, analysis and dissemination of the 2011 census results.

4.5 Partnership with other Institutions

The CSO recognises the need to partner with other government departments, agencies and international organisations in census mapping and GIS development to improve the standards and range of GIS products. Such partnership will entail digital data

acquisition from other government agencies, for instance the Department of Town and Regional Planning and the Department of Surveys and Mapping. It will also involve adoption of relevant methodologies for various aspects of map production and setting up of GIS database.

4.6 Map Verification and Call-backs

Maps will have to be verified before being released for use in the 2011 census. Copies of the maps will be printed and sent to districts for local authorities to verify the EA data. Follow up visits will be made where necessary.

4.7 Printing, Packaging and Dispatch of Final EA maps

After field verification and subsequent reviews, cut-outs for each EA will be produced, printed and packed as part of Census materials.

4.8 GI database development and Production of Thematic Maps

After the EA maps have been verified and edited, a final database will be developed, consisting of EAs with appropriate coding. The coding system should allow aggregation at different levels. EAs within the same sub-district should have the same Sub-district code, and EAs in the same district should have the same District codes. Such coding will enable boundary dissolutions to create larger units for use in data storage, analysis and dissemination.

5. DATA COLLECTION STRATEGY

The quality and utility of a census is dependent on the range of variables included in the data collection exercise. The census taking process uses several instruments, including manuals, control forms and questionnaires. These instruments should be clear and concise, avoiding ambiguities and irrelevant information that can make them bulky and difficult to read.

5.1 Design of Census Instruments

The relevant units of CSO will develop questionnaires, manuals and control forms for the main census and post-enumeration survey (PES). These instruments will be reviewed by the Census Standing Committee (CSC), taking into account the recommendations from the 2001 census.

The draft census instruments will be presented to key stakeholders in a workshop in early 2010. This workshop will provide users and stakeholders with opportunity to make inputs, leading to the collection of more relevant and usable data during the census.

5.1.1 Census Questionnaire

The main instrument used in census taking is a questionnaire. A well-designed questionnaire captures data efficiently and effectively with minimal errors. Careful consideration should be given to the type of questionnaire, its format and the exact wording and sequencing of the questions therein. Among the factors to be taken into account in designing the questionnaire are the method of enumeration, type of questionnaire, the data to be collected, the most suitable form and arrangement of the questions and the processing techniques to be employed.

The CSC will convene extra-ordinary meetings of stakeholders to deliberate on contents of the census questionnaire. Specifically, the questionnaire should collect data on: geographical identification; name; relationship to head of household; sex; age; place of birth; nationality; religion; place of usual residence; place of residence in the last year; duration at the present residence; disability (types and causes); maternal and paternal orphan hood; date of birth; language spoken at home; education (school attendance, educational attainment); economic activity; occupation; employment status; marital status; fertility (children ever born, children living); housing and living conditions; agro-pastoral activity at household level; mortality (deaths in the past 12 months); maternal mortality (female aged 15-49 deaths: during pregnancy, giving birth, within 2 months of the end of a pregnancy or childbirth).

CSO will continue the harmonization of SADC census core topics for the 2010 round of censuses as they did in 2001.

5.1.2 Post-Enumeration Survey

The Chief Technical Adviser will prepare guidelines and implementation of post-enumeration survey.

5.2 Testing of Census Instruments

The testing of the various aspects of a census plan prior to the enumeration is very useful practice. With the census questionnaire as the focus, the purpose will be to test the suitability of intended census questions, including their formulation and the instructions provided, as well as the suitability of the questionnaire design. Testing the instruments during the Pilot census will reveal information relating to the average duration of administering questionnaires and how many questionnaires are successfully completed in a specified time.

5.2.1 Conducting the Pilot Census

A pilot census is a comprehensive test of all census procedures. All stages of the census process will be tested from pre-enumeration to enumeration, data capture, processing and evaluation of census results. Such tests will provide important information on the adequacy of the field organization, training programmes, extent of respondent burden, the data processing plan and other important aspects of the census. They are particularly valuable in assessing weaknesses in the questionnaire, in the instructions or in enumeration procedures that might affect data quality. They will be designed to provide information on the relative efficacy of alternative methods of enumeration and on the average time required for enumerating a single household or a single set of living quarters, which information is useful in estimating staff and cost requirements. In addition, census tests serve as practical training for the nuclear staff of supervisors and other officials.

Essential features of a pilot census are coverage of one or more sizeable administrative divisions and encompassment of the preparatory, enumeration and processing stages of a census, by which it thus tests the adequacy of the entire census plan and of the census organization. To serve this purpose adequately, there will be attempts to establish as close as possible similar conditions of conducting Pilot census and of carrying out the main census. Therefore, a pilot census is often taken exactly one year before the planned census in order to conform to the expected seasonal patterns of climate and activity.

A set of tests of the Information and Communication Technology (ICT) solutions that are planned to be applied in the census also needs to be undertaken. Depending on the extent and characteristics of ICT, these tests should include all ICT components related to fieldwork, data entry and processing and results dissemination well ahead of the census itself. This is particularly important if a new technology is being introduced, such as scanning the questionnaires as a means of capturing data or web-based dissemination. Tests should include the testing of the equipment itself, as well as the underlying circumstances necessary to avoid equipment malfunctioning, such as acclimatisation, or significant delays due to inadequate quality of paper causing paper jams. In the context of new approaches using hand-held devices, testing should include daily data transfers to the major data depository. Testing the efficiency of editing and tabulation applications should be done based on results of the pilot census.

CSO will take a sample of five percent of EAs across all the districts for the pilot Census. Coming one year before the 2011 PHC, this exercise will provide lessons on all aspects of the true census: fieldwork logistics; recruitment, training and deployment of the field staff; the nature of responses to the questionnaire; average duration of household enumeration; data collection, analysis and the results generated; and a report

stating the outcome including the shortcomings requiring attention before the actual census. The pilot census will be scheduled to take place in August 2010.

5.2.2 Analysis of Pilot Census Results

Results of the pilot census will be analysed and reports prepared. The reports will be discussed with stakeholders regarding the outcome and possible review of processes for the main 2011 August Census.

5.3 Printing of Final Census Tools

Printing of the final census tools is an important undertaking. The CSO should ensure that all instruments for the pilot census, main census, and PES are printed at least three months to the date of the scheduled respective exercises.

Printing all the tools required to conduct census enumeration is one of the major activities in a census. Given the large numbers of persons involved, there is need to carefully plan for it. This will enable the NCS to procure and to determine both quality and quantity of the materials for the respective activities before the due dates of enumeration. Furthermore, it will give the NCS ample time to package and dispatch the materials in good time, before the commencement of the enumeration exercise.

6. ENUMERATION STRATEGY

The enumeration phase of a census can be subdivided into two main activities: preparatory stage and field operations. These activities are discussed in this section.

6.1 Activities and Responsibilities

In the endeavour to achieve the overall goal of the 2011 PHC, planning for the census has considered some principles that will be supportive in the achievement of the overall goal. Such principles include: (i) Full coverage; (ii) Confidentiality; (iii) Census publicity; (iv) Cost-effectiveness; (v) Accountability; (vi) Consistency of procedures countrywide; and (vii) Special enumeration.

6.1.1 Type of enumeration

Botswana has consistently adopted the de facto type of enumeration whereby the total population are those counted in the country when the census is taken, and enumerated at the place where they are at census time, regardless of their usual place of residence. The country has also adopted an aspect of de jure enumeration by including absent Botswana or Botswana leaving outside the country on the census night. This is a commendable approach which Botswana should continue with, and which other countries in SADC and the rest of the developing world should emulate.

6.1.2 Method of enumeration

The method of enumeration has wide-ranging influences on the budget, organisational structure, training programme, content and scope of the publicity campaigns, and system of records management. Therefore, it should be determined in the early stages of census planning. In consistency with previous censuses, the 2011 PHC will adopt the interviewer (cavasser) method of enumeration.

6.1.3 Census reference time

In conformity with Botswana's last four population censuses, the 2011 PHC will start on 22nd August 2011, with enumeration lasting for 10 days. The census night will be a moving one such that during the 10 days of enumeration, the reference period will be **LAST NIGHT**. The duration is meant for complete canvass of the whole population at a time school children will be on holiday.

6.1.4 Critical dates

Having fixed the commencement of Census enumeration on 22nd August 2011, all other critical dates will be fixed in relation to the date. Some of the critical dates that will have to be fixed pertain to:

- Government approval for the census;
- Completion of questionnaire design;
- Commencement and completion of printing questionnaires;
- Recruitment and training of field staff;
- Commencement of enumeration; and
- Completion of enumeration.

6.2 Preparatory Activities

A number of preparatory activities will have to be undertaken before the enumeration exercise takes place. Two such activities are particularly crucial: (i) communication publicity and advocacy (CPA) to put the country on the census mode and (ii) recruitment, training and deployment of the field staff for the exercise. Details of communication, publicity and advocacy strategy appear in Section 3 of the document.

6.2.1 Communication, Publicity and Advocacy

Prior to the enumeration, publicity and census education should be enhanced to educate everybody in Botswana to understand and appreciate certain salient census issues, such as: when enumeration is scheduled to take place; importance of the census and use of the data and underscoring the confidentiality of responses.

On the census eve or just before census date, HE the President is expected to call on all residents of Botswana to co-operate in the census enumeration by providing accurate information to the enumerators, underlining the utility of the census in the national development agenda.

6.2.2 Field staff recruitment, training and deployment

Two features augur well for a successful census for Botswana. First, settlement of the population in towns, rural villages, urban villages and a minority at the cattle posts permits easy tracking of the respondents. Second, the vast majority of the population speaks Setswana which makes it easy for enumerators and respondents to communicate easily. The latter attribute implies that enumerators need not be confined to particular areas as they can work well anywhere in the country.

But these positive features do not preclude the fact that an equally important requirement pivots on the recruitment, training and deployment of the field staff with varying responsibilities. Competence will be the hallmark of recruiting field staff as will the minimum educational requirements and proof of individual capability to perform the duties to be assigned to them; previous engagement in censuses or surveys will be an added advantage. The field staff recruited will undergo training by the CSO-appointed team of trainers on specific aspects of fieldwork, during which they will carry out mock field exercises and, thereafter, reassemble to discuss how best to handle particular issues requiring more careful attention. In the end, the field staff deployed will be those selected following thorough screening of all who had been invited for fieldwork activities.

CSO will develop guidelines and training manuals to ensure efficient handling of recruitment, training and deployment of all field staff. These will apply appropriately to different categories of field staff.

6.3 Field Operations

Field operations are the hallmark of the enumeration exercise to be successful. Key field operations to be undertaken include the deployment of field staff and the distribution and collection of census materials. These operations will be coordinated by District

Census Officers (DCOs), who will receive, hold, dispatch, collect and return to CSO all the census documents.

6.3.1 Distribution and return of census materials

The census materials will be distributed and returned as scheduled to ensure timeliness and proper execution and termination of fieldwork. This activity includes various tasks, among them: receipt of materials from printers and other external suppliers; bulk storage during the packing operation; consignment preparation and actual packing of materials for various destinations; bulk transport and delivery to designated districts. Liaising with the Central transport Organization (CTO), the CSO will distribute to and receive from the field the census questionnaires (used, spoiled and unused), control forms, note books in which any observations will have been recorded, and a soft copy of the log of the tracking system.

6.3.2 Logistics arrangements

Census field operations involve various aspects of logistics which will require prior arrangements. Within the NCS, there will be a Census Procurement and Logistics Unit to be headed by a Logistics Manager whose duties will include providing logistical support to the NCS. Such logistical support will address issues pertaining to procurement, transport, printing of census materials, distribution of materials and security.

The NCS will also recruit a Chief Procurement Officer to be responsible for procurement of all the census materials in accordance with the Government of Botswana guidelines and those of its development partners lending support to the census. The NCS will appoint a Transport Officer responsible for logistics pertaining to the fleet of vehicles being used in the census. This will ensure coordination and avoidance of multiple logistical arrangements that would confuse the vehicle drivers and users. The transport officer will ensure that the vehicles are functional, available whenever required and used optimally without abuse or misuse.

6.3.3 Field staff requirement

The projected number of enumeration areas in 2011 is 4,861. Botswana will have a total population of around 1.8 million people.

Enumeration Areas Projected for 2011 Population & Housing Census

Serial No.	District Code	District Name	No. of EAs 2001	Using population growth rate 2011
1.	1	Gaborone	480	560
2.	2	Francistown	191	223
3.	3	Lobatse	78	91
4.	4	Selebi Phikwe	141	165
5.	5	Jwaneng	38	44
6.	6	Orapa	29	34
7.	7	Sowa	14	16
8.	10	Southern	290	338
9.	11	Barolong	122	142
10.	12	Ngwaketse West	31	36
11.	20	South East	117	137
12.	30	Kweneng South	429	501
13.	31	Kweneng West	113	132
14.	40	Kgatleng	181	211
15.	50	Central Serowe/Palapye	401	468
16.	51	Central Mahalapye	281	328
17.	52	Central Bobonong	177	207
18.	53	Central Boteti	115	134
19.	54	Central Tutume	333	389
20.	60	North East	115	134
21.	70	Ngamiland East	148	173
22.	71	Ngamiland West	94	110
23.	72	Chobe	45	53
24.	73	Delta	8	9
25.	80	Gantsi	86	100
26.	81	CKGR	2	2
27.	90	Kgalagadi South	63	74
28.	91	Kgalagadi North	43	50
Total			4,165	4,861

The projected number of EAs will allow the National Census Secretariat (NCS), working with the Household Sample Survey unit in the CSO and the CSC, to arrive at the optimal number of field staff at various levels based on certain criteria. Such criteria would include the projected EAs, average household size, length of the questionnaire and the estimated enumerators' average number of working hours. It will also be possible to estimate the number of EA Supervisors under whom a given number of enumerators would be. These estimates guide the three institutions to arrive at the number of field staff for the 2011 PHC. With an estimated 4,861 enumerators deployed and each EA Supervisor supervising 4 enumerators, 1250 EA Supervisors will be recruited. CSO, NCS and CSC will work out accurate numbers of different categories of field staff, making sure to estimate their productivity in the enumeration exercise.

Recruitment of all field staff should be transparent and consistent with Botswana's public service regulations. It will entail co-operation of the logistics manager with human resource and procurement sections to prescribe criteria for recruiting various cadres of field staff. The NCS will work closely with other ministries of the Government of Botswana and UNFPA to recruit personnel for the NCS, the latter concentrating on the international technical personnel.

The CSO will undertake the training of trainers (TOT) who will be tasked to train lower-cadre field staff. Trainers will include secondary school teachers. District Census Committees, with the assistance of the NCS, will conduct interviews for the position.

Supervisors will be drawn from middle-level civil servants and secondary school graduates or their equivalents recruited by District Census Offices (DCOs) to supervise Enumerators within their EAs. Enumerators engaged at all EAs will be those with good knowledge of the locality where possible. Eligible candidates will be teachers and secondary school leavers. The NCS in collaboration with DCOs and MOE will advertise all enumerator posts, conduct tests and select those considered capable of administering questionnaires in the pilot census, the main census and the PES.

6.3.4 Security

Although security does not seem to be a major problem in Botswana, it will be specifically observed during the census. The District Commissioners (DCs), together with the Police will ensure the smooth running of the enumeration exercise.

For ease of identification, all field staff will be provided with uniforms (census T-shirts) and identification cards. The census logo will be placed visibly on vehicles and on field staff uniforms. The public will be made aware of these census operation identification modes.

7. DATA PROCESSING AND ANALYSIS STRATEGIES

Data processing in a census project entails all the steps that are required to produce final products and services. These usually include published reports on the number and the characteristics of the population from analysis made from the questionnaires.

7.1 Data Processing Tasks

Data processing tasks consist of data editing, data coding, data capture, data review, data verification, data evaluation, consistency checks and detailed data analysis and data tabulation. Execution of data processing operations leading to the development of tabulations and other census products will commence as soon as completed census questionnaires/forms start arriving at the data processing facility. These tasks are performed both manually and electronically.

7.1.1 Data Processing Operations

All activities that take place during the post-enumeration phase at the central processing site are part of Census data processing. This includes logging questionnaires into the archive control system, manual and computer preparation of data, tabulation and analysis of the data, and generation of final data products. Although fewer people are involved during this phase, carrying out each of the steps in this process requires as much preparation and training of staff as does the actual enumeration. Absolutely critical to the final quality of the data and the success of processing is the existence of, and fidelity to, quality control procedures. Operational control procedures are equally important in guaranteeing that all data are processed and that no data are dropped or duplicated.

All processing, starting with the check-in of forms from the field, will be carried out on a flow basis. Up to the point of consistency editing, a batch will consist of the forms from one EA; consistency editing and tabulation are most effectively carried out using larger data files (district level). This will take place throughout and will facilitate operational control. CSO will establish a systematic schedule of data processing for effective monitoring of flow of processes.

7.1.2 Receipt and check-in of questionnaires and control forms

Proper storage and management of EA batches is critical to efficient post-enumeration activities. Misfiling documents can lead to eventual loss of data. As forms are returned from the Districts, each batch will be vetted for the correct identification and number of forms per the accompanying control form; and they will be logged in to a computerized database. This control system can be created using CSPro or any other relational database management system like MS Access etc. As each EA is logged in, the system will request the provisional control totals as well. When the EA has been logged in, it will immediately be shelved in its proper location in the storage area. Clearly visible signage should be used to indicate the locations within the storage area of each geographic subdivision. This will make retrieval and storage of documents easier and less prone to error.

7.1.3 Manual editing and coding of questionnaire

Questionnaires must be prepared for the data capture operation. Trained personnel will review the forms for readiness for processing to ensure that each questionnaire has correct and unique identification; that responses in the questionnaires are legible to the data entry clerk; and that unnecessary entries and blank pages are clearly marked so they will not be inadvertently captured. In addition, they will review the summary totals for each questionnaire for accuracy and consistency. A work unit should be a single EA; the clerk in charge of the shift operation will make assignments and will update the operational control system when work is assigned or returned. The system will also be used to maintain quality control and productivity records. The work of editors will be verified according to the previously-defined quality control scheme. Editors whose work is consistently sub-standard should be retrained or re-assigned to other duties, or even be dismissed depending on the individual circumstances. Before questionnaires are sent it has to be insured that appropriate coding has been done.

7.1.4 Data capture

Keyboard data entry method will be used for data capture, approximately 30 desktop computers linked in a local area network should be used. Captured data will reside on two file servers (one replicating the other for security, backup and continuity of the process), and back-up copies should also be written to any appropriate media and stored in different locations. Botswana's projected population in 2011 will be 1.8 million, with an estimated 591,418 households. Data Entry Operators will thus have to enter and verify almost 2.5 million records. It is expected that this operation will be completed within a period of 5 months.

Data Entry Operators will receive training in the CSEntry application that will be used to capture the data. Their work will be verified and records kept on individual error rates and productivity. This information will be reviewed on a weekly basis, and operators whose work is sub-standard will be retrained, re-assigned to other duties, or dismissed, according to the individual circumstances. Information on operators' performance will be maintained in the computerized control system.

Of crucial importance in this activity are editing and coding by highly-trained personnel, who should be operating in a conducive working environment. Proper attention will be paid to environmental factors (e.g. heat, humidity, lighting, space) because these impact on the operators' productivity and attitude. For instance, and assuring a steady and reliable electric power supply to a data capture facility can extend the life of the equipment and reduce the frustration of data entry personnel.

7.1.5 Data verification

Verification of captured data will be treated as a separate operation and care will be taken that no operator verifies his or her own work. Verification will be carried out in accordance with the quality control protocol established for the data capture operation. The work of verifiers will also be monitored, and statistics will be maintained on

productivity and quality of work. As with other processing activities, this information will be reviewed on a weekly basis, and verifiers whose work is sub-standard will be retrained, assigned to other duties, or dismissed, according to the individual circumstances. Information on operators' performance will also be maintained in the computerized control system.

7.1.6 Structural edit

After data capture followed by verification, data from each EA batch will be submitted to a CSBatch program in order to identify structural errors, such as missing records or inconsistent numbers of records. This operation will require manual intervention to correct errors, so it must be carried out before the EA forms are returned to the storage area. Once the EA batch has been declared structurally sound, it will pass to the consolidation phase and no further manual intervention will be required. The structural edit will be carried out by clerks who are specially trained in the use of both the editing program and the CSEntry software.

7.1.7 Consolidation of batches to higher-level geographic entities

EA batches that have passed the structural edit must be merged (concatenated) with other EA batches from the same district to form files of sufficient size for the consistency edit. EA batches may be merged, and when all localities in a District are complete, they may be merged to form the district file.

7.1.8 Consistency edit and correction

The consistency edit is used to ensure that all data in the file are valid and internally consistent, so that tabulations will be clean. Editing is carried out according to the rules for error detection and correction that are developed during the planning phase by the subject-matter specialists and implemented, using CSBatch, by the computer programmers. Depending on the preferred edit methods adopted, one or more editing program may be used. All should have been tested during the processing of the Pilot Census, but nonetheless it will be necessary to run the editing program against many different batches of real data to ensure that it is functioning properly and producing the correct results. Once the editing team is satisfied that the program is acceptable, all files, even those that have been edited with previous versions of the program, should be edited again, so that all data receive consistent treatment.

As each district file is edited, the subject-matter specialists must review the edit reports and verify that no anomalies exist and that the program is not producing undesirable effects. All listings will be saved to provide documentation of the process. Files whose edited output is accepted may pass to the tabulation stage.

7.1.9 Tabulation of edited data

The tabulation programs will have been prepared and tested, so that as data from each district pass the editing phase, they may be used to generate the tabulations for that area. The CSTab module will permit the generation of tables according to the geographical

hierarchy; tables for each district may be combined to produce the summary table for the country.

Tables must be carefully reviewed for correctness in both numbers and text. The review process will be formalized to let the subject-matter specialist explicitly sign off on the tables. After approval, the tables can be passed for publication and dissemination.

7.1.10 Analysis of Census results

Subject-matter specialists at CSO together with stakeholders should carry out thematic analyses of the Census results. This will involve evaluation and interpretation of the data as presented in the current Census and in comparison with data from prior Censuses, where available.

7.2 Quality Assurance

Census products and services are considered useful only when they meet the four attributes of quality assurance namely: (a) Relevance; (b) Cost; (c) Timeliness; and (d) Data quality (accuracy).

The need to meet the quality assurance requirements largely influences the type of technologies and number of personnel a country devotes to the data processing operations. However, all data processing technologies and procedures must be tested rigorously at the pilot census phase so that all challenges may be addressed long before actual enumeration. Consequently, as a rule, only technologies and procedures tested in the pilot census phase should be used in the actual data processing operations.

7.3 Preparation of data processing documents

Preparation of documents necessary for post-enumeration activities should begin early in the pre-enumeration phase of the project. These include, but are not limited to, documents describing census methodology, Census questionnaire(s), manuals and control forms, manual editing and coding handbooks, tabulation plans and shells, and analysis and publication plans. The NCS will ensure that all these are done properly and in good time.

7.4 Control forms

The multiplicity of operations that must be managed simultaneously makes it imperative to have appropriate control forms and procedures for both quality and operational control. Each operation must be analyzed to determine the information that is needed to manage the activity and to produce informational reports. For example, during the enumeration, each Supervisor will have responsibility for an average of four Enumerators, each of whose work should be closely reviewed on a daily basis, if possible, but not less than three times a week. The Supervisor should use appropriate control forms to keep records of such reviews, and the forms should make it easy for the Supervisor to note any deficiencies in the Enumerator's performance, as well as

objective information such as the number of households interviewed, persons enumerated and so on. The Enumerator should also be maintaining complementary forms recording daily activity, if for no other reason than to justify payment of wages. The NCS will determine the types and contents of the control forms according to the needs of the specific operations.

7.5 Manual editing and coding documents

Subject-matter specialists must establish the procedures for manual review of Census questionnaires after enumeration and return to the central processing site, and before data capture. Part of this task will be to elaborate the coding schemes to be used for items related to geographic location, occupation, and industry. The manuals should be available for use during the Pilot Census, and any changes to the questionnaire made as a result of the Pilot experience should be reflected, where necessary, in the manual editing and coding documents. These manuals should also cover, in detail, all steps to be taken in preparing the Census questionnaire for data capture, and should include descriptions of measures for quality and operational controls.

7.6 Tabulation design

Ideally, Census tabulations would be designed by the subject-matter specialists based on the data needs expressed by the user community; the Census questionnaire would then be designed to collect only the information needed for the tabulations. In addition, Census costs would be minimized by ensuring that no time is wasted collecting non-essential information. This means that the questionnaire should be predetermined beforehand as tabulations will be dependent on the questionnaire instead of vice-versa.

Tabulation specifications should take into account the geographic level at which the table will be published. Tables no longer need to be physically reproduced on paper; distribution via electronic media has become an important component of Census data dissemination. However, all proposed tables, whether for conventional or virtual publication, should be approved by the Government Statistician, acting with the full support of the NCS and the CSC. With the advice of the CTA and the NCS, table specifications will be reviewed and, where necessary, updated to make changes in the main Census questionnaire resulting from evaluation of the Pilot Census.

7.7 Analysis and publication plans

It is important to define, as early in the process as possible, the scope of any planned evaluation of the Census operation and of the data produced by the Census. Once the Pilot census has been evaluated and the questionnaire established in final form, the NCS will make detailed plans for the Census analytical reports and for establishing a realistic publication schedule.

7.8 Development of data processing plans and procedures

CSO has opted to use the keyboard data entry method –The Windows-based Census and Survey Processing systems (CSPro package) will be an appropriate choice of software on which to base the modules for each of the processing phases.

Considerations for planning the processing of each phase are noted in the following sub-sections.

7.9 Creation of control files, data bases and control application

An effective operational control system will be critical to the success of the Census in terms of ensuring that coverage is complete. It is essential that the geographic control files be created early in the planning phase to make time for adequate review and update based on the pre-enumeration field work. These files should be based on the information that was used to delineate the EAs and will be used to monitor the flow of documents from the moment they return from the field for check-in until the completion of EA processing. Sub-files generated from the main control files should be used to monitor higher-level processing, such as when EAs are consolidated at localities, district, and national levels. Using control files with control total counts (housing units, households, population by sex) will ensure that all enumerated entities are included at each step of the processing.

7.10 Receipt and check-in of questionnaires after enumeration

It is imperative that the control system be functional before the return of questionnaires from the field, and that the system be rigorously tested during the Pilot Census. If necessary, CSO should consider a two-phase check-in system: the first step would be to register the arrival of the EA batches and to store them in the appropriate marked location, and the second phase entails verifying the contents of each batch according to the number of questionnaires and to ensure that all EA questionnaires are included in the correct batches. This re-checking before filing in location becomes even more important when the forms are returned to storage from one of the processing phases. Two things are required at this stage: first, persons carrying out these tasks have sufficient space to keep their work materials separate from those of other clerks so that mixing will not occur; and, second, persons responsible for returning materials to the storage area will be held responsible for ensuring that no questionnaires are misfiled in EA batches. This can be done by insisting that both coding and control clerks review the materials they return, and by penalizing staff who do not carry out the procedures correctly or requiring them to redo the work.

7.11 Capture of data from Census questionnaire

The CSEntry – a module of CSPro – will allow high-speed keying and key verification of data using customized templates. Minimal editing should be done during the data capture operations. At the completion of keying of each batch, the data should be reviewed for completeness before being released to key verification. At the end of key verification of each batch, the data should pass through a structural validation program using CSBatch (see section 7.13 below) before being released to the pre-editing consolidation phase. The consistency edit must assume that all incoming data are free of structural defects, that is, that all questionnaires are complete, that all have valid geographic identification (down to and including household number), that the correct numbers and types of records are present according to the type of household (private or collective) or housing unit (vacant or occupied), so all structural errors must be detected and corrected before the end of the data capture process. Standard operational controls should be in place for this phase of the processing.

7.12 Creation of backup and user data files

At all times during processing, CSO should take care to maintain full back-ups of all versions of the data files. It must always be possible to return to any earlier phase and recover the data as they were before entering the next phase. This will ensure consistency in processing. In addition, if CSO plans to offer sample data files to users, there should be a system in place that includes an algorithm for selection of sample households to be included in such a data file and another for making households anonymous so as to protect Census confidentiality.

7.13 Validation of keyed and verified data

Validation essentially involves editing and correction of the keyed in and verified data. The data will pass from the data capture phase to the consistency edit and correction phase. This phase will consist of one or more CSBatch programs, written to fulfil the edit specifications prepared by the subject-matter specialists who will ultimately produce data files with values that are valid and internally consistent. This will help to minimize problems in the later phases of tabulation and analysis. The edit specifications must be developed as the questionnaire is taking shape; they must be tested using artificial data as well as data from the Pilot Census; and they must be made final in time for the main Census. While the subject-matter specialists are primarily responsible for the preparation of these rules and for the correction algorithms (including initial hot deck values), they must work in conjunction with the data processing specialists to ensure that the rules and the correction methodology are realistic and capable of being implemented. Edit specifications can only be made final after using data from the main Census. When the editing program has been made final, all data must be passed through the same version of the program to ensure that all data have been validated using a common set of assumptions and correction rules. Editing, as data capture, should be carried out on a flow basis, so that delay in obtaining results is minimized. No data should be released before the edit is absolutely final.

7.14 Tabulation of edited data

The tabulation phase will consist of a series of CSTab programs, which will produce the tables according to the previously-established specifications. All tables must be reviewed by appropriate subject-matter staff for accuracy and consistency before release to the public.

7.15 Census Post-Enumeration Survey (PES)

Most countries conduct Post-Enumerations Surveys (PES) as part of the census evaluation programme. PES is designed to evaluate coverage errors of households and persons in the Census enumeration. The PES usually involves an independent enumeration of all the households and persons within the boundaries of a national sample of EAs. If a matching methodology is used for the PES, it will also be possible to evaluate content (response) error. PES should be conducted within a month following the Census enumeration exercise. Caution should be taken to ensure operational independence between Census and PES.

The most effective and accurate PES methodology for evaluating census coverage involves an independent enumeration of the households and persons in a sample of EAs, followed by a two-way matching between the PES and census forms for households and persons, and a reconciliation visit to verify whether persons included in the census but not in the PES were correctly enumerated and to resolve the matching status of persons with insufficient information.

One method to facilitate the matching procedures is the use of stickers to be placed on each housing unit enumerated during the Census. By the time of the main Census undertaking the GIS/Cartography Section of CSO would have affixed metal plates with numbers on doors of all rural housing units in the country which means that proper arrangements would be made to trace households correctly. The process will use the numbering system already existing in urban areas. This numbering system will ensure organised enumeration during both Pilot Census and the 2011 PHC.

7.16 Intercensal Household Survey Program

Following every PHC, countries should develop a master sample for the national household survey programme. This master sample is useful for various national household surveys. Such national household survey programme should be planned for the decade following the 2011 Botswana PHC. It is important to plan for an updated master sampling frame to be developed from the 2011 Census data and cartographic materials as soon as these become available. The new master sample design should strive to be cost-effective and flexible, to meet the sampling requirements of the various intercensal national household surveys.

7.17 Quality assurance

In order to improve the accuracy of the Census data, it is important to establish quality and operational control procedures for each operation. The overall census quality assurance plan for the 2011 PHC will be helpful at the data collection stage. All the supervisors will review carefully the first questionnaires completed by each interviewer in order to identify any problems early enough and to correct the enumerators' mistakes before making more mistakes. Once it is ascertained that the error rate is within an acceptable margin, a sample of questionnaires can be verified from time to time. When time permits, complete verification of all questionnaires will be made, particularly during office coding and data entry.

Different types of quality control methods may be considered. For example, for some repetitive or systematic operations such as office coding or data entry an acceptance sampling scheme may be appropriate. Under this type of quality control scheme the census questionnaires are divided into working "lots" such as EAs. A sample of questionnaires in each lot would be selected for verification, and the lot is accepted if the number of errors is within a certain limit determined from a control chart or table. If a large number is rejected, the entire lot would be verified. NCS assisted by the CSC, will develop a special quality assurance plan for this purpose.

7.17.1 Projected Population Size of Botswana in 2011

Botswana's population is projected to reach 1,849,681 at the time of conducting 2011 PHC. It is also estimated that these people will be found living in 591,418 households distributed throughout the country. For the purposes of ease and effective execution of enumerations in the 2011 census, the country will be sub-divided into approximately 4860 enumerations areas and approximately, about 7,500 field personnel/enumerators will be used to complete census questionnaires nationwide. These projected figures are used elsewhere in this document to define capacity (human, equipment, facilities and finances) needs for the effectively implementation of the Botswana's 2011 PHC project.

7.17.2 Existing capacities at CSO

This sub-section will primarily focus on the existing capacities in the Information Technology (IT) division of CSO, as opposed to the entire CSO in the context of the 2011 PHC. However, references will be made of other departments that may complement the work of the said division.

7.17.3 Processing the 2001 PHC Data

In the 2001 PHC, DCDM Botswana was contracted to provide data processing.

CSO can still outsource but ensure that the company engaged provides data processing services both in the Pilot and the main Census.

In the 2001 PHC, keyboard data entry method was used for the data capture operations. A total of 40 Data Entry Operators (DEO) used 20 PCs, working in two 7-hour shifts to capture the data in a period spanning slightly over five months. Data editing was done by CSO staff under the supervision of the Census Office.

Data evaluation, detailed analysis and tabulations were done by CSO staff in partnership with stakeholders, the majority being lecturers at the University of Botswana.

7.17.4 Existing Human Resource Capacity

The Information Technology (IT) division at CSO has a staff complement of 12 regular staff members and 6 data entry operators. The manager of IT operations complains about staffing shortage at the division, underlining the division's incapacity to successfully carry out data processing operations for the 2011 census in addition to continuing to provide effective IT services to CSO's regular programmes.

The proposal on the restructuring of the ICT services suggests that the IT division needs to recruit at least 17 more IT personnel. Discussions on the staffing challenges revealed that attempts to recruit more personnel had been unsuccessful. As a result, six established positions at IT division of CSO continue to remain vacant even after concerted efforts spanning several months to have them filled. The problem seems to be the total employment package offered by the Botswana civil service, which is less attractive than that offered by other employers, especially in the private sector.

Data entry operators as well as other clerical personnel could ideally be recruited as temporary staff to ensure that IT technical expertise is in place on time, UNFPA is keen to have an IT/Data Processing Expert become part of the NCS under the direct supervision of the Chief Technical Adviser (CTA). Even an international position of United Nations Volunteers (UNV) would just bail out the IT division.

CSO relies on Department of Information Technology (DIT) for IT services like helpdesk support, routing of email and web hosting among other services. As CSO moves into the preparatory phase of the 2011 census cycle, discussions on the possible up scaling of the services offered may be required. Also, the envisaged upgrade of storage volume requirements to accommodate internet dissemination of the census results via the web requires urgent attention. The IT division will re-examine the suitability of web technologies implemented on the web server in relations to CSO's web dissemination of census results strategies. Decisions have been made to re-deploy IT personnel to work with the contracted service provider.

7.17.5 Equipment used in 2001 Census

Hardware

The equipment used for data processing operations in the 2001 census included:

- 22 Personal Computers (MS Windows 98 SE, 20 for data entry, 2 for managers);
- 1 Server (MS NT 4, 72 GB hard disk);
- 3 LaserJet Printers and
- 1HP heavy Duty LaserJet Printer

These computers were linked to the file server through a LAN. The same equipment was used for both the pilot and the main census data processing operations.

Many of the equipment have become obsolete over time and have since been replaced with newer equipment.

The current inventory of equipment at CSO includes:

- Sever (Intel Xeon Processor, 3.4 GHz Dual, 2 GB RAM, MS Enterprise Server OS);
- Desktops (Intel Pentium 4, 1GB of RAM, Network card 10/100/1000 mbps, Windows XP Professional SP2);
- LaserJet Printer (Heavy Duty); and
- Colour LaserJet Printer

Software

CSO computing operations are built around NT/Microsoft Windows platform. A review of the existing statistical data resource systems reveals that both CSPro and SPSS are widely used in the management of statistical data in CSO. Since CSPro has all the necessary features for census data processing operation, it should be adopted as the primary software for the 2011 census data processing. In addition, due to lack of skills in the use of CSPro, some users use SPSS, especially for tabulation.

8. RESULTS DISSEMINATION STRATEGY

Tabulations of census results ensures that a country has updated and reliable data for national and district development planning. Census data are equally useful for the monitoring progress of development programmes. In the case of Botswana, the 2011 PHC data will help in monitoring and evaluating progress in Vision 2016, the MDGs and NDP 10 to be launched in 2009.

The 2011 Census will update the existing information collected during the last 2001 Census. In particular, it is expected to enrich the stock of available socio-demographic data in the country in order to provide planners and policy-and decision-makers with more basic indicators that are necessary for the said monitoring and evaluation of development plans and programmes. The 2011 Census will contribute to reinforcing the technical capacity of the CSO in data collection, processing, analysis, dissemination and in the use of the census results and products.

8.1 Expected outputs

Various products are expected from the 2011 Census. Described below, though not exhaustive, these can include thematic analysis reports, statistical tables, census thematic maps, documents printed or in electronic media, and databases.

8.1.1 Thematic analysis reports

1. Evaluation of the census data quality
2. Population structure by sex and age
3. Spatial distribution of the population (including urbanization)
4. Economic characteristics of the population
5. Fertility
6. Population density
7. Migration
8. Marital status and nuptiality
9. Household and living conditions (including the typology of households)
10. Population projections and prospective study on social needs for education, employment, health, and housing
11. Men and Women in Botswana
12. Children and youth
13. Population with disability
14. Elderly
15. Housing characteristics
16. Agricultural activities
17. Availability of ICT, transport and other durable assets
18. Home based care
19. Demographic atlas
20. Population distribution atlas
21. District monographs
22. Literacy, Education
23. Executive summary of the analysis main results (including the indicators recommended by international conferences)

8.1.2 Statistical tables

All the tables must be disaggregated by sex and produced at the level of all administrative subdivisions.

Preliminary results of the census (to be published not later than three months after the data collection). As in the 2001 PHC, CSO is expected to release preliminary 2011 census figures in just one month.

8.1.3 Census thematic maps

- 20. Demographic atlas
- 21. Education map
- 22. Map of the vulnerable population (e.g. people with disabilities)

8.1.4 Printed documents (to be distributed)

- 29. Statistical tables
- 30. Thematic analysis reports
- 31. Posters
- 32. Leaflets/Wall charts/Brochures
- 33. Demographic atlas
- 34. District monographs
- 35. Characteristics of localities

8.1.5 Documents on electronic media (to be distributed)

- 36. Census results
- 37. Interactive CD-ROM presenting the methodology and the results of the census
- 38. Website of the census results (with census priority tables, etc.)

8.1.6 Databases

- 39. Demographic database (including data from previous censuses)
- 40. Cartographic database
- 41. Census database (including the updated master sample for intercensal surveys)
- 42. Integrated socio-demographic databases such as Census-Info and Redatam-based IMIS

8.2 Topics to be investigated

The indicators from the 2011 PHC will help to monitor and evaluate progress on those programmes targeted by a variety of global, regional and national development frameworks to which Botswana subscribes. They range from those contained in the NDP10, MDGs to Vision 2016, NEPAD and the ICPD.

8.2.1 Planning, monitoring and evaluation indicators

Since the district and other local government units are the focal point of development, only the Census can close the data and information gaps at the lower levels for the purpose of good governance and decentralization. Most of these indicators will be directly provided by the Census not only at the national and district levels but also at the lower levels (localities and administrative wards).

8.2.2 Poverty Monitoring Indicators

The indicators in this sub-section though not exhaustive, are in line with the MDGs (see section 8.2.4) and Vision 2016 which NDP 10 is expected to encapsulate.

School attendance

- Net primary enrolment
- Net secondary enrolment
- Net tertiary enrolment

Health

- Infant mortality rate
- Under-five mortality rate
- Maternal mortality rate
- Life expectancy

Energy

- Proportion of population with electricity in the dwelling unit

Water and Sanitation

- Population with access to safe water
- Proportion of population with access to improved sanitation

Housing

- Proportion of households with access to secure tenure (owned or rented)

Employment

- Ratio of population employed to population of working age
- Unemployment rate

Agriculture and Rural Development

- Heads of livestock per household

Income poverty

- Proportion of working-age population not currently employed

Extreme vulnerability

- Proportion of orphaned children
- Proportion of child-headed households
- Proportion of children in the labour force
- Proportion of children in the labour force and not going to school
- Proportion of elderly living in a household where no one is economically active

8.2.3 World Summit for Children Indicators

Child mortality

- Under-five mortality rate
- Infant mortality rate

Water and sanitation

- Proportion of population who use a safe drinking water source
- Proportion of population who use a sanitary means of excreta disposal

Education

- Proportion of children entering first grade of primary school who eventually reach grade five
- Proportion of children of primary school age attending primary school
- Proportion of population aged 15+ years who are able to read a letter or newspaper

Preschool development

- Proportion of children aged 36-59 months who are attending some form of organized early childhood education program

Children's living arrangements

- Proportion of children aged 0-17 years in households not living with a biological parent

Orphans in household

- Proportion of children aged 0-17 years who are orphans living in households

Child labour

- Proportion of children aged 5-14 years who are currently working

8.2.4 Indicators of the Millennium Development Goals (MDGs)

The MDGs – a framework of 8 goals, 18 targets, and 48 indicators – constitute an ambitious agenda for reducing poverty and improving lives that world leaders agreed on at the Millennium Summit in September 2000. For each goal one or more targets have been set with 2015 as the terminal date and using 1990 as a benchmark. In principle, all the MDG indicators will be obtained directly or indirectly from the census, supplemented by other surveys in the country. As shown below, most of the indicators of the MDGs will be directly provided by the 2011 census at various levels (national, district, and localities).

Goal 2. Achieve universal primary education

- Net enrolment ratio in primary education
- Proportion of pupils starting grade 1 who reach grade 5
- Literacy rate of 15-24-year-olds

Goal 3. Promote gender equality and empower women

- Ratio of girls to boys in primary, secondary and tertiary education
- Ratio of literate females to literate males 15-to-24-years old
- Adult literacy rate by sex
- Share of women in wage employment in the non-agricultural sector

Goal 4. Reduce child mortality (and child labour)

- Under-five mortality rate
- Infant mortality rate
- Proportion of children under age 15 who are working

Goal 5. Improve maternal health

- Maternal mortality indicator

Goal 6. Combat HIV/AIDS, malaria and other diseases

- Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14

Goal 7. Ensure environmental sustainability

- Proportion of population with sustainable access to an improved water source, urban and rural
- Proportion of urban population with access to improved sanitation
- Proportion of households with access to secure tenure (owned or rented)
- Number of persons per room

Goal 8. Develop a global partnership for development

- Unemployment rate of 15-to-24-year-olds, by sex and total
- Ratio of population employed to population of working age
- Unemployment rate

8.2.5 Indicators of the NEPAD

These are the same as the MDGs mentioned above, in addition to the following:

- Net primary school enrolment rate by sex
- Ratio of girls to boys in primary
- Under-five mortality rate by sex
- Maternal mortality ratio

8.2.6 Indicators in the ICPD Plan of Action

- Maternal mortality ratio
- Infant mortality rate by sex
- Under-five mortality rate by sex
- Life expectancy at birth by sex
- Net primary school enrolment rate by sex
- Adult literacy by sex

9. QUALITY ASSURANCE STRATEGY

It is important to have in-built quality control procedures from the outset to assess how well each operation will be proceeding throughout the census exercise. The goal of a quality control plan is to provide information so that timely and appropriate decisions made should help modify quickly ongoing census operations with a view to improving both quality and cost-effectiveness of the census. The 2011 quality control plan will be designed to identify processes and personnel that are functioning both properly and poorly in terms of coverage or content errors, costs or delays. All activities in pre-enumeration, enumeration and post-enumeration phases of the 2011 census, both in the field and in the office, will be extensively monitored and evaluated by the relevant departments to ensure maintenance of quality standards.

9.1 Quality Control Plan

The quality of every phase of the census cycle depends on the personnel deployed and available resources. To this end, the NCAC will ensure that the organisational structure created for the 2011 PHC monitors and prescribes necessary changes right from the pre-enumeration phase to the post-enumeration phase. Temporary staff deployed, and working under the CSO or the NCS supervision in census operations, will be trained to perform their expected duties as expected. The NCS will ascertain the extent to which each census operation unravels as expected through in-built quality control procedures in the entire the census exercise. Results of such monitoring will permit expeditious modification of ongoing census operations primarily to improve the quality and cost-effectiveness of the census.

9.2 Quality Control Management

The National Census Coordinator (NCC) will be sensitive to quality control issues requiring immediate action to avoid their adverse effects on specific aspects of the census. It will hold regular office management meetings with the heads of sections within the NCS to ensure quality assurance on relevant procedures, guidelines and technical issues.

9.3 Cartographic Work

The head of the Cartographic Unit and quality control management will periodically hold meetings with the NCS to discuss progress in the cartographic fieldwork.

Mapping assistants (MAs) working in the field will be submitting updated EA maps to quality control officers through their respective supervisors, with a dated certification or endorsement from the quality control officer confirming receipt. These report forms should be dated and their receipt recorded. The Supervisor will check the work of their MAs on a daily basis. If mistakes are found, the supervisor will guide the MAs to make necessary corrections.

Supervisors should also make on-the-spot field checks of their respective mapping teams. In addition, they should ensure daily contact with their teams. However, in difficult conditions, such as terrain, poor weather or other limitations, contact between supervisors and MAs can be at least once every other day.

Automation of the field data will be imperative for comparison of automated boundaries to the actual field mapping data. For instance, hand-marked EA maps will be scanned for geo-reference and for overlay of digital EA boundaries to ascertain that digitisation is being done accurately.

During the field mapping exercise, the quality control officers (the permanent Cartography staff) will take over the GIS work to check and correct any errors and to start preparing the cut-out maps for the enumerators.

The head of Cartography Section and other senior members of the CSO should at times pay field visits to the mapping teams to motivate them and to solve any logistical problems.

9.4 Pilot Census

Distribution of materials for training and enumeration for the pilot census will be monitored by senior CSO and NCS staff, including field officers in their areas of operation. Members of various national and district Committees will be involved in overseeing of the exercise.

9.5 Main Census

All levels of training for the 2011 PHC enumeration will pay special attention to quality assurance, which will be in-built in training curricula, guidelines and manuals. Management and technical officers of the census and various census committees at all levels will organise and monitor the training procedures to ensure that the concepts are well and uniformly understood, and that any lingering questions are adequately addressed. At every training level, overseers will ensure adherence to all components of training. District Officers and District Census Committees will be in charge of census activities within their respective districts. Each senior supervisor will be in charge of a specific number of EA supervisors who, in turn, will supervise not more than five enumerators. Supervisors will be expected to play a critical role in assessing and reviewing the performance of enumerators and ultimately influencing the quality of the 2011 census outcomes. Supervisors will also be important links in the evaluation of procedures, documentation and training for census activities. During enumeration, senior officers of the CSO and the NCS will monitor and ensure adequate availability of materials and will provide logistic support; monitor the enumeration itself; and attend to any shortcomings.

9.6 Post-Enumeration Survey (PES)

Management and senior technical staff from the CSO and the NCS will monitor all the PES arrangements as well as field operations. For consistency and adherence to quality assurance, the PES will be handled in a similar fashion as the main census enumeration.

9.7 Communication, Publicity and Advocacy

During the census implementation process, an awareness creation campaign will be instituted through various channels, its intensity increasing as the census date approaches.

At various stages of the 2011 census, the CCPAC will monitor communication, publicity and advocacy activities and their outcomes documented for review and record-keeping. This field monitoring will be undertaken at least three times to determine the outcome of various workshops, seminars and other communication, publicity and advocacy programmes. Among other things, it will enable the CSO and the NCS to detect weaknesses for rectification, arrangements of different facets of the census and effects of the media on the general populace.

9.8 Data Processing

Quality assurance will be dependent on predetermined measures, which will rely on a combination of:

- Established documented processes;
- Systems for monitoring outcomes of these processes; and
- Active encouragement by management to involve staff in identifying and resolving quality deficiencies.

Quality control operations will use a combination of manual and automated methods. The Data processing service supplier is advised to use a tracking system which would help census managers to monitor data processing of the 2011 PHC.

9.9 Monitoring and Evaluation

In addition to the quality control plan, the census exercise will be subjected to monitoring and evaluation through periodic field visits, progress reports and periodic review meetings. The Government Statistician, deputy Government Statistician and the NCC will monitor, on a continuous basis, the implementation of the census programme to ensure that the activities are undertaken according to the work plan.

Progress in preparatory activities, especially the mapping, will initially be monitored through monthly meetings of heads of sections of the NCS, based on the minutes of such meetings.

The NCC will prepare monthly and quarterly progress reports for submission to the Government Statistician, acting as the Secretary of the NCAC. The NCS will meet periodically to review the progress and ensure that problems, if any, are urgently solved.

Performance indicators will be established to enable an assessment of Census implementation status. While such performance indicators may not be highly accurate, they add value to the understanding of the census results and improve decision-making, particularly when combined with data quality assessments carried out during data processing. Some of the performance indicators to be used include:

- Implementation of activities as per the work plan;
- Enumeration coverage;
- Refusal rates;
- Performance of enumerators; and
- Adverse conditions experienced during the census.

10. TECHNICAL ASSISTANCE

Normally, most countries census offices need long-term technical assistance in the form of support advisors in census planning, cartography, enumeration, data processing, analysis and dissemination at times complemented by short-term missions by different specialists.

For the 2011 Census, the technical assistance on planning and training will be provided mostly through short-term missions by different types of experts at critical periods, from the census preparatory phase through the final analysis, publication and dissemination of the 2011 Census results. Most of these missions will have a short duration of one to five weeks. The census undertaking requires continuity on decisions regarding processes and institutional memory. Therefore some census operations will require a longer technical assistance mission for the full duration of the census project. This process is usually effective through involvement of Census Technical Adviser (CTA) from planning to dissemination of census results. Botswana will opt for a long term CTA. The CTA will guide all processes of census undertaking.

The CTA will also assist with a comprehensive evaluation of the Pilot Census results before all forms, manuals and procedures are finalized for the main Census. He or she will assist with the design and implement the Post-Enumeration Survey (PES). CSO currently has three officers specialising in survey methodology which includes sample design. These have been providing services for the last 11 surveys conducted since the 2001 census. Together with the CTA, they will provide needed sampling services for the pilot census as well as the PES.

The following scope of work will be carried out with appropriate Technical Assistance where necessary as detailed from the work plan (see work plan).

- (1) Short term Technical Assistance for the development of the Census Project document (CPD)
- (2) CSO intends to outsource the data processing operations. The process involves the overall data processing system for the Census, including the operational and quality control components. The final product should include flow diagrams indicating movement of materials, inputs to and outputs from each phase (data files, reports, data products, etc.), and control measures at each phase. The awarded service provider will be engaged on a long term basis covering pilot census, the main census and PES activities.
- (3) The CTA will assist CSO in reviewing and analyzing the results of the Pilot Census, and making modifications to the questionnaire, control forms, edit, and tabulation specifications as necessary. If the results of the Pilot Census imply changes to the questionnaire, these changes will also be reflected in the data processing system modules by the awarded service provider.

10.1 Training

While CSO has vast experience on census undertaking from the last four censuses, staff attrition has affected capacity to undertake the 2011 census. There will be need for training in some areas to bring all census personnel including new officers on board.

Training needs for the CSO and the Census operation can be examined in light of capacity requirements of staff involved in the three main phases of the Census itself: pre-enumeration preparation, enumeration, and post-enumeration processing, always keeping in mind that the training must be accomplished before the phase is initiated or completed.

10.1.1 Pre-enumeration preparation

The major activities will be preparation of overall plans, preparation of maps, questionnaire design and testing, preparation of documents for use in training and enumeration, enumerator recruitment, selection, and training, sensitization of the public to the Census, and establishment of control systems to monitor all activities through all phases of the process.

Much of this training will be carried out “in-house,” using CSO staff and other local experts. However, the Census process and Census personnel would benefit by exposure to formal and informal training from sources outside the CSO,

- The person(s) who will be responsible for designing and implementing the Census plan would benefit from attendance at the Census Planning and Management workshop, usually organized by SADC and other international agencies.
- CSO has a number of programmers skilled in the use of MS Access software, so formal training is not required. However, some CSO officers will work with the data processing service provider as liaison between CSO and the provider and also for as in-house hands on training.
- As is the norm, the TOs, DCOs, supervisors and enumerators will receive intensive and timely training. This task should be the domain of the CSO, which has experience from the previous Census and from the various surveys it carries out on a regular basis. The same may be said of the manuals and documents related to training and enumeration; CSO has been preparing such material for many years. However, the CTA will be useful to give opinions as an outside expert. His/her observations might lead to improvements in the content of materials or in the techniques used.

CSO has been running census dissemination workshops after data analysis. It is advised to have one workshop before analysis in which a greater number of persons could participate. This workshop could serve as catalyst for the creation of a definitive dissemination program, including the definition of specific products and techniques to be used for making Census data available to the public. It should certainly be scheduled in time to allow for development of products before Census processing is completed.

10.1.2 Enumeration phase

During enumeration, most CSO staff (plus those tens of thousands of contracted persons) will be directed to the field exercise of collecting information from the Botswana population.

10.1.3 Post-enumeration phase

There will be some training done for this phase regarding questionnaires, manuals and the undertaking process. The census team with the CTA will arrange for the appropriate field personnel recruitment and training before PES.

- The task of training the clerical staff that will perform the manual editing and coding of the questionnaires prior to data capture will be carried out by NCS in collaboration with the data processing service provider immediately after the post-enumeration period, while the questionnaires are still being returned from the field. This task will depend on manuals for editing and coding which will have been prepared before the enumeration of the Pilot Census and updated as a result of the Pilot Census processing.
- Training the data capture operators will be the responsibility of the data processing provider since they will train staff on the implementation of their system. There should already be a manual that will have been used during the Pilot Census data capture; it should be updated to reflect any changes in the data capture application that may have occurred as a result of the Pilot Census.

11. SUMMARY OF RECOMMENDATIONS

Several key recommendations are made in this document. This section highlights these recommendations. For ease of reference, the recommendations are presented according to the stage of the census cycle they refer to. Key institutions such as the CSO, the NCS and Committees specified in the census organisation chart should pay special attention to recommendations that concern them.

11.1 Census Planning and Management

- i. To enhance the efficiency of census running, there is need to develop and adhere to a census management structure.
- ii. The government should mobilise resources from development partners to cover resource gaps required in carrying out the census, if any.
- iii. Staff involved in the census project should be exposed to modern census running procedures through training, study tours and attachments to relevant organizations.
- iv. Where possible, such trainings should be conducted in-house to test available equipment and data in achieving desired goals.
- v. To boost the census management procedure, development partners should attach technical experts in various fields to provide support.

11.2 Communication, Publicity and Advocacy

- vi. There is need to implement the census communication, publicity and advocacy strategy (CCPA) at the onset of the census project.
- vii. A publicity expert should be engaged throughout the census period to assist CSO Staff with the implementation of this strategy.

11.3 Quality Assurance

- viii. The census management programme should have in-built quality control procedures throughout the census exercise.
- ix. Performance indicators should be established to enable an assessment of census implementation status.

11.4 Cartographic Mapping

- x. To increase speed and efficiency in the cartographic mapping exercise, CSO will adopt a parallel implementation of field mapping and map production approach.
- xi. Field mapping teams will be led by experienced permanent CSO staff as quality control officers to ensure accuracy of the mapping process.
- xii. To reduce the chances of getting some of the errors noted in the 2001 Census Recommendations, CSO should consider the option of delineating the enumeration area boundaries in the field as opposed to the current practice of doing this in the office.
- xiii. CSO will upgrade GIS analytical skills to include tools such as digital image processing, which are used for spatial data updating.
- xiv. CSO will also upgrade its GIS laboratory to include digital image processing capabilities.

11.5 Design and Testing of Census Instruments

xv. All census equipment must be procured well advance and tested during the crucial relevant stages of the census cycle. Cartographic equipment must be tested during the cartographic mapping exercise and those found to be wanting replaced to avoid yielding poor results. Data processing equipment will be tested when processing the Pilot Census data.

11.6 Enumeration

xvi. As the enumeration day approaches, the general public should be educated on why certain unpalatable questions, which may be contrary to Batswana's customs and traditions, will be asked by the enumerators. The fears of respondents should be allayed by making them know that the information is exclusively for the census and will not be divulged to anyone.

xvii On the census eve or just before census date, Minister of Finance and Development Planning, as his mandate, will call on all residents of Botswana to co-operate in the census enumeration by providing accurate information to the enumerators. While making this call, The Minister will emphasize the utilisation of the census information in the national development agenda, including monitoring of NDP10, to the achievement of Vision 2016, the MDGs and provision of information for constituency delimitation. It will be more beneficial if the above is done by HE, the President of Botswana.

11.7 Data Processing and Analysis

xviii. Demographers and data processing staff should be trained on GIS to enhance their data analysis and presentation skills.

xix. Tabulations produced should be consistent with the UN recommendations as well the country's needs, in particular stakeholders' needs.

xx. The CSO should improve the quality and subjects of analytical reports of the 2011, engaging their authors as consultant eligible for agreed fees, rather than less committed players only paid modest honoraria. It should find how this has been done in other countries where detailed and user-friendly analytical reports have been produced.

11.8 Dissemination of Census Results

xxi. To cater for the widely varying information needs in terms of both type and geographical location, CSO should move towards production of Web-based products to complement the published analogue products.

xxii. Effective dissemination of census results by the CSO to enable users to identify their institutional needs, including further data analysis for desired consumer interests will be improved. For example, government ministries would wish to know particular issues of interest to their mandates, missions and visions: Education would be interested in educational statistics and publications; Lands and Housing would desire educational and health data relating to the population which local authorities serve; Labour would seek information on employment, juvenile labour and so on; and Botswana Police would wish to know age-sex distribution to gauge potential nodes of crime.

xxiii. Census results should be disseminated through a variety of outlets at various levels of the Batswana society.

xxiv. Online disaggregated data dissemination will be improved in the 2011 census.

11.9 Proposed Autonomy of the CSO

xxv. CSO is in the process of becoming autonomous. In view of the impending census activity, stability of the CSO structure is essential to avoid disrupting census operations,

11.10 Satisfying Stakeholders' Needs

xxvi. Participation of stakeholders through various committees in the census cycle will begin from the beginning with the selection of census topics and their involvement sustained throughout the entire process.

xxvii. CSO and CTO should collaborate timely in making arrangements for the use of vehicles and human resources associated with them during the census, with the CSO having full control of what is at the disposal of the census.

xxviii. Stakeholders require immediate publication of preliminary results of the census soon after it is conducted to avoid anxiety among various population groups and to arrest speculation based on rumours on outcomes of the exercise. Botswana is applauded for having disseminated the 2001 census results one year after the end of 2001 enumeration. It is hoped that CSO will keep the record and release the results within the UN recommended period of not more than two years after the end of main census enumeration.

11.11 Census Administration

All financial and supply regulations will be adhered to, to ensure efficiency in financial and personnel management.

Annex I: Work Plan for the 2011 Botswana Population and Housing Census

2011 Population & Housing Census Activity Schedule

Item No.	Category	Activity	From	To	Responsible Officer
1.	Administrative	Develop Census Project Document (CPD) & communications, Publicity and Advocacy (CPA) Strategy	Oct-08	Aug -09	Government Statistician
2.		Establish Census Secretariat (National Census Coordinator, Chief Census Officer (Cartography and GIS), Chief Census Officer (Instruments Development), Chief Census Officer (Publicity and Advocacy), Administration Officer, Accountant, Transport Officer, Field Organizer, Supplies Officer, Systems Analyst and IT support staff, etc)	Apr-09	Aug -09	Government Statistician
3.		Recruitment of Chief Technical advisors and other advisors	Apr-09	Aug -09	Government Statistician/UNFPA
4.		Establish Central Census Committee, Technical Advisory Committee & National Communications and Publicity Committee	Apr-09	Oct -09	National Census Coordinator
5.		Prepare Cabinet Information Note	Aug-09	Aug -09	National Census Coordinator
6.		Establish district census structures (appoint district census officers) and Committees	Jul-09	Nov -09	National Census Coordinator
7.		Prepare and publish Legal Notice	May-10 May -11	Jun-10 May-11	National Census Coordinator
8.	Communication, Publicity and Advocacy	Develop 2011 Census Advocacy Document	Aug -09	Oct -09	Chief Census Officer (Communication, Publicity and Education)
9.		Develop CPA strategy and incorporate it in the CPD	Oct-08	Mar -09	Chief Census Officer (Communication, Publicity and Education)
10.		Address media to launch the 2011 PHC	Aug-09	Sep -09	GS and National Census Coordinator
11.		Draft 2011 Publicity Program	Aug-09	Oct -09	Chief Census Officer (Communication, Publicity and Education)
12.		Prepare publicity message for media - press releases for radio, TV, papers, census song, drama, T-shirts, car stickers, posters, billboards, radio jingles, etc	Aug-09	Mar -11	Chief Census Officer (Communication, Publicity and Education)

Item No.	Category	Activity	From	To	Responsible Officer
13.		Establish district census publicity committees	Sep-09	Nov-09	National Census Coordinator
14.		Draft Census school lesson notes document	Nov-09	May-10	Chief Census Officer (Communication, Publicity and Education)
15.		Publicity campaign for cartographic work	Jul-09	May-10	Chief Census Officer (Communication, Publicity and Education)
16.		Hold meetings with district publicity committees to deliver publicity materials and strategies	Jul-09	May-11	Chief Census Officer (Communication, Publicity and Education)
17.		Approach Ministry of education for incorporation of the 2011 Census school lesson notes in the curriculum during school terms 1 & 2 in 2011	Apr-1009	May-10	Chief Census Officer (Communication, Publicity and Education)
18.		Prepare essay completion questions primary, junior secondary and senior secondary schools	Oct-10	Oct-10	Chief Census Officer (Communication, Publicity and Education)
19.		Establish prizes for school essay competitions	Dec-09	Jan-10	Chief Census Officer (Communication, Publicity and Education)
20.		Draft 2011 Quarterly Census News Letter and publish the first issue in March 2010	Dec-09	Mar-10	Chief Census Officer (Communication, Publicity and Education)
21.		Publicity campaign for pilot census	May-10	Aug-10	Chief Census Officer (Communication, Publicity and Education)
22.		Administer school essay competitions, mark and award prizes and publicize through media	Jan-11	May-11	Chief Census Officer (Communication, Publicity and Education)
23.		Address media to launch the 2011 main census	May-11	Jun-11	GS & NCC
24.		Publicity campaign for main census intensified	May-11	Aug-11	Chief Census Officer (Communication, Publicity and Education)
25.		Publicize through media the 2011 preliminary results	Sep-11	Dec-11	Chief Census Officer (Communication, Publicity and Education)
26.		Publicize the 2011 results dissemination seminar	Sep-12	Nov-12	Chief Census Officer (Communication, Publicity and Education)
27.		Sensitize stakeholders through media about other census products	Oct-12	Dec-12	Chief Census Officer (Communication, Publicity and Education)
28.	Census Cartography/ Mapping	Review and draft cartographic data instruments-prelisting & site condition forms	Jan-09	Mar-09	Chief Census Officer (Cartography and GIS)
29.		Collection and cutting of metal plates	Jan-09	Apr-11	Chief Census Officer (Cartography and GIS)
30.		Tendering for training facilities, mappers uniform, vehicles radios, computers, software, GPS, airtime and procurement	Jan-09	Jun-09	Chief Census Officer (Cartography and GIS)

Item No.	Category	Activity	From	To	Responsible Officer
31.		Data collection from Department of Surveys and Mapping and EA digitization	Jan-09	May-09	Chief Census Officer (Cartography and GIS)
32.		Acquisition of office field stationery - printing paper , toner, ink cartridges, etc	Feb-09	May-09	Chief Census Officer (Cartography and GIS)
33.		Contact District Commissioners, Council Secretaries and Tribal Authorities to sensitize them on cartographic work	Feb-09	Mar-09	Chief Census Officer (Cartography and GIS)
34.		Undertake field trips to newly established sub-districts to identify their boundaries	Mar-09	Apr-09	Chief Census Officer (Cartography and GIS)
35.		Cartographic publicity - media, field trip addresses	Mar-09	Jun-11	Chief Census Officer (Cartography and GIS)
36.		Recruitment and training of cartographic supervisors, mappers and team formation	Apr-09	May-09	Chief Census Officer (Cartography and GIS)
37.		Transport arrangements - vehicles, fuelling, drivers, communication radio installation	Apr-09	May-09	Chief Census Officer (Cartography and GIS)
38.		Develop training manuals for mappers	May-09	May-09	Chief Census Officer (Cartography and GIS)
39.		Acquisition of camping equipment	May-09	May-09	Chief Census Officer (Cartography and GIS)
40.		Administrative arrangements for temporary staff employment and continuous payment of salaries, commuted allowances, overtimes, etc	May-09	Jun-09	Chief Census Officer (Cartography and GIS)
41.		Printing EA base maps, delineate supervision EA maps, design data receiving form	May-09	Jun-09	Chief Census Officer (Cartography and GIS)
42.		Develop field mapping schedule	Apr-09	May-09	Chief Census Officer (Cartography and GIS)
43.		Cartographic fieldwork - dwelling listing, data collection, office/filed map update	Jul-09	May-10	Chief Census Officer (Cartography and GIS)
44.		Cartographic data capture	Aug-09	May-11	Chief Census Officer (Cartography and GIS)
45.		Preparation of Control List	Aug-09	Jun-11	Chief Census Officer (Cartography and GIS)
46.		Quality Control - field inspections, map verification and fieldwork callbacks	Sep-09	Jun-11	Chief Census Officer (Cartography and GIS)
47.		Produce EA maps for pilot census	May-10	Jun-10	Chief Census Officer (Cartography and GIS)
48.		Link GI database with census data through GIS system	Mar-11	May-11	Chief Census Officer (Cartography and GIS)

Item No.	Category	Activity	From	To	Responsible Officer
49.		Produce EA maps for PES	Jun-11	Jul-11	Chief Census Officer (Cartography and GIS)
50.		Field checks and handing over of EAs and supervision areas for main census	Jul-11	Jul-11	Chief Census Officer (Cartography and GIS)
51.		Creation of GI database in GIS and data backups	Jul-10	Dec-10	Chief Census Officer (Cartography and GIS)
52.		Revision of the 2001 Population Census Atlas	Jan 13	Dec-14	Chief Census Officer (Cartography and GIS)
53.	Planning, Preparations & fieldwork Activities	Review 2001 Census recommendations	Jun-08	Mar-09	National Census Coordinator
54.		Finalize 2001 census recommendations and adopt them for 2011 census	Mar-09	Apr-09	National Census Coordinator
55.		Draw Project Memorandum for 2009/10 census activities and submit online.	Mar-09	Mar-09	National Census Coordinator
56.		Establish vehicles, camping equipment, data processing equipment (software & hardware), publicity equipment & materials, other materials and supplies requirement for pilot and main census enumeration using EA & population estimates.	Apr-10	Jun-10	National Census Coordinator
57.		Procurement of equipment and supplies (stationery, camping equipment, publicity materials, enumeration bags, shirts, posters, media coverage, etc)	Apr-10	May-10	Principal Census Officer (Quality Assurance and Logistics)
58.		Procurement of storage space for census materials	May-10	May-10	Principal Census Officer (Quality Assurance and Logistics)
59.		Procurement of IT equipment(PCs, laptops, servers, printers)	Jul-09	Dec-09	Chief Census Officer (Data Processing)
60.		Improvement of network at Census office	Dec-09	Feb-10	Chief Census Officer (Data Processing)
61.		Establish vehicle requirement for TOs, DCOs, supervisors and enumerators at Head office and at districts for pilot census	Apr-10	Jul-10	National Census Coordinator
62.		Establish vehicle requirement for TOs, DCOs, supervisors and enumerators at Head office and at districts for main census	Jan-11	Mar-11	National Census Coordinator
63.		Review 2001 Manuals and draft the 2011 instructions manuals – enumerators supervisors and DCOs manuals	Jul-09	Jul-11	Chief Census Officer (Instruments Development)

Item No.	Category	Activity	From	To	Responsible Officer
64.		Review questionnaires from 2001 census and draft the 2011 questionnaire	Aug-09	May-11	Chief Census Officer (Instruments Development)
65.		Finalize draft the census questionnaires for pilot census	Apr-10	Apr-10	Chief Census Officer (Instruments Development)
66.		Arrange with districts for training facilities and venues for pilot census	Apr-09	Dec-09	Principal Census Officer (Quality Assurance and Logistics)
67.		First inaugural meetings of Central Census Committee (CCC) and Technical Advisory Committee (TAC)	Aug-09	Dec-09	National Census Coordinator
68.		Consult stakeholder institutions on census topics guided	Jul-09	Aug-09	National Census Coordinator
69.		Present the questionnaires to CSC & CCC	Sep-09	Dec-09	National Census Coordinator
70.		Inaugural meetings of District Commissioners, Council Secretaries, Tribal authorities and DCOs to introduce the 2011 Census	Sep-09	Sep-09	National Census Coordinator
71.		Conduct TOs & DCOs training seminars	Dec-09	Dec-09	National Census Coordinator
72.		Procure Census software and hardware (systems, computers, printers, etc.)	Sep-09	Mar-10	Chief Census Officer (Data Processing)
73.		Implementation of 2011 Census publicity program	Jul-09	Oct-11	Chief Census Officer (Communication, Publicity and Education)
74.		Print pretest questionnaires	Feb-10	Feb-10	Principal Census Officer (Quality Assurance and Logistics)
75.		Conduct pretest and finalize the questionnaire for pilot census	Mar-10	Mar-10	Chief Census Officer (Instruments development)
76.		Conduct training of trainers workshops	Jan-10	Jan-10	Chief Census Officer (Instruments development)
77.		Finalize questionnaires for pilot census and manuals	Apr-10	Jul-10	Chief Census Officer (Instruments development)
78.		Develop Tabulation Plan	Apr-10	Jul-10	Chief Census Officer (Data Processing)
79.		Draw census field work plan (pilot and main census)	Oct-09	Feb-10	Principal Census Officer (Quality Assurance and Logistics)
80.		Gazette Census Questionnaires	May-10	Jun-11	National Census Coordinator
81.		Print pilot census questionnaires, manuals, EA books	Nov-09	Feb-10	Principal Census Officer (Quality Assurance and Logistics)
82.		Develop manual editing and coding instructions	Nov-09	Feb-10	Chief Census Officer (Instruments development)
83.		Establish pilot census facilities and arrange with DCOs to procure	Jan-10	Mar-10	Principal Census Officer (Quality Assurance and Logistics)

Item No.	Category	Activity	From	To	Responsible Officer
84.		Dispatch pilot census field materials (EA books, manuals, etc)	Mar-10	Mar-10	Principal Census Officer (Quality Assurance and Logistics)
85.		Train Technical Officers (TOs) and DCOs for pilot census DCOs	Apr-10	May-10	Chief Census Officer (Instruments development)
86.		Train Pilot census supervisors	Apr-10	May-10	Chief Census Officer (Instruments development)
87.		Cartographic inspection by TOs and DCOs	May-10	May-10	Chief Census Officer (Cartography and GIS)
88.		Train Pilot census enumerators	Aug-10	Aug-10	Chief Census Officer (Instruments development)
89.		Conduct pilot census enumeration	Aug-10	Aug-10	National Census Coordinator
90.		Finalize Questionnaires and manual from pilot census experience	Apr-11	Apr-11	Chief Census Officer (Instruments development)
91.		Train census supervisors	Apr-11	May-11	Chief Census Officer (Instruments development)
92.		Arrange with districts for training facilities and venues for census	Apr-11	May-11	Principal Census Officer (Quality Assurance and Logistics)
93.		Print Census questionnaires and manuals	May-11	Jun-11	Principal Census Officer (Quality Assurance and Logistics)
94.		Cartographic inspection by TOs and DCOs	May-11	May-11	Chief Census Officer (Cartography and GIS)
95.		Dispatch all census field materials	Jun-11	Jul-11	Principal Census Officer (Quality Assurance and Logistics)
96.		Familiarization tours of TOs & DCOs	Jun-11	Jul-11	National Census Coordinator
97.		Train census enumerators	Aug-11	Aug-11	Chief Census Officer (Instruments development)
98.		Conduct census enumeration	Aug-11	Aug-11	National Census Coordinator
99.	Systems Development	Procure Services for development of the Census System and data capture	Dec-09	Apr-10	Chief Census Officer (Data Processing)
100.		Analysis of the Census data processing system	May-10	Jun-10	Chief Census Officer (Data Processing)
101.		Develop systems for data capture and online editing programs	May-10	Aug-10	Chief Census Officer (Data Processing)
102.		Test the system using pretest data	Jun-10	Aug-10	Chief Census Officer (Data Processing)
103.		Test and finalise data capture, online editing & tabulation programs using pilot census data	Sep-10	Aug-10	Chief Census Officer (Data Processing)
104.		Develop Tabulation Program	Sep-10	Dec-10	Chief Census Officer (Data Processing)

Item No.	Category	Activity	From	To	Responsible Officer
105.		Test tabulation program	Dec-10	Jan-11	Chief Census Officer (Data Processing)
106.	Data Processing	Manual pilot census data editing and coding	Sep-10	Nov-10	Chief Census Officer (Instruments development)
107.		Data capture of pilot census	Dec-10	Feb-10	Chief Census Officer (Instruments development)
108.		Analysis of pilot census data	Feb-11	Mar-11	Chief Census Officer (Instruments development)
109.		Census data processing (online editing)	Feb-12	Apr-12	Chief Census Officer (Instruments development)
110.		Manual Census data editing and coding	Sep-11	Dec-11	Chief Census Officer (Instruments development)
111.		Census data entry	Oct-11	Jan-12	Chief Census Officer (Data Processing)
112.		Census data tabulation and analysis	Feb-12	May-12	Chief Census Officer (Data Processing)
113.	Dissemination, Pilot and Census Data	Release of pilot census results	Jan-11	Jan-11	National Census Coordinator
114.		Processes and release preliminary results from summaries of EA books	Sep-11	Oct-11	National Census Coordinator
115.		Administrative and Technical report	Oct-11	Feb-12	National Census Coordinator
116.		Population of cities, towns, villages and associated localities report	May-12	Jun-12	National Census Coordinator
117.		National Statistical Tables report	Jun-12	Jul-12	National Census Coordinator
118.		2011 Census data dissemination seminar	Aug-12	Aug-12	National Census Coordinator
119.		Analytical Report – Topics by different stakeholders	Sep-12	Nov-12	National Census Coordinator
120.		Analytical report dissemination presentations	Feb-13	May-13	National Census Coordinator
121.		District Census Reports	Oct-13	Oct-13	National Census Coordinator
122.		Sectoral Census reports	Oct-13	Apr-14	National Census Coordinator
123.	Post Enumeration Survey (PES)	Design PES Sample	May-11	May-11	Chief technical Adviser
124.		Select PES sample	Jun-11	Jun-11	Chief technical Adviser
125.		Arrange PES allowances through District Administrations	Jun-11	Jul-11	Chief technical Adviser
126.		Arrange PES transport with DCOs and TOs	Jul-11	Jul-11	Chief technical Adviser
127.		Select PES enumerators from census ones	Aug-11	Aug-11	Chief technical Adviser
128.		Conduct PES fieldwork	Sep-11	Sep-11	Chief technical Adviser
129.		Manual editing and coding	Nov-11	Jan-12	Chief technical Adviser

Item No.	Category	Activity	From	To	Responsible Officer
130.		PES data capture using 2011 Census screens	Jan-12	Feb -12	Chief technical Adviser
131.		PES data analysis	Feb-12	Mar -12	Chief technical Adviser
132.		Release PES results	Apr-12	Apr -12	Chief technical Adviser
133.	Sampling Frame	Develop Sampling Frame	May 12	Jul 12	Chief technical Adviser
134.	Population Projections	Develop population projections	June 13	Dec 13	National Census Coordinator

Annex II: Current CSO Staff, November 2008

Table 2.2 Central Statistics Office staff list by position and qualification, November 2008				
Grade	Number	Cadre	Position	Qualification
E1	1	Professional	Government Statistician	Masters degree
E2	1	Professional	D/Government Statistician	Masters degree
D1	7	Professional	Chief Statistician	2 Post Graduate Dip, 5 Masters degree
D2	12	Professional	Principal Statistician &Pr Stat I	2 Bachelors degree, 3 Postgraduate Dip, 7 Masters degree
D3	10	Professional	Varied	1Bachelors, 3Masters degree, 6 Dip
D4	11	Professional	Varied	5 Bachelors, 4 Masters degree, 2 Dip
C1	28	Technician	Stat I &II	13 Bachelors degree, 15 Dip
C2	29/31	Technician	Asst Stat, Stat II, Snr. Stat Officer	20 Bachelors degree, 9 Dip, 2 Cert.
C3	37/31	Artisan	Varied	3 JC, 22 Cert, 16 Bachelors degree
B1	60	Artisan	Senior Statist Assist/Admin Officer	
B2	8	Artisan	Stat/Snr. Stat Asst	Cert Pop &SE Stat
B3	1	Artisan	Typist	Cert Sec Stud & Admin

Annex III: Detailed Budget for the 2011 Botswana Population and Housing Census

2011 POPULATION AND Housing Census - Budget - Figures are given in Botswana Pula Currency (BWP)

- Notes:
1. Enumerators are paid subsistence and census allowance @ P120 per night and P300 per day respectively.
 2. Drivers monthly overtime is calculated at average of 3 hours per day, from 16:30 to 19:30, at hourly rate of P5
 3. There will be 4,861 estimated EAs for Census & 243 EAs for Pilot
 4. For budgeting purposes the number of EA s is taken to be **5,000 & 250 EAs for pilot census**
 5. Supervisors = $5,000/4 = 1,250$ for Census and will be $250/4 = 63$
 6. Each Supervision Area will have 4 EAs - thus, 4 EAs per supervisor
 7. Pilot Vehicles = $(250\text{EAs}/4) \times 2 = \mathbf{126}$.
 8. Census Vehicles = $(5,000 \text{ EAs}/4) \times 2 = \mathbf{2,500}$ but this is cut to **1987 vehicles, assuming sharing vehicles in urban centres**
 9. Drivers & other Industrial class overtimes - drivers @ 3 hours per day @ P5 per Hour
 10. Training centres - 28 Census Districts
 11. Camping Equipment - will need only in rural, thus estimated 1,864 EAs only out of 5,000 EAs
 12. Camping equipment only for rural and only drivers and is cut from 1,864 to 1500 assuming recruiting from local

	2009/2010				2010/2011				2011/2012				2012/2013				2013/2014	Grand Total Cost
			Unit	Total			Unit	Total			Unit	Total			Unit	Total		
	No.	Cases	Cost	Cost	No.	Cases	Cost	Cost	No.	Cases	Cost	Cost	No.	Cases	Cost	Cost		
A. Planning and Management																		
1. Personnel																		
1.1 Imprest/Subsistence (700/day/officer x 27 district x 6 officers) - District Consultations	6	27	700	113,400					6	6	93	3,337						116,737
1.2 DCO Allowance @ P300 per day for 5 days for 3 trainings for 56 DCOs	56	15	420	352,800	56	15	420	352,800	56	15	420	352,800						1,058,400
1.3 Trainers training subsistence 2 trainers per district for 3 trainings)	56	10	421	235,760	56	15	420	352,800	56	15	420	352,800						941,360
1.4 Supervisors training Subsistence 1250 for 2 trainings				0	500	5	420	1,050,000	1,250	5	420	2,625,000						3,675,000
1.5 Enumerators training Pilot & Census				0	500	5	420	1,050,000	5,000	5	420	10,500,000						11,550,000
1.6 Enumeration 5000 enumer. 1250 superv. for 10 days @ P300 (training allowance)+ P120(sub) per day				0	500	20	420	4,200,000	5,000	30	420	63,000,000						67,200,000
1.7 CTO Loaned Drivers Subsistence (Pilot, Census, PES 30 +10 days)				0	556	20	120	1,334,400	1,987	40	120	9,537,600						10,872,000
1.8 Drivers Overtimes - drivers @ 3 hours per day @ P5 per Hour				0	556	10	15	83,400	1,987	20	15	596,100						679,500
1.9 Cartographic Inspections TO at P700 imprest per day for 5 days					56	1	3,500	196,000	56	2	3,500	392,000						588,000
1.9 Cartographic Inspections DCO at P700 imprest per day for 5 days plus P300 per day census allowance					56	1	5,000	280,000	56	2	5,000	560,000						840,000
1.9 Editors/Coders B3 Salaries - 20 officers for 6 mnths - 2 mnths pilot, 4 mnths census				0	20	2	2,500	100,000	20	4	2,500	200,000	20	6	2,500	300,000		600,000
1.10 2 Demographers salaries @ P8,400 per month for 48 months (C2) - reduced to 2 from 4 Demographers	2	12	8,400	201,600	2	12	8,400	201,600	2	12	8,400	201,600	2	12	8,400	201,600		806,400
1.10(a). Demographer subsistence 2 yearly - reduced to 2 from 4	30	2	120	7,200	30	2	120	7,200	30	2	120	7,200						21,600
1.11 Subsistence allowance during training - Technical Officers				0	56	10	120	67,200	56	10	120	67,200						134,400
1.12 Imprest before & after training - Technical Officers: mid Jul - mid Sep				0	56	34	700	1,332,800	56	34	700	1,332,800						2,665,600
1.13 Casual Labourers - 10 engaged for 7 days yearly for 2 years @ P100/day				0	10	7	100	7,000	10	7	100	7,000						14,000
1.14. PES Enumeration - 400 EAs and 400 enumerators									400	10	420	1,680,000						
1.15. PES Supervisors 400/4 = 100									100	10	420	420,000						
Sub Total				910,760				10,615,200				91,835,437				501,600		103,862,997

2. Transport																	
2.1 CTO 4x4 Twin-cab Vehicles Hire Charge =P2,500 per vehicle/month)				0	556	2	2,500	2,780,000	1,987	2	2,500	9,935,000					12,715,000
2.2 CTO Kilometrage Charge (average of 3000km per vehicle/month @ 34 thebe/km)				0	1,500,000	2	0	1,020,000	4,500,000	2	0	3,060,000					4,080,000
2.3 CTO Loaned Drivers Hire Charge P2,670 per driver/month)				0	556	2	2,670	2,969,040	1,987	2	2,670	10,610,580					13,579,620
2.4 Fuel - 1 tank in 2 days @ 80l/tank = P400/tank @ P5/litre for 2 mnths	3	4	400	4,800	556	30	400	6,672,000	1,987	30	400	23,844,000					30,520,800
2.1 CTO 4x4 Twin-cab Vehicles For PES Hire Charge =P2,500 per vehicle/month)									125	1	2,500	156,250					156,250
2.2 CTO Kilometrage Charge (average of 3000km per vehicle/month @ 34 thebe/km) For PES									750,000	1	0	127,500					127,500
2.3 CTO Loaned Drivers Hire Charge P2,670 per driver/month) For PES									125	1	2,670	166,875					166,875
2.4 Fuel - 1 tank in 2 days @ 80l/tank = P400/tank @ P5/litre for 2 mnths For PES									125	15	400	750,000					750,000
Sub Total				4,800				13,441,040				48,650,205				0	62,096,045
3. Materials/Supplies/Equipment																	
3.1 Heavy duty photocopier (Duplex & Stapler)				0	2	1	100,000	200,000				0					200,000
3.2 Sachels @ P30 each for pilot and census enumerators				0	500	1	30	15,000	5,000	1	30	15,000					30,000
3.3 Scientific Calculators (for office & district use)				0				0	38	1	150	5,700					5,700
3.5 Pens (1 per enumerator & supervisors)				0	1,000	1	3	3,000	10,000	1	3	30,000					33,000
3.6 EA files - to be bought & printed at Government Printer				0	1,000	1	5	5,000	5,500	1	5	27,500					32,500
3.7 Markers				0	30	1	4	120	50	1	4	200					320
3.8 Packaging boxes @ P20 each				0	600	1	20	12,000	5,500	1	20	110,000					122,000
3.19 Camera and Video machine @ P10,000 total				0	1	1	10,000	10,000				0					10,000
3.10 Airtime for Census Secretariat staff (=D4)- P100/month : Apr 2009 - Sep 2011	12	12	100	14,400	12	12	100	14,400	12	7	100	8,400					37,200
3.11 Airtime- Pilot & Census for DCOs =200, TOs =P200				0	112	1	200	22,400	112	1	200	22,400					44,800
3.12 Airtime - Pilot & Census for Supervisors = P50. Note 2000 EAs/4 = 500 and 5000 Eas/4 = 1250 Supervisors for pilot and census respectively.				0	500	1	50	25,000	1,250	1	50	62,500					87,500
3.13 Bags - DCOs & Tos @ P150 each				0	112	1	150	16,800	112	1	150	16,800					33,600
3.14 Files for TOs & DCOs @ P30 each				0	112	1	30	3,360				0					3,360
3.15 Digital camera	1	1	10,000	10,000													10,000
Sub Total				24,400				327,080				298,500				0	649,980

4. Printing																		0
4.1 (a) Training, Pre-test, Pilot Qnaires, Census H/H Qnaires - in colour P2 per sheet	500	1	2	1,000	150,000	1	2	300,000	1,500,000	1	2	3,000,000						3,301,000
4.1 (b) Training, Pre-test, Pilot Qnaires, Census I/H Qnaires - in colour P2 per sheet	125	1	2	250	37,500	1	2	75,000	37,500	1	2	75,000				0		150,250
4.2 Manuals - P2 Year 1 & P10 rest of period per copy - 3 types of Manuals + Events calenda	226	1	2	452	2,100	4	10	84,000	5,500	3	10	165,000				0		249,452
4.3 Control List @ P2 per sheet, 5 sheets per EA					2,500	1	2	5,000	25,000	1	2	50,000						55,000
Sub Total				1,702				464,000				3,290,000				0		3,755,702
																		0
5. Camping Equipment - Pilot & Census - needed only in rural																		0
5.1 Tents - for pilot & census field staff supplement with stock in office (reduced to 1300 from 1500 in Census)				0	150	1	2,500	375,000	1,000	1	1,000	1,000,000						1,375,000
5.2 Stretchers - (1250 supervisors, 5000 enumerators, 1987 drivers) - Reduced 1300 from 1500 in Census)				0	150	1	300	45,000	1,000	1	300	300,000						345,000
5.3 Mattresses - "				0	150	1	100	15,000	1,000	1	100	100,000						115,000
5.4 Gas cookers (2 burners) - 2/team for 1250 teams				0	150	1	100	15,000	1,000	1	100	100,000						115,000
5.5 Gas Cylinders (9kg) - 2/team				0	150	1	350	52,500	1,000	1	350	350,000						402,500
5.6 Water bottles (20 litres) - 2 per team				0	150	1	40	5,993	1,000	1	40	39,950						45,943
5.7 Torches (1 per driver & supervisor) - 2/team				0	150	1	26	3,825	1,000	1	26	25,500						29,325
5.8 Snake poison @ P176/litre - 2 litres per rural TOs and DCO = 112					112	1	176	19,712	112	1	176	19,712						
5.9 Condoms for fieldstaff @ P110 per box of 100 condoms - 4 boxes pilot & 8 boxes census per training centre (28)					28	4	110	12,320	28	8	110	24,640						
5.10 Storage Rental - Questionnaires - for 36 months starting Apr 2010 - Mar 2014 @P5000/mnth				0	1	12	5,000	60,000	1	12	5,000	60,000	1	12	5,000	60,000		180,000
Sub Total				0				604,350				2,019,802				60,000		2,684,152
																		0
6. Training Facilities - only food budget required - Pilot																		0
6.1 Public facilities 612 officers - 6 days training - 3 meals @ P50/meal				0	612	18	50	550,800										550,800
6.2 Matron Overtimes @ P10/hr for 3hrs daily for 6 days training				0	14	6	10	840										840
6.3 Cooks - Overtimes @ P5/hr for 3hrs daily for 6 days training - 10 cooks per centre				0	14	60	5	4,200										4,200
6.4 Cleaners Overtimes @ P5/hr for 3hrs daily for 6 days training - 10 cleaners/centre				0	14	60	5	4,200										4,200
6.5 Security @ hostels Overtimes @ P5/hr for 3hrs daily for 6 days training				0	14	60	5	4,200										4,200
6.6 Toilet paper - 500 per centre				0	14	500	3	21,000										21,000
6.7 Cleaning detergants - 3 per centre				0	14	84	30	35,280										35,280
Sub Total				0				620,520				0				0		620,520
																		0
6a. Training Facilities - Private Venues - for DCOs & TOs																		0
6.1a Training workshops for TOs - 1 training per year - for 5 days @ P100/person/day	56	5	100	28,000	56	5	100	28,000	56	5	100	28,000						84,000
6.2a Training facilities for DCOs - 1 training per year - for 5 days @ P1050/person/day	56	5	1,050	294,000	56	5	1,050	294,000	56	5	1,050	294,000						882,000
6.3a Training facilities for Trainers - 1 training per year - for 5 days @ P100/person/day	56	5	1,050	294,000	56	5	1,050	294,000	56	5	1,050	294,000						882,000
Sub Total				616,000				616,000				616,000				0		1,848,000

7. Training Facilities - only food budget required - Census																		
7.1 Public facilitie - 7700 officers - 6 days training & 3 meals				0				5,500	18	50	4,950,000							4,950,000
7.2 Matron Overtimes @ P10/hr for 3hrs daily for 6 days training				0				28	6	10	1,680							1,680
7.3 Cooks Overtimes @ P5/hr for 3hrs daily for 6 days training				0				28	60	5	8,400							8,400
7.4 Cleaners Overtimes @ P5/hr for 3hrs daily for 6 days training				0				28	60	5	8,400							8,400
7.5 Security @ hostels Overtimes @ P5/hr for 3hrs daily for 6 days training				0				28	60	5	8,400							8,400
7.6 Toilet paper - 1000 per centre				0				28	1,000	3	84,000							84,000
7.7 Cleaning detergants - 5 per centre				0				28	140	30	117,600							117,600
Sub Total				0			0				5,178,480				0			5,178,480
8. Training Facilities - only food budget required - PES																		
8.1 Public facilitie - 600 officers - 6 days training & 3 meals				0			0	600	18	50	540,000							540,000
8.2 Matron Overtimes @ P10/hr for 3hrs daily for 6 days training				0			0	14	6	10	840							840
8.3 Cooks Overtimes @ P5/hr for 3hrs daily for 6 days training				0			0	14	60	5	4,200							4,200
8.4 Cleaners Overtimes @ P5/hr for 3hrs daily for 6 days training				0			0	14	60	5	4,200							4,200
8.5 Security @ hostels Overtimes @ P5/hr for 3hrs daily for 6 days training				0			0	14	60	5	4,200							4,200
8.6 Toilet paper - 1000 per centre				0			0	14	500	3	21,000							21,000
8.7 Cleaning detergants - 5 per centre				0				14	84	30	35,280							35,280
				0			0				609,720							609,720
9. Publicity (Cartography,Pilot,Census,PES,Products)																		
9.1 Radio press releases, adverts, jingles interviews				22,000			10,000				20,000							52,000
9.2 TV adverts, interviews				22,000			10,000				20,000							52,000
9.3 Posters, fliers, billboards				15,000			10,000				10,000				20,000			55,000
9.4 Stakeholders address workshops - with media coverage				0														0
9.5 Census film making				0			100,000											100,000
9.6 Census song				0			5,000											5,000
9.7 Dramas - transport & food when performing - filmed/televised, media cover				0			0				50,000							50,000
9.8 Essay competitions - for pupils -(primary, junior Community & Senior Sec) competition - 3 prizes@ P5000 per level				0			0				15,000							15,000
9.9 T- Shirts for enumeration, supervisors, TOS & DCOs @ P70				0	740	1	50	37,000	5,112	1	50	255,600						292,600
9.10 Caps for enumeratos, supervisors, TOS & DCOs @ P20 each				0	740	1	15	11,100	5,112	1	15	76,680						87,780
9.11 Barners @ training centres @ P500 each				0	14	1	500	7,000	28	1	500	14,000						21,000
9.12 Car Stickers @ P20 each				0	500	1	20	10,000	1,987	1	20	39,740						49,740
9.13 Pubcity activities per district				0	28	1	20,000	560,000	28	1	20,000	560,000						1,120,000
9.14 CSO sleeveless jackets@ P150 Each for TOs & DCOs				0					112	1	150	16,800						16,800
Sub Total				59,000			760,100				1,077,820				20,000			1,916,920

10. Capacity Building - Demographic analysis																	
10.1 Training in Data Analysis, Demographic Analysis, & Study Tours				300,000				150,000				50,000				200,000	700,000
11. Data Analysis for Pilot, Main Census & PES																	
11.1 Outsource data analysis - budget P1,500,000 (10 % for pilot & 10% for PES, remaining for census)				0				150,000				150,000				1,200,000	1,500,000
<i>Sub Total</i>				0				150,000				150,000				1,200,000	1,500,000
12. Dissemination - Printing Census products and dissemination seminars				0													
12.1 Preliminary Results dissemination seminar & printing				0								70,000					70,000
12.2 Census Results dissemination seminar & printing				0											100,000		100,000
12.3 Press release - Prelim & Main Census results				0								2,001					2,001
12.4 Analytical Results - honourarium, dissemination seminar & printing				0											100,000		100,000
12.5 District reports production & printing - will come 2013/14	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	0
12.6 Projections - will come 2013/14				0												300,000	300,000
<i>Sub Total</i>				0				0				72,001				200,000	572,001
Grand Total for Planning, Management, Analysis & Dissemination				1,916,662				27,748,290				153,847,965				2,181,600	185,994,517
10% Contingency				201,725				2,946,160				16,004,922				234,960	19,420,767
10% VAT of Grand Total less Personnel				100,590				1,713,309				6,201,253				168,000	8,213,152
Grand Total plus Contingency plus VAT				2,218,977				32,407,758				176,054,140				2,584,560	213,628,436

B. CARTOGRAPHY BUDGET																		
Notes: 1. Temporary enumerators are paid at the 1st notch of B5 (for budgeting purpose), which is 20700/12 = P1725.00 per month.																		
2. Drivers monthly overtime is calculated at average of 3 hours per day, from 16:30 to 19:30, at hourly rate of 1135/30/8 = P4.73																		
Thus, 4.73x3x30 = P425.70. Weekend rate of pay (1135/30) x 4 weekend days per month = P151.33. Hence, total overtime is 425.70 + 151.33 = P577.03 per month.																		
3. Fuel: Average capacity of fuel tank of a vehicle is assumed 70 litres, and if a vehicle will refill every other day, then average fuel consumption per vehicle per day is 35 litres.																		
Price of fuel is P5.00 per litre as at March 2009. Thus, on average each vehicle will use 35x5.00 = P175.00 per day. This means 43.75 x 30 days = P1312.50 per month.																		
				2009/2010				2010/2011				2011/2012				2012/2013	2013/2014	Grand Total
1.0 Personnel				1,369,424				1,448,766				1,440,867						4,259,057
2.0 Field Workers				2,445,309	3,856,133		4,690,040	3,194,675	1,461,567									5,639,984
3.0 Fuel				1,039,500				1,386,000										2,425,500
4.0 Airtime Scratch Cards				16,200				18,900										35,100
5.0 Computers				404,525														404,525
6.0 GIS Software Maintenance and Purchase				405,106				405,106				216,106				216,106		1,242,424
7.0 HF/SSB Radio Tel Communication with Vehicle tracking (25 Vehicles not 30)				2,717,564				5,000										3,266,077
8.0 Global Position System (GPS) Handheld				100,000														100,000
9.0 Materials/Supplies (See itemised list attached)				202,841				147,534										350,375
10 . Printing				5,500				5,000										10,500
11. Camping Equipment (removed)				0				0										0
12. Training of Field Workers				239,065														239,065
13.0 Data Entry Operators salaries				41,400				46,599				20,700						108,699
14. Digital data from other Sources				100,000				100,000										200,000
15. Stationery				300,085				188,405										488,490
16. Publicity				0														50,000
17. Data analysis - Population Atlas																50,000		50,000
Grand Total for Cartography				9,386,519				6,945,985				1,677,673				266,106		18,276,283
10% adjustment for contingencies				994,370				717,624				170,135				29,272		1,911,401
10% VAT of Grand Total less Personnel				557,179				230,254				23,681				26,611		837,724
Grand Total plus Contingency plus VAT				10,938,068				7,893,863				1,871,489				321,988		21,025,408

C. Data Processing																		
NOTE																		
1. Overtime for drivers (week days) – (Hrs worked * 1.5 * 123.65)* 7.75																		
<i>Total overtime for 2 drivers for 20 days, 6 hours is P 5,744</i>																		
2.Overtime for drivers (week days) – (Hrs worked * 2 * 123.65)* 7.75																		
<i>Total overtime for 2 drivers for 4 days, 6 hours is P 1,532</i>																		
	2009/2010				2010/2011				2011/2012				2012/2013				2013/2014	
	No.	Cases	Unit	Total			Unit	Total	No.	Cases	Unit	Total	No.	Cases	Unit	Total		Grand
																		Total
1. Personnel																		
1.1 Overtime for Drivers (Who will be transport Data Entry Staff)					2	7	3,638	50,932										50,932
<i>Sub Total</i>								50,932										50,932
2. Computer Equipment																		0
2.1 Computers	20	1	8,000	160,000	30	1	8,000	240,000										400,000
2.2 Servers	2	1	100,001	200,002														200,002
2.3 Server Rack	2																	0
2.4 Laptops	2	1	15,000	30,000	3	1	15,000	45,000										75,000
2.5 External Hard Drive					2		1,500	3,000										3,000
																		0
<i>Sub Total</i>				390,002				288,000										678,002
3. Printers								0										0
3.1 Heavy Duty Line Printers					1	1	100,000	100,000										100,000
3.2 Higher Capacity Printers					1	1	20,000	20,000										20,000
3.3 Low Capacity Laser Jet Printers	8	1	2,500	20,000														20,000
<i>Sub Total</i>				20,000				120,000										140,000
4. Network improvement				100,000														100,000
<i>Sub Total</i>																		0
4. Power (Uninterrupted Power Supply)																		0
Option 1 (Decentralised)					55	1	2,500	137,500										137,500
Option 2 (Centralised)					1	1	150,000	150,000										150,000
<i>subtotal</i>								150,000										150,000
4a Equipment Total				510,002				558,000										1,068,002
5. Softwares								0										0
5.1 SPSS Licences					3	1	20,000	60,000										60,000
5.2 Microsoft Office Licences	20	1	1,652	33,040	35	1	1,652	57,820										90,860
5.3 CSPro (free software)				0				0										0
<i>Sub Total</i>				33,040				117,820										150,860

6. Census System Development(Data Capture, editing, verification and Tabulation)								0									0
Pilot census, Census and Post Enumeration Survey systems																	0
Outsourcing of System development and data capture for census								5,510,031									5,510,031
Verification and Basic Tables - Outsourced)																	0
6.2 System maintenance									1	12	6,000	72,000					72,000
Sub Total								5,510,031				72,000					5,582,031
7. Training of IT staff																	0
7.1 Project Management					4	1	15,000	60,000									60,000
7.2 Networking					4	1	20,000	80,000									80,000
Sub Total							35,000	140,000									140,000
8. Transport(CTO hire charges and fuel)									2	7	14,026	0				196,364	196,364
9. Stationary(continuous paper, photocopying paper) and toners												100,000					200,000
sub Total												100,000					200,000
																	0
Grand Total for Data Processing							683,042					6,336,783				368,364	7,388,189
10 % VAT(less Personnel)							68,304					628,585				0	733,726
10% contingency							75,135					696,537				0	812,191
Total with contingency and VAT included							826,481					7,661,905				0	8,934,106
SUMMARY OF THE 2011 POPULATION AND HOUSING CENSUS																	
Financial Year							2009/10					2010/11					
Grand Total 2011 PHC Budget							11,986,223					41,031,057				155,894,002	211,658,989
10 % adjustment for VAT (Less Personnel)							721,933					2,567,489				2,447,706	300,000
10% Contingency							1,270,816					4,359,855				16,215,370	33,000
Grand Total plus Contingency plus VAT							13,978,972					47,958,401				2,906,548	243,575,993

Annexure IV: Major Milestones of the 2011 PHC Project

i. Planning, Preparation and Management of the Census

No.	Activity	Target Date
1.	Establishing of Census Office	Apr 2009
2.	Formation of Census Committees and District Structures	Apr – Nov 2009
3.	Instruments Development for pre-test, pilot, & training	May 2009 – May 2010
4.	Publicity activities	Jul 2009 – Aug 2011
5.	Delivery of printed materials for pilot census	May 2010
6.	District map inspection for pilot census by TOs	July 2010
7.	Pilot census	August 2010
8.	Delivery of printed materials for main census	May 2011
9.	District map inspection & familiarisation for main census by TOs	July 2011
10.	Census enumeration	August 2011
11.	Data processing & analysis including coding	Sep 2011 – Jul 2012
12.	Post Enumeration Survey	Sep 2011
13.	Census Preliminary results	Sep 2011
14.	Dissemination of main census results	Aug 2012
15.	Dissemination of census analytical reports (national & districts)	Oct 2012 – May 2013
16.	Population Projections	June 2013 – Dec 2013

ii. Cartography

Activity	Target date
1. Map Inventory and contact with the District	28/02/09
2. Data collection instruments	28/02/09
3. Recruitment and training of field staff	April – June 2009
4. Field work	July 2009 – April 2011
5. EA Delineation	30/04/2011
6. Final checking and packaging	June – mid July 2011

iii. Data Processing

No.	Activity	Target Date
1	Procurement of Equipment for pilot census	Apr - June 2009
2	Tendering for System Development (Pilot)	Jan-Mar 2010
3	Pilot System Development (data capture module)	May – Jul 2010
4	Pilot System Development (edit & tabulation programs)	Aug – Dec 2010
5	Data Capture (Pilot)	Mid Sep – mid Nov 2010
6	Procurement of Equipment for census	Jul – Sep 2010
7	System enhancement for Census	Jan - Aug 2011
8	Data Capture - census	Nov 2011 – Mar 2012
9	Develop and maintain online editing program	Aug 2011- Jul 2012
10	Develop and maintain tabulation programs & produce tables	Sep 2011- Jul 2012