



RESTRICTED

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REPORT

OF THE

CARICOM WORKSHOP ON CENSUS DATA PROCESSING FOR THE 2010 ROUND OF POPULATION AND HOUSING CENSUSES



CHAIRPERSON:

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Director, Field Services
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DATE AND VENUE:

**28 Sep - 02 Oct 2009
Bay Gardens Hotel
Gros Islet
SAINT LUCIA.**

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LIST OF ACRONYMS

CCDAP - Caribbean Census Data Analysis Project

CCS – Caribbean Community Secretariat

CPU – Census Planning Unit

CSO – Central Statistics Office

GIS – Geographical Information System

NAC – National Advisory Committee

NGO – Non-Governmental Organisation

NSO – National Statistics Office

OECS – Organisation of Eastern Caribbean States

RCCC – Regional Census Coordinating Committee

SCCS – Standing Committee of Caribbean Statisticians

STWG - Specialised Technical Working Group

TAC – Technical Advisory Group

TWG - Technical Working Groups

UNECLAC - United Nations Economic Commission for Latin America and the Caribbean

UNFPA - United Nations Population Fund

VR - Visitation Record

PAPI – Paper and Pencil/Pen Interview

CATI – Computer Assisted Telephone Interview

INTRODUCTION

The **CARICOM Workshop on Data Processing for the 2010 Round of Population and Housing Censuses** was held at Bay Gardens Inn, **Gros Islet**, Saint Lucia from 28 September - 2 October 2009.

REPRESENTATION

Present at the meeting were all Member States and Associate Members with the exception of Cayman Islands and Turks and Caicos Islands. A List of Delegates attending this Meeting is set out at **Annex I to this Report**.

1. OPENING

The Opening Ceremony for the CARICOM Workshop on Data Processing for the 2010 Round of Population and Housing Censuses was held at Bay Gardens Inn, Gros Islet, Saint Lucia on 28 September 2009 and was chaired by Mr. Edwin St. Catherine, Director of the Statistical Office of Saint Lucia, and representative of the host country.

The Welcome and Feature Address was given by the chair-person of the opening ceremony, Mr. Edwin St Catherine, Director of the Statistical Office of Saint Lucia, and representative of the host country. He emphasised on the need to put proper quality assurance measures and explore the use of new emerging technologies to improve on data archiving and data-warehousing to enable on-line access to the 2010 Round of Population and Housing Censuses successful. Some opening remarks were delivered by Ms Barbara Adams, Deputy Programme Manager, Regional Statistics Sub-Programme of the Caribbean Community (CARICOM) Secretariat. Mr John Mensah, Census Coordinator, CARICOM Secretariat, also spoke briefly on the objective of the workshop.

Mr. Kelvin Imi Chitterman from Grenada gave the Vote of Thanks.

2. **ELECTION OF CHAIRMAN**

Ms Merville Anderson, Director of Field Operations was elected as the chairperson.

3. **ADOPTION OF AGENDA**

The Agenda as adopted by the Meeting is at **Annex II to this Report**.

4. **PROCEDURAL MATTERS**

The Meeting determined its hours of work and the manner in which it would conduct its business.

5. COUNTRIES EXPERIENCES IN DATA PROCESSING DURING THE 2000 ROUND AND APPROACHES FOR THE 2010 ROUND OF POPULATION AND HOUSING CENSUSES:

Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
<p>5. Countries' Experiences in Data Processing During the 2000 Round and Approaches for The 2010 Round of Population and Housing Censuses.</p>	<p><u>TRINIDAD AND TOBAGO (T&T)</u></p> <p><u>2000 Round of Censuses - Experience</u></p> <p>Receipt of Questionnaires: Approximately 355,000 household questionnaires were processed. Control forms were used to keep track of the questionnaires.</p> <p>Editing and Coding: A number of checks were performed and imputations were done for missing data. Manual and computer edits were performed in three stages:-</p> <p>Stage 1: -- before data entry</p> <p>Stage 2 – during data entry</p> <p>Stage 3 – after data entry</p> <p>Data Processing Activities: Questionnaires were sent daily to the data processing unit. By means of journals the movements of the questionnaires were monitored. IMPS was used to capture the data manually (conventional data entry).</p> <p>Tabulation Programme: A core set of tables were produced using IMPS and MS Access.</p> <p>Equipment and Software:</p> <ul style="list-style-type: none"> • 25 computers and 1 server were used. 	<p>The Trinidad and Tobago (T&T) Central Statistical Office (CSO) plans to have the preliminary results of the 2010 round disseminated about one (1) year after collecting the data. It also plans to have the dissemination done through the website of the CSO of Trinidad and Tobago.</p> <p><u>Commended</u> the T&T CSO for documenting the processes in performing their activities during the 2000 Round of Census and producing the Administrative report.</p>	<p>THE MEETING:</p> <p>Recommended the capture of data from the Visitation Record (VR).</p> <p>Also recommended that there is a need for harmonisation of census processes based on CARICOM's coordinated approach of a Common Core of Questions currently in circulation.</p> <p>T&T CSO Request some technical assistance in computer assisted coding and data editing programming.</p>

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	<ul style="list-style-type: none"> • IMPS, MS Access and COBOL were the software used. <p><u>2010 Round of Census Preparation</u></p> <ul style="list-style-type: none"> • A comprehensive strategy prepared comprising <ul style="list-style-type: none"> ○ Draft IT Strategy (data processing plan) ○ Enumeration Strategy ○ Questionnaire design ○ Communication Plan ○ Tabulation Plan ○ Jingle and Slogan competition (judging in process) ○ Training Manuals – about 90% complete, • Pre-test was conducted between 17th and 31st August 2009. This resulted in the revision of the questionnaire. • Pilot Survey completed <p>Editing Procedures,</p> <ul style="list-style-type: none"> • Manual Editing of 350 questionnaires in the Pilot survey. • UNDP Consultant to assist with the cleaning of data. • Edit checks and coding to be automated <p>Equipment and Software for Data Processing.</p> <ul style="list-style-type: none"> • Scanning technology (OCR/ICR) to be used for capturing and verifying data • Scanning Software – Teleform Enterprise 10.4 (is to be purchased) <p>Other software also being considered are</p>		

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	<ul style="list-style-type: none"> • Statistical Package for the Social Sciences (SPSS) to generate tabulations • Census Survey Data Processing System (CSPro) for data entry and verification of Visitation Records. <p>Staff Recruitment and Training</p> <ul style="list-style-type: none"> • 110 staff members anticipated • Train the trainers workshop planned for November 2009 (including coders and editors) • Other training scheduled for Feb 2010 <p>Census date is 16 May 2010.</p> <p><u>THE BAHAMAS</u></p> <p><u>2000 Round of Censuses - Experience</u> Two (2) officers were trained in IMPS most specifically CONCOR editing application at the US Census Bureau. The 2000 Round Census pre-test results were used to produce the required edit programs.</p> <p>A naming scheme was developed to properly identify data so that all files were identified by the assigned name on the designated control form.</p> <p>Storage was on diskettes, hard drives and tapes.</p> <p>Equipment and Software for Data Processing: Manual Data Entry was used. Data entry personnel were tested for speed and accuracy using the final questionnaire. 25 computers were</p>	<p>Scanning is being used for the first time in the 2010 Round of Census for faster results in The Bahamas. The staff is currently experiencing some teething problems with setting up of the scanning system.</p>	<p><u>Recommended</u> a high level of uniformity across census processes to allow for commonalities of censuses over time.</p> <p>The Bahamas request immediate technical assistance in the set-up and design of the scanning system.</p>

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	<p>purchased to complete Data Entry, Editing, and validation. IMPS 3.1 and 4.0 software were used. Processing was done in eight stages, with each one having a control form designed to effectively manage the questionnaires, operators and other support staff.</p> <p>All questionnaire items were verified to safeguard the quality of the data and to minimize the duration of the editing phase. Data entry was completed in 4 ½ months.</p> <p>The built-in crosstab and frequency report feature in IMPS 4.1 was used since some inconsistency errors were only evident during the tabulation phase.</p> <p><u>2010 Round of Census Preparation:</u> OCR/ICR Scanning to be used with TELEform software. The questionnaires are pre-coded.</p> <p>Manual and automated editing to be applied where applicable.</p> <p>The questionnaires have been pre-test in the field and presently testing data capture, and edit programmes.</p> <p>Census date, May 03, 2010.</p> <p><u>BELIZE</u></p> <p><u>2000 Round of Censuses – Experience:</u></p>	<p>Belize: During the 2000 Round questionnaires had to be cut to</p>	<p><u>Recommended</u> to the participants to have a</p>

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	<p>Questionnaires were stored in boxes; one ED in a box. Coding was done at the Census office which was located in the Statistics Office.</p> <p>OMR Technology was used to capture the data. Scanning took two (2) months to complete.</p> <p>The scanned data was imported into IMPS. In-house written programmes checked for errors. A tabulation plan was done in advance. MS Access was used to produce tables.</p> <p>Hard copies of the questionnaires were stored for 5 years before disposing them off. Softcopies were stored on hard drives and backed up nightly.</p> <p><u>2010 Round Preparation:</u></p> <p>Census Committee has already been formed, with weekly census meetings.</p> <p>The Teleform software has been procured and staff trained. Questionnaire design is almost complete. The on going Labour Force Survey to be used as a test run for the Teleform software.</p> <p>Training on the use of SPSS and CPro to be conducted shortly.</p> <p>Belize plans to complete scanning by July 2010 and tables generated by August, 2010.</p> <p>Census date is May 12, 2010</p>	<p>be fed into scanners which caused delay and extra cost.</p> <p>Belize was also challenged by not having enough staff and lack of proper organization during the 2000 round.</p> <p>In the preparation of the 2010 Round there is high percentage of new staff, and very low institutional memory.</p> <p>CPro application package is to be used as a backup for the Teleform software, in case of any problems.</p>	<p>plan B always (or an alternative plan) and have proper staff training.</p> <p>Noted: CCS/ UNFPA – Agreed to discuss a support programme for developing a standard edit and verification program to be shared among countries similar to the approach used by UNICEF in the recently concluded MICS3.</p> <p>Suggested that subject matter specialists should work along with Data Processing specialists to determine best questionnaire design.</p>

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	<p><u>DOMINICA</u></p> <p><u>2000 Round of Censuses – Experience:</u> Dominica reported that questionnaires were verified by both field and area supervisors. Quality control measures included weekly progress reports from interviewers, transmittal and supplies control form.</p> <p>Editing and Coding Trained coders dealt with editing and coding.</p> <p>Data Processing Activity Data capture was done using OMR scanning technology. Detection of errors and verification of data was done using in-house computer program. A core set of tables were produced after the data has been cleaned.</p> <p>Storage and Archiving Data was stored on back-up tapes</p> <p><u>2010 Round Preparation</u></p> <ul style="list-style-type: none"> • Dominica will be using the Common Core Questions to develop the questionnaire. • Data Processing Plan is being developed • Census Budget prepared and sent to the cabinet for approval. <p>Equipment and Software OCR/ICR technology using Teleform will be used for data capture. One scanner has already been procured.</p>	<p>Dominica has lost all members of staff who took part in the 2000 Round Census. Commended The use of the Administrative Report to report on the experiences in the 2000 Round was commendable.</p>	<p><u>Noted:</u> that the Dominican 2000 round data was weighted because of omissions and under reporting in some areas.</p> <p>Also noted the request for training in computer data editing programming and the use of PDAs.</p>

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	<p>Editing Procedures Most questions will be pre-coded. Manual editing will be done. An-house computer program will be used to clean the data.</p> <p>Recruitment and Training Three (3) trained data processing officers will be hired. Census date is May 11, 2011</p> <p><u>GRENADA</u></p> <p><u>2000 Round of Censuses – Experience:</u> For the 2000 Round, there was no administrative report prepared and not much institutional memory exists and therefore cannot comment on the experiences.</p> <p><u>2010 Round Preparation:</u> Presently the 2010 Round questionnaires are with stakeholders. Generally the census is in its planning phase.</p> <p>Plans to use OCR/ICR technology with Teleform software to capture data. At the same time Grenada is exploring the possibility of using PDAs. The use of PDAs is would be tested during an upcoming Labour Force Survey (LFS). Two additional verification licenses for the scanner software are still needed, as well as training in CSPro. SPSS is to be used to generate tables.</p> <p>A Census Date has not been set but will be in</p>	<p>Grenada needs a new scanner for the 2010 Round of Census since the one used for the 2000 round is too old.</p> <p>Plans to train backup staff as well as the core staff.</p>	<p><u>Noted:</u> the need for training in the use of CSPro (writing programs to do editing) and the use of PDAs.</p>

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	<p>conducted in 2011.</p> <p><u>GUYANA</u></p> <p><u>2000 Round of Censuses – Experience:</u> <u>Receipt of Questionnaires:</u></p> <ul style="list-style-type: none"> • A well organised system was put in place to track questionnaires made up of Visitation Records, Household, individual and institutional questionnaires. <p>Editing and Coding</p> <ul style="list-style-type: none"> • Simple consistency checks were done for sex, head of the household, and females who answered the fertility questions. There were also checks on the number of household members on the VR against the number of Individual questionnaires completed. <p>Data Processing activities:</p> <ul style="list-style-type: none"> • A data processing unit was set up. • OCR/ICR technology using Eyes and Hands (E&H) for forms software was used to scan, manage and interpret the data. • Initial training of the staff was done by a Trainer from the software company. • A core set of tables were produced using SPSS <p>Storing and Archiving:</p> <ul style="list-style-type: none"> • The data was stored on CD ROMs, Zip drives and several personal computers. Copies were stored outside the office <p><u>2010 Round Preparation:</u></p>	<p>Challenges during the 2000 round included late start of the census enumeration due to late delivery of questionnaires for some regions, frequent power cuts, scanner failure because of shortage of replaceable parts and questionnaire not properly shaded.</p>	<p>Noted the request for training in computer data editing programming.</p>

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	<ul style="list-style-type: none"> • A Committee and several sub-committees have been set up. <p>Equipment and Software:</p> <ul style="list-style-type: none"> • OCR/ICR scanning technology is to be used. • Two (2) new scanners have been acquired, • New license for E& H software with 10 verifiers is to be acquired. • Fifteen (15) new personal computers (PCs) are to be acquired and set up a dedicated LAN specifically for census activities. <p>Recruitment of Staff and Training:</p> <ul style="list-style-type: none"> • A data processing organisation structure was developed and draft Data Processing Manual is being developed to clarify the different functions of the data processing staff. • Training for data processing staff will be done in early 2010. • Location for data processing has already been set up. <p>Census day is July 30, 2010</p> <p><u>BARBADOS</u></p> <p><u>2000 Round of Censuses – Experience:</u> The questionnaires were subjected to basic initial checks by senior clerks in the statistical office who also kept track of them. Cutting of the booklets had to be done in preparation for scanning.</p> <p>Editing and Coding:</p>	<p>Ran out of questionnaires during the 2000 Round because the front part was not adequately designed to accommodate all persons' information for a large household.</p> <p>Cutting of questionnaires</p>	<p><u>Recommended</u> that storing the PDF copy of the scanned questionnaire was a great way of archiving the questionnaires.</p>

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	<p>Manual checks were done. DBase IV program written in-house was used for data editing and verification. Quick tab was used for accuracy checks. Only four variables needed to be coded.</p> <p>Data Processing Activity Data capture using scanning technology was outsourced to Caribbean Examination Council (CXC). IMPS was used to process the output from the scanner. Two (2) computers and 2 printers were used. IMPS and SPSS software applications were used to produce the tables.</p> <p>Storage and Archiving Back-up of data was done on zip drives and Stored on file server.</p> <p><u>2010 Round Preparation:</u> Questionnaire design is being finalised. One pre-test has been carried out and another test is scheduled for Dec 2009.</p> <p>.</p> <p>Editing Procedures: Edit routines are being developed using Visual Basic based on pre-test.</p> <p>Equipment and Software: OCR/ICR technology using Teleform scanning system is to be used with 2-4 scanners. CPro or SPSS will be used for editing and tabulation. 6-8 computers will be needed (2 have been already acquired). MS SQL and MS Access also will be used.</p>	<p>before scanning was another challenge during the 2000 round.</p>	

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	<p>Recruitment of Staff and Training: Job description is currently being written for verifiers. Six verifiers are to be recruited. Training is scheduled for late April.</p> <p>Census day is May 1, 2010</p> <p><u>ST KITTS & NEVIS</u></p> <p><u>2000 Round of Censuses – Experience:</u> For the 2000 Round, the census was conducted through direct interviews by enumerators. Preparation before data entry included grouping questionnaires, data manual checking, coding and editing.</p> <p>Data processing activities included designing data fields for the databases, and testing of Teleform software.</p> <p>Technical assistance was received from UNECLAC in terms of developing program using IMPS for data verification and editing. Tables were produced using SPSS. Archiving the final data was done using servers, CD's and hard copies.</p> <p><u>2010 Round Preparation:</u> Direct interviews will be used and also exploring the possibility of mailing out questionnaires to respondents for completion especially for the increasing need to access all gated communities arises.</p>	<p>There were problems with non response in previous census and surveys especially in the gated communities using direct interviews. The OECS (including St Kitts & Nevis) is therefore exploring the possibility of mailing out questionnaires through the post to respondent or using the internet for completion or even using telephone interviews.</p>	<p>Noted the request for training in computer data editing programming and the use of PDAs.</p>

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	<p>Work done so far include re-drawing maps, because of increase in construction works and making improvements on the 2000 Round questionnaire.</p> <p>Printing of questionnaire will be outsourced. Clear View Company from Pennsylvania has been contacted because of their experience with Teleform software and bar coding. Other local companies are also being contacted</p> <p>A server is to be dedicated to the census, as well as purchasing upgraded Teleform software and an additional license.</p> <p>Edits are to be done manually, as well as using Teleform and SQL.</p> <p>Census will be conducted in May 2011. The actual date has not been decided.</p> <p><u>SAINT LUCIA</u></p> <p><u>2000 Round of Censuses – Experience:</u> Questionnaires were printed by a regional company who have had longer experience in the use of scanning technology. Allowance was made for easy separation of the pages to cater for a smooth scanning process. GIS images were done but had to be updated via field workers since they were based on old maps. Images were done on a flexible geographical nature to enable ease in dissemination by allowing for changes in boundaries which were evolving.</p>	<p>Lack of experience with the scanning technology was the main challenge during the 2000 Round.</p> <p>In the 2010 Round a software called Google Correct is being used to correct GPS points which are usually off by a large margin.</p>	<p><u>Recommended:</u> as a good practice to keep the original file of data intact before doing any edit on a copy.</p> <p><u>Noted</u> the call to have a common computer program (preferably in CSPPro) for data editing.</p>

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	<p>Editing and Coding: Field manual edits were done by supervisor on the field as the data were collected and focused on the ED numbers, household numbers and other geographic characteristics. Enumerators were asked to update maps with any new buildings and GPs coordinators were assigned in the statistics office.</p> <p>Data Processing Activity The original data file was kept intact. OCR/ICR technology using Teleform software was used. First version of editing program was done in house using FoxPro software; UNFPA /_ECLAC subsequently produced a more elaborate one which was used.</p> <p><u>2010 Round Preparation</u> Finalization of questionnaires (50,000-households, 170,000- individuals) sheets is set by January 2010. PDAs which are GPS enabled will be used to develop the Visitation Records to allow a population count within a month. A common editing program/procedure for the OECS countries/Caribbean with assistance from UNFPA is being explored. A website is being currently developed to disseminate the census data using CensusInfo. SPSS, Redatam engine will also be used for tabulation. Three (3) months time is estimated for the scanning of the questionnaires.</p> <p>Recruitment of Staff and Training Training of field mapping staff has been</p>	<p><u>Commended</u> the work done in Saint Lucia in raising standards with respect to mapping / updating of maps which are usually done at the level of the Enumeration District (ED), and allowing for easier and better dissemination at that level.</p>	

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	<p>completed (15)</p> <p>Mapping, Equipment and Software The updating of maps is done on a constant basis since they are usually about a year and a half old. St Lucia has already acquired some PDAs and GPS devises to be used to update the maps on Google earth which will be mapped against the Visitation Record (VR). A route for each building is mapped to guide the enumerators so that a total count of all households, buildings and persons can be matched against the VR. This is modelled after OMAN who recently concluded their census.</p> <p>Census day is 10th May 2010.</p> <p><u>ST VINCENT & THE GRENADINES</u></p> <p><u>2000 Round of Censuses – Experience:</u> The country was divided into 13 Census Divisions with 256 EDs.</p> <p>Manual editing and coding was done by the Census division field supervisors.</p> <p>The system set up for managing the data processing activities included the use of OCR/ICR with Teleform Software, acquisition of 2 Scanners, 1 server, 1 scanning technician/operator, 7 data verifiers, 1 supervisor and 10 computers.</p> <p>Data capture was done using OCR/ICR</p>		<p><u>Noted</u> that St Vincent and The Grenadines requires training in the use of SPSS, CPro and Teleform.</p>

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	<p>technology. Ms Access was used to develop the database. Editing the data was done manually. Tabulations was done using SPSS. Daily backups were done, with data saved on CD's and Servers.</p> <p><u>2010 Round Preparation:</u> Same method of scanning will be used as the 2000 Round, however it is proposed that the editing/coding will be done simultaneously with the data capture.</p> <p>Preparations so far include the completion of the GIS section. Maps have been updated manually. Some EDs have been split where the number of households significantly exceeded 150. Maps have been printed for the Kingston Census Division with the intention of using them to execute a final quality check for accuracy, and to do any needed updates.</p> <p>Equipment to be used includes 1 server, 10 desktops, 3 scanners, 1 printer. Editing will be done manually. Preparations are being made to train staff in the use of Teleform. The final census budget is being developed</p> <p>Census will be conducted in May 2011. The actual date has not been decided.</p> <p><u>SURINAME</u></p> <p><u>2010 Round of Census Preparation</u> Receipt of Questionnaires:</p>	<p>Suriname stored their back up tapes of data in fire proof safes</p>	<p>Noted the request for training in computer data</p>

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	<ul style="list-style-type: none"> • Two levels of screening of questionnaires were done before the data entry operation was performed. (100% at first level and 6-10% at the second level). • A colour coded system was also used to track the progress of the questionnaires. <p>Editing and Coding:</p> <ul style="list-style-type: none"> • To minimize the coding activities most of the questions were pre-coded, however, there was still a need for coding the categories of occupation, industry and address. • A coding system was created in Access to assist coders but some coders still used the printed copies of codes. <p>Data Processing Activities:</p> <ul style="list-style-type: none"> • Manual data entry system was used • A shift system of data entry operators was employed <p>Tabulation Programme:</p> <ul style="list-style-type: none"> • CPro and SPSS were used. <p>Equipment and Software</p> <ul style="list-style-type: none"> • Desktop computers, servers <p><u>2010 Round Preparation:</u></p> <ul style="list-style-type: none"> • Currently in the planning phase so only elementary preparation has been made. <p>Editing Procedures:</p> <ul style="list-style-type: none"> • Each batch will be checked by CPro 	<p>on site as well as off site during the 2000 round.</p>	<p>editing programming.</p>

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	<p>application program for consistency. Editors will perform checks and corrections will be done by data entry operators.</p> <p>Equipment and Software</p> <ul style="list-style-type: none"> • Fifteen (15) computers, one server and a back-up server will be used while CPro is the choice of software package for editing, cleaning and producing the tables. <p>Staff Recruitment and Training:</p> <ul style="list-style-type: none"> • Manual data entry will be will be employed as such approximately thirty (30) new data entry operators will be hired. Fifteen (15) per shift in addition to some permanent staff members. <p>Census day is 24 August 2011</p> <p><u>BERMUDA</u></p> <p><u>2000 Round of Censuses – Experience:</u> There were weekly submission of questionnaires. Transmittal forms were used as controls. Spot checking was done for glaring errors.</p> <p>Editing and Coding There were manual edits guided by an editing manual. Four (4) kinds of checks were carried out on the data viz. consistency checks; range checks; skip checks and typographic checks.</p> <p>Data Processing Activity included: Scanning, validity check performed via an edit</p>	<p>Bermuda’s representative shared the experience with the rest of the region on the use of Paper and Pencil/pen Interview (PAPI) and Computer Assisted Telephone Interview (CATI).</p>	<p>Noted the comment on Interactive Voice response (IVR) and encouraged the presenter to research on the details so as to be able to report back.</p>

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	<p>program at the scanning stage and tabulation program using IMPS software. Results were disseminated.</p> <p>Storage and Archiving: Questionnaires were archived in the government archives stored on government network drive and zip drives.</p> <p><u>2010 Round Preparation:</u> Formed the Census Planning Team</p> <p>Data collection method will be CATI- Computer Assisted Telephone Interview (2,000 households.) and PAPI- Pencil and Paper Interview (28,000 households.)</p> <p>ARCGIS and Scan Tools Plus software have been purchased. Have conducted pilot census to test instruments for 2010 Census including GIS. Members of staff have been trained in ARCGIS 9.3 software, CPro, Scan Tools Plus, SPSS, Dimension NET. New members of staff have been recruited and trained - PAPI enumerators and CATI interviewers. Digitized maps Have produced.</p> <p>Manuals for enumerators, editors and coders are being finalised. Conducted CATI and PAPI interviews Completed One third of setting up of the data processing system is completed. Publicity programme has commenced.</p> <p>Editing Procedures</p>		

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	<p>Limited consistency checking will be done on the telephone and the PAPI software will be used for other checks with the use of Editors and Coders. There will be automated correction and imputation. Editing will be done for structure, range and consistency.</p> <p>Data Processing activity OCR/ICR Technology using Scan Tools software will be used.</p> <p>Recruitment of Staff and Training; Training will be scheduled as follows:</p> <ul style="list-style-type: none"> • Trainers – 2 weeks; Enumerators – 2 weeks; Editors and coders – 4 weeks <p>Census day is May 20, 2010.</p> <p><u>JAMAICA</u></p> <p><u>2000 Round of Censuses – Experience:</u> Manual data collection and routine manual checks were done.</p> <p>Data Processing The data capture was outsourced. Scanning was used with Teleform technology. Text files from the scanning processes were transferred to CPro subject to checks. IMPS, SPSS and SAS were used to do the tabulation.</p> <p><u>2010 Round Preparation</u> Intensive pre-test is planned to get results on new technologies emerging. Exploring the use of</p>	<p>Admin report was the source of the presentation of the report on the experiences during the 2000 round</p>	<p><u>Noted:</u> that Brazil was successful in using <u>net books</u> in their agricultural census and something Jamaica was considering.</p> <p><u>Recommended:</u> that confidentiality issues with third party in outsourcing the scanning of the questionnaires be addressed beforehand.</p>

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	<p>PDA's and Web Technologies to reach residents of gated communities; using CATI on Interactive Voice response (IVR) among others is being considered. Tax Registration Number (TRN), which is the only unique identification number to be used. Outsourcing, as well as in-house scanning, edits among other methods being considered based on experience gained from LFS processing. Jamaica is currently trying to reduce the number of pages of the questionnaire to reduce the cost of printing same.</p> <p>Equipment and Software What technology could be used to assist Jamaica to get a good count quickly is being considered - Traditional (scanning) or Contemporary or hybrid (use equipment in urban areas and manual in the rural)? Some tests done and Intensive research is being done on new technologies in use. Budget prepared and scheduled to have pilot conducted before the end of 2009 using rugged long life battery (up to 12 hours) net books (as the case of Brazil). Some equipment are already in place and additional to be acquired. Instead of three forms (as the case of the 2000 round), two will be used in 2011 (all the questions for persons will be combined in one form).</p> <p>Census will be conducted in 2011. The actual date has not been decided.</p> <p><u>BRITISH VIRGIN ISLAND</u></p> <p><u>2000 Round of Censuses – Experience:</u></p>		<p>Also highlighted that countries stood to benefit from exploring the cost of purchasing equipment against the cost of outsourcing.</p> <p><u>Noted:</u> the need for</p>

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	<p>Previous census was done in 2001. Questionnaires were machine readable to allow scanning technology to be used. A laptop was given to each supervisor to track the progress of each enumerator and records were submitted daily.</p> <p>Data entry was done in-house and sorted by ED. A manual logging system was established to manage the data processing activities. Consistency checks were done manually.</p> <p>Teleform was used as the scanning software, and tables were done using SPSS.</p> <p>The questionnaires were stored until the next Census as well as saved on hard drives and CD's.</p> <p><u>2010 Round Preparation:</u> OCR/ICR scanning technology will be used. An updated version of Teleform has been purchased. Preparations so far include the acquisition of the necessary computers, data capture software and a scanner.</p> <p>Editing will be done manually. No staff recruitment has been done as yet, and most likely in-house training will be done the second time in march 2010.</p> <p>Census day is June 12, 2010 (changed from previous date)</p>		<p>assistance in the area of training for Teleform software, and suggestion that CARICOM conduct a workshop in this area, especially since the majority of member states will be using this software.</p> <p><u>Recommended:</u> that Minimal checking should be done using Teleform and suggest the use of CPro for consistency checks.</p>

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	<p><u>MONTSEERRAT</u></p> <p><u>2000 Round of Censuses – Experience:</u> Direct personal Interviews were used and questionnaires were received at the administrative Centre. Numerical coding of occupation and industry were at the office.</p> <p>Editing and Coding: Both manual and computer edits were done</p> <p>Data Processing Activity: A wide range of checks were done at the editing stage. A core set of tables were generated for Local, regional and international agencies.</p> <p>Storage and Archiving: Databases were stored and back-up copies made on the Government servers managed by the government information system</p> <p><u>2010 Round Preparation</u></p> <p>The same procedures used in the 2000 Round will be used in 2010.</p> <p>For the 2010 Round, Manual Data Entry and Manual and computer edits will be used.</p> <p>Preparations so far include budget preparation and procurement procedures. A server has been procured and a data entry station has been identified. CSPro software is to be used.</p>		<p>Noted that Interactive data processing allows for effective edit checks to be introduced.</p>

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	<p>The Census Statistician is currently being trained in the UK in Database Management.</p> <p>Census will be conducted in May 2011. The actual date has not been decided.</p> <p><u>ANTIGUA and BARBUDA</u></p> <p><u>2000 Round of Censuses – Experience:</u> Absence of admin report made it difficult to give full account of the experiences during the 2000 round. However some activities undertaken were checks for consistency and completeness built in at various stages. Printing of questionnaires was done by a private printery. Data capture was through scanning using OMR Scanner (NCR).</p> <p>Editing and Coding: Both manual and computerised edits were done Edit programme designed in IMPS with the assistance of a consultant from UNFPA.</p> <p>Data Processing Activity: Tables were produced according to the regional table plan which was developed in collaboration with CARICOM and CELADE and was done using SPSS</p> <p>Archiving and Storage: The final data file was stored on a computer dedicated to the census processing.</p> <p><u>2010 Round Preparation:</u></p>	<p>No administrative report was produced during the 2000 Round.</p>	<p>Noted the request for training in computer data editing programming and the use of PDAs and Mapping using GIS.</p>

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	<p>Census Plan has been developed and awaiting the government's approval.</p> <p>OCR/ICR scanning technology using Teleform software will be used for data capture.</p> <p>Equipment and software Antigua and Barbuda is exploring the use of new technologies viz. PDAs and notebook computers. The use of CSPro as a back-up plan is also on the plan.</p> <p>Plans to send observers to Grenada on the application of the new technologies for the upcoming Labour Force Survey. There is a new updated internet infrastructure being put in place. Plans in place to acquire updated hardware and software. Have contacted UNFPA for technical assistance (in Mapping and application of PDAs in Census) and via the Census Resource Consortium being set up by UNFPA and CARICOM to assist countries</p> <p>Recruitment of Staff and Training: Additional census staff are to be recruited and trained</p> <p>Census will be conducted in May 2011. The actual date has not been decided.</p> <p><u>ANGUILLA</u></p> <p><u>2000 Round of Censuses – Experience:</u> CARDIFF Teleform, the OCR/ICR software used</p>	<p>The challenge experienced in</p>	<p>Noted: Request for</p>

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	<p>to design the questionnaires allowed for the simultaneous development of a database. The Visitation Records (VR) was used to assist in capturing information for a quick and early population count. Computer checks were done to ensure that questionnaires were properly filled out.</p> <p>Editing and Coding A ten step process was set up during the scanning. A six page manual was prepared for coders and editors. The editing process lasted 6 months with 2 full time staff on the job.</p> <p>Data Processing Activity The VR allowed for early population count as well as a count of the livestock in the country. SPSS software was used to produce the tables which were published. List of possible variables for which cross tabulations could be produced was sent to potential users including the OECS, ECCB and the Census Advisory Committee. The tables in excel format and analysis in PDF were posted on the National Statistics Office's website. Copies of the publication were placed for easy access in the public library as well as the high school library.</p> <p>Archiving and Storage The government central server was used to store and create back-up copies of data. Daily and monthly back-up copies were also done on tapes and CDs.</p>	<p>linking the person records to the housing records during the scanning process.</p>	<p>assistance to design a flow chart for the edit and coding operation as well as the design of an updated manual to guide the supervisors of data processing.</p>

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	<p><u>2010 Round Preparation:</u> Gantt chart has been developed for 2010 Census. Software has been identified and contact made with the printers. Data processing task scheduled to commence in 2010.</p> <p>Editing Procedures: The plan is to have the edit programmes built in to run at the processing stage.</p> <p>Equipment and Software: Server to be used to store and create back-up copies of data and a number of desktops are already available. Additional equipment needed identified. Daily and monthly back-up copies will also be done on tapes and CDs.</p> <p>Census will be conducted in May 2011. The actual date has not been decided.</p> <p><u>HAITI</u></p> <p><u>2000 Round of Censuses – Experience:</u> Completed questionnaires were collected by supervisors and managed with control forms which were stored in a database through a simple programme called “central register”. The data entry unit kept a manual register of batches received.</p> <p>Data Processing Activity: Two shifts system were in operation. A centralized data capture system was set up via a network and controlled by the statistics</p>	<p>The setting of benchmarks as a means of quality control e.g. double entry where practical is a good practice.</p>	

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	<p>department. IMPS was used to capture data. Visual Basic (VB) was also used to manage the operation. An in-house written program used hot deck system to detect and correct some errors. Tabulation was done using CSPro, IMPS and SPSS.</p> <p>Storage and Archiving: Hardcopies were kept in cupboards and E-copies were stored in a safe in an anti-theft and anti-fire environment.</p> <p><u>2010 Round Preparation:</u> 2010 Round of Census is scheduled for 2013 so no major activity has been undertaken.</p>		

6. DATA CODING SYSTEMS – MANUAL, COMPUTER - ASSISTED/ AUTOMATED CODING & 7. DATA EDITING

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<p>6. DATA CODING SYSTEMS</p> <p>MANUAL, COMPUTER ASSISTED/ AUTOMATED CODING & 7 - DATA EDITING</p>	<p>The Facilitator from UNFPA opined that editing involves error detection and error correction. It is always necessary to identify errors, but not always necessary to correct them. Editing works well with random errors, however consistent errors are not well addressed with editing. Editing is a component of the quality assurance and improvement programme of the census.</p> <p>The census data should be relevant, since it is the only activity which counts all the people and</p>	<p>CSPro allows the user to view a report of changes made after editing.</p> <p>There is always a trade off between quality and resources (time and financial).</p>	<p>THE MEETING :</p> <p>Noted that UNDP is conducting a programme to assist countries with their documentation. Dominica, Saint Lucia and Trinidad and Tobago have signed on and the Data Manager from UNDP has visited</p>

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	<p>the buildings. All relevant data processing variables should be included in the questionnaire. Edits should be done to make the census data compatible.</p> <p>The goal is having usable data in a timely manner. The data should also be accessible, disseminated and accompanied by metadata (definitions, methodology, etc)</p> <p>The data flow is the process whereby information moves through various stages, from the interviewer, field officer, regional/ local office and then the central office.</p> <p>Types of errors would include errors of coverage and content and later errors, which would include errors in tabulation. There should be an editing team with Census Managers, Subject Matter Specialists and Data Processors.</p> <p>Manual Editing takes place at the individual level, and leaves no edit trail. Automated editing allows for an edit trail, can minimize computer errors, usually takes place centrally and may be more time consuming.</p> <p>The two main data correction techniques are Static or Cold Deck, and Dynamic or Hot Deck.</p> <p>When correcting data we should makes as few changes as possible, eliminate obvious inconsistencies and always keep the original data or file.</p>		<p>to train their staff.</p> <p><u>Also noted</u> that scanning doesn't really impact editing though human handling is reduced. It could reduce time as well as double keying, and uses less paper.</p> <p><u>Recommended</u> that countries that have not as yet signed to the UNDP programme on document should try to do it to benefit from the training and any future assistance.</p>

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	<p>Coding begins in the questionnaire design phase. It is important that the data processing personnel are involved in the pilot test. Coding should be done in small groups, using highly trained personnel, should be centralized.</p>		

8: DOCUMENTATION AND ARCHIVING – METHODS AND PRACTICES

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<p>8.DOCUMENTATION AND ARCHIVING – METHODS AND PRACTICES</p>	<p>The Facilitator from Trinidad and Tobago emphasized that good documentation facilitates, proper validation and preservation of a data set are ways of ensuring a third party can use the data comfortably.</p> <p>A good dataset should allow users to work quickly and efficiently, and to find the data they are interested in.</p> <p>Elements of good documentation should include: Explanatory Information – which includes data collection methods, software used, weights used, schemes and variables, values and coding methods, etc used. Contextual Information – a description of the originating project, history and serial and time series datasets.</p>	<p>The Statistical Institute of Jamaica (STATIN) has been using the XML meta data standards in their documentation process.</p>	<p>THE MEETING :</p> <p>Recommended that documentation of the 2010 round of census activities should start at the planning stage and that should be transformed into the production of the Administrative Report.</p>

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	<p>Cataloguing Information – The title of the dataset, collection dates, methods of data collection and sampling designs and frames.</p> <p>The Census Administrative Report is usually the last produced. This should not be so; instead it should be an ongoing process, where each activity is documented at the said time. This will reduce documentation costs, as well as preserve memory of each stage of the process.</p> <p>International XML (eXtensible Markup Language) metadata standards provide a framework for improving the quality of metadata. XML is readable with any text editor. There are two standards, the DDI (Data Documentation Initiative) and the Dublin Core. It is particularly powerful when a community of users agrees on a common set of tags.</p>		

9 DATA CAPTURE METHODS

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<p>9: DATA CAPTURE METHODS.</p> <p>9.1.1 – Optical Mark Recognition (OMR)</p> <p>9.1.2 – Optical Character Recognition/ Intelligent Character Recognition (OCR/ICR)</p>	<p>The Facilitator informed that forms processing technology uses one of the following three methods:</p> <p>a. Optical Mark Recognition (OMR) – Human Marks, shading, etc converted into data. This would involve the use of closed or pre-coded questionnaires.</p> <p>b. Optical Character Recognition (OCR) – Machine Print converted into a usable format.</p> <p>c. Intelligent Character Recognition (ICR) - More advanced than the previous two, but still not very new. Uses software to capture human handwriting.</p> <p>The processes include questionnaire design, print and distribution, completion of the questionnaires and verification of the responses.</p> <p>The verification is done by a reader, who is basically the brain of the system. The reader matches the scanned images with the template, interprets the data on the forms using OMR, ICR or OCR technology.</p> <p><u>Automated data capture versus Manual Data Entry:</u></p> <p>Automated data capture allows for: <u>Cost avoidance</u> and reduction, good return on investment.</p>	<p>The use of the technology needs to be integrated with an understanding of how to use the technology.</p>	<p>THE MEETING</p> <p>Noted that Script and print are recognized by scanners during data capture but not cursive. If cursive is used, the entry person can key it in.</p> <p>Also Noted that one can increase confidence level of configuration for certain characters such as 7 or 8, which can be taken for 1 or 3 respectively.</p>

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<p>9.1.3 Manual Data Entry;</p> <p>9.1.4 Personal Digital Assistances (PDAs)- Handheld computers;</p> <p>9.1.5 Internet</p>	<p><u>Timeliness</u>, less verification and reduction in data processing time.</p> <p>One can adjust system configurations to adjust for speed versus accuracy.</p> <p>It was pointed out that data capture is the system used to convert the information obtained in the census to a format that can be interpreted by a computer. The method to use is dependant on national circumstances. The choice of method should be part of the overall strategic objective of the census in terms of timeliness, accuracy and cost. Urged that the Choice of processing system and technology to use need to be established early in census cycle. The possibility to outsource data capture could be considered when the required expertise is not available in-house.</p> <p><u>Data entry</u> is the act of transcribing some form of data into another form, usually a <u>computer</u> program. Forms of data that people might transcribe include handwritten documents, information off <u>spreadsheets</u> from another computer program, sequences of numbers, letters and symbols that build a program, or simple data like names and addresses.</p> <p>Keyboard Data Entry Preparation Acquiring computer equipment and setting up a data-processing room; Identifying and recruiting</p>	<p>Design and paper quality of census form should be linked to method of data capture</p> <p>When imaging technology is to be used, adequate training of enumerators on how to properly fill in the forms is crucial.</p>	<p>Recommended that enough time should be given to test and implement the system of data capture especially in the case of new technologies (OCR/ICR).</p> <p>Also recommended that extensive testing of the system is also critical when data collection is either by PDA or via the Internet.</p> <p>Noted that CSPro which has been used to process both surveys and censuses was developed collaboratively by the United States Census Bureau, ORC Macro International and SerPro Ltda. It can be downloaded free of</p>

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	<p>appropriate personnel; Adapting computer programs to the country-specific questionnaire; Setting up a system for managing the questionnaires and data files; Receiving and checking completed questionnaires; Coding (Occupation, Industry, Education, Country etc.).</p> <p>During data entry</p> <ul style="list-style-type: none"> <input type="checkbox"/> Response codes from census form are manually entered into computers <input type="checkbox"/> Sophisticated version involves computer assisted key entry where operator selects a response from options displayed on the screen <input type="checkbox"/> Use of method based on time and cost considerations, and feasibility to implement more sophisticated technology <input type="checkbox"/> Method also used to process textual responses into classification categories <input type="checkbox"/> Double entry may be instituted to reduce error. <p>Software Packages There are many standard programs for processing Censuses. E.g. Access, SPSS, IMPS, SAS, ISSA CPro etc.</p> <p>PERSONAL DIGITAL ASSISTANT (PDA)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Contents of the census form are stored onto the PDA so that the questions appear sequentially on the screen <input type="checkbox"/> Data are entered into a hand-held computer instead of onto a paper census form 	<p>The use of PDAs will provide instant data capturing at the point of collection, reducing manual input errors; immediate data validation, reducing re-verifications at later stage; time effective with real time logical</p>	<p>charge from the website of the US Bureau of Census.</p> <p>Noted that the cost of PDAs is in the range of Pocket PCs: \$300-\$1200 and cost dependent on user Interface and upgrading</p>

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<p>9.2.1 – Mark/Character Recognition – Imaging, Interpretation and Verification.</p>	<p>☐ Data are then electronically transmitted to an NSO database for further processing</p> <p>Internet-based Census Data Collection (eCensus) (see Attachment A)</p> <p>Reason for using internet Requested by the population (e.g. France)</p> <ul style="list-style-type: none"> – E-Government Policy (e.g. Canada) • Some benefits – Accurate and timely data collection – Processing time reduced – Rapid availability of clean data for statistical analysis – Enhanced analytics – Reuse and consumption by multiple Departments – Enhanced Efficiency: eliminating layers, reducing staff and costs <p>In the use of OMR questionnaires are generally scanned as a batch.</p> <p>For OMR technology, the use of a 2B pencil is still recommended.</p>	<p>validation rules, reducing logical errors; Faster processing of census information leading to timely availability of results.</p> <p>On the other hand PDA may have certain problems viz. setting up of process may take a long time as it requires extensive testing; requires that enumerators have ability to use the device which may require administering a test; requires intensive training of enumerators on use of device (training is more complicated); need to recharge the battery which could run out during enumeration; possibility of equipment failure</p> <p>With respect to maintenance of scanners or other hardware devices the manufacturers recommendations should be kept and adhered to.</p> <p>Batch creation provides good accountability at all times for every questionnaire. Colour</p>	<p>Noted that printing of questionnaires with barcodes is more expensive than with numbers.</p>

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<p>9.2.2 – Quality Assurance Processes.</p>	<p>Field Validations: Range checks applied to variables. Data in field should confirm to the set of expected and logical responses.</p> <p>No matter what method is used for data capture data synchronization and management is important. Application, procedures and protocols should be secured in each method. Encrypt data for secure transmission- please check the website: http://unstats.un.org/unsd/census2010.htm</p> <p>Key Aspects of Quality Plan</p> <p>In data processing there is the need to develop series of rules to validate data collected so as to-</p> <ul style="list-style-type: none"> • identify record omission • incorrect hierarchical order • record duplication • data inconsistencies <p>Electronic documentation primarily in the form of PDF format is fast becoming the de facto standard of distribution</p> <p>Distribution of CD/DVD also is common</p> <p>The Internet is another powerful medium which provides the additional ability to interact and self</p>	<p>coding of each batch also proved to be useful.</p> <p>It is always better to acquire the right number of licenses of software purchased.</p>	

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	<p>serve</p> <p>Online Data Warehousing where data is put on line for users to access is fast catching the eyes of users.</p>		

10. DATA CAPTURE: PRESENTATIONS BY MAJOR DISTRIBUTORS/ COMMERCIAL SUPPLIERS

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<p>10. Data Capture: Presentations by Major Distributors/ Commercial Suppliers.</p> <p><i>Spatial Innovision Ltd:</i></p>	<p>Spatial Innovision Ltd from Jamaica presented on Mapping of Census Data - A Roadmap For Successful Implementation. There were also some demonstrations of new products (both software and hardware) that can enhance the census activities and also a case study (using US Bureau of Census).</p> <p>It was pointed out that <i>“Information is Data which when processed will remove the level of uncertainty in any decision making process”</i></p> <ul style="list-style-type: none"> • 90% of all information has a geographic component • The effective management and utilization of geographic information is critical to the success or any organization. <p><i>Geographic data is best managed through the utilization of geographical information systems</i></p>	<p>Spatial Innovision gave insight on GPS and PDAs which some countries are exploring the possibility of using them in the 2010 round of censuses.</p> <p>Benefits of using GIS for Census Activities include:</p> <ul style="list-style-type: none"> • Benefits in both effectiveness and efficiency for: <ul style="list-style-type: none"> – data creation/collection – geodatabase development – digital mapping – data analysis – web mapping • These include: <ul style="list-style-type: none"> – Increased productivity and time saved 	<p>THE MEETING:</p> <p>Informed that the former Moore Business Forms Caribbean Ltd started operations in Jamaica in 1968. It is a joint venture between Moore Corp of Toronto, Canada and local investors. Xsomo is the largest manufacturers of business forms in English-speaking Caribbean. Pioneered continuous forms and MICR encoded documents in the region</p>

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<p><i>XSOMO – Paper to Digital - Jamaica</i></p>	<p>–<i>The core competence of an organization is best managed by a GIS</i></p> <ul style="list-style-type: none"> •GIS is “An organized collection of computer hardware, software, geographic data, and personnel designed to effectively capture, store, manipulate, analyze, and display all forms of geographically referenced information.” <p>Geodatabase Development</p> <ul style="list-style-type: none"> • Scanning, geo-referencing, and vectorization of existing paper maps to develop digital datasets; • Conversion of existing digital maps and datasets into the desired data structure; • Updating of digital datasets since the last census activity to ensure that new settlements and roads are included and obsolete settlements are omitted from the enumeration activities; and • Collection of aerial or satellite imagery followed by digital feature extraction and ground-truthing with GPS <p>Xsomo’s forms solutions are</p> <ul style="list-style-type: none"> ● Traditional business ● Stock Forms ● Blank Forms/Carbon rolls ● Pay Slips ● Business Forms (Cash Bills, Invoices, etc.) ● Jamaican Government Forms ● Customized Forms <ul style="list-style-type: none"> ● Speedisets ● Flat pakits 	<ul style="list-style-type: none"> – cost savings/cost avoidance – increased accuracy – improved consistency – income generation – improved analysis – improved policy-making – improved data sharing – improved outreach 	<p>Recommended the use of DNA39 bar-coding on census forms for easy identification.</p> <p>Noted that Xsomo has big and experienced business partners to</p>

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	<ul style="list-style-type: none"> ● Continuous Forms ● Single Sheet <p>Xsomo won contract for Jamaica 2001 Census Printing & Processing of Data. Under this contract;</p> <ul style="list-style-type: none"> ● 12 Million pages processed in 6 months ● 99% Accuracy ● Provided access to images utilizing ECM ● Provided Images of all Census forms on 100 DVDs <ul style="list-style-type: none"> ● Has extensive range of Information Management solutions and still offers a Wide Range of Digital Services ● Document Conversion / Scan Centre ● Document/Content Management Solutions ● Data Capture Solutions ● Workflow Solutions ● Records Management ● Business Process Management ● Electronic Forms <p>Xsomo demonstrated and showcased two technologies which combine to help Governments achieve success in census data capture :</p> <ol style="list-style-type: none"> 1. Cardiff Data capture Solutions 2. Hybrid Capturing Enhancement for Cardiff Teleform <p>Xsomo 's approach is Hybrid Solution i.e. - ICR/OMR Data Capture- Cardiff</p>		<p>handle any size of data processing activity in the Caribbean, namely Cardiff TELEform, OnBase Document Imaging, Cardiff LiquidOffice, Electric Paper, Citrix and Rimage (all in North America).</p>

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Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
<p>Xerox Corporation</p>	<p>Teleform</p> <ul style="list-style-type: none"> - Electric Paper PDF forms on Notebooks - GPS Co-ordinate Tracking Device <p>Xerox representative provided a brief history of the company, how they are organised and what they can do to assist in the Census 2010 Round processes and a demonstration.</p> <p>The presenter opined that Xerox operates with Integrity. Supply and support quality products and provide efficient and reliable service consistently to each and every customer without distinction. Provides our team with job security, competitive benefits and opportunities for personal and professional development in a harmonious environment. Operates profitably in order to maximize return on investment. Be a model citizen contributing to the development of our country.</p> <p>Xerox has kept pace with innovations that help your business clear the path between paper and digital content cut through the clutter and make information relevant again.</p> <p>The presenter also pointed out the key issues for the Caribbean Community Census: viz., Needed tools to make it easier to get work done; Greater Cost Effectiveness; Data is only valuable when its Timely; Learning Curve;</p>	<p>Printing of barcodes within the image zone area is more expensive than printing numbers.</p>	<p>Noted that J. E. Bergasse's & Co of St Lucia and TSL Group of Trinidad and Tobago deals in Xerox products and that they can provide a scalable solution that's cost effective, that allows you to <i>Focus</i> on your Core business.</p>

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Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
<p>TSL Group –Trinidad & Tobago</p>	<p>Outdated Technology</p> <p>With Xerox partners, you can leverage their local knowledge and experience to respond quickly to your demands, while drawing on the International strength of Xerox Corporation. As a result Xerox can participate fully to provide the right solution to meet your needs (local out-sourcing and/or in-house solution).</p> <p>TSL Group outlined their experience with Central Statistics Office of Trinidad & Tobago.</p> <p>Forms Design</p> <ul style="list-style-type: none"> ● Teleform Designer ● Printing <p>450,000 survey booklets - Booklet = approx. 16pages/ 32impressions per booklet; Total Production = approx 7.2 million pages/14.4 million impressions; Unique Bar Code per booklet; Must be completed by April 1st 2010.</p> <ul style="list-style-type: none"> ● Marketing and informational literature ● Field Data Collection <ul style="list-style-type: none"> ● 4000 Enumerators ● 100 Field Supervisors ● To be completed in short period (six weeks) 		

11. SELECTED ISSUES ARISING OUT OF THE ANALYSIS OF THE DATA PROCESSING QUESTIONNAIRE

Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
<p>11 – Selected Issues Arising Out Of The Analysis Of The Data Processing Questionnaires</p>	<p>The following key areas were recognised from the presentation done by the CARICOM Secretariat representative:</p> <ul style="list-style-type: none"> • Census Preparation Assessment • Method Of Data Capture 2000 Round • Method Of Data Capture Proposed For 2010 • Challenges – 2000 Round • Assistance Needed • Summary <p>The assessment revealed that overall:</p> <ul style="list-style-type: none"> ❖ The data processing operations during 2000 round varied from country to country in the way things were done; ❖ Manual data entry, Optical Mark Recognition (OMR) and Optical Character Recognition/Intelligent Character Recognition (OCR/ICR) were used to capture the data; ❖ There was lack of complete familiarity with the new scanning technology processes (using OCR/ICR); ❖ There was lack of local support in the new technology; <p>The data processing operations proposed by countries for the 2010 round will also vary from country to country. Most countries are</p>	<p>There were challenges during the 2000 round which caused some:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Delays in completing the processes <input type="checkbox"/> Extra cost (time, quality papers and others) <input type="checkbox"/> Frustration of staff <input type="checkbox"/> Assistance sought 	<p>THE MEETING:</p> <p>Noted that with the exception of Haiti, Suriname and Montserrat who are going to use the traditional method to capture their data for the 2010 round, all others are going to use scanning technology. And the use of the internet</p>

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Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
	<p>going to capture their data using scanning (OCR/ICR) technology with the exception of Suriname, Haiti and Montserrat who may use conventional data entry.</p> <p>The software preferred by most countries for scanning during the 2010 round is Cardiff TELEform with Guyana and Curacao going for Eyes and Hands (by ReadSoft Company). CSPro may be used by Suriname, Haiti and Montserrat to capture their data (keyboard entry).</p> <p>New technologies being explored by countries to enhance the 2010 round of census processes is the use of PDAs and GPS. Computer Assisted Telephone Interview (CATI) and the use of the internet to collect data are also being contemplated by some countries.</p>		

12. RECOMMENDATIONS AND CONCLUSIONS

Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
12 Recommendations and Conclusions.	Consistency checks can be done during the data entry/capture phase, however in a controlled manner so as not to slow down the process.	Finding the space to accommodate the census data processing activities may be a challenge	THE MEETING: Noted that in keeping with the decision to use

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Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
	<p>CARICOM Secretariat: inform the meeting that there is some amount of support in the areas of Data Processing in terms of a workshop to be held with assistance from IT Consultants and other subject persons. As regards dissemination, DEVINFO/CENSUSINFO, has been accepted as the dissemination tool of choice for the 2010 Round of Censuses by the RCCC.</p>	<p>UNFPA – Editing does not increase data quality, only data appearance. Manual editing needs to be assisted by records of how the data was processed</p> <p>Consultant – Edit programs should be developed early (for Pilot Testing phase) and continually refined.</p> <p>The UNSD and US Census Bureau advised against manual editing. Editing information can be obtained from the Handbook on Population and Housing Census Editing.</p> <p>Visitation records information is vital and as such should be capture to be linked to the household and individual records</p>	<p>CensusInfo/CensusInfo to disseminate the 2010 Round of Censuses a workshop will be held in that areas supported by UNSD and UNICEF.</p> <p>Also Noted that REDATAM, which was used to disseminate Saint Lucia’s 2001 Census result, is also being promoted. UN-ECLAC has the technical capacity to assist countries who want to use REDATAM. Training in REDATAM was held in 2008, and possibly another one in last quarter of 2009.</p> <p>Recommended that cost benefit analyses should be used to guide the choice of data processing method since the population of countries in the region are much smaller;</p> <p>Also recommended that if outsourcing the data processing activity,</p>

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Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
			<p>proper contractual arrangements should be made well in advance</p> <p>Further recommended the establishment of a good record-keeping (e.g. documenting cost items, sources of errors etc) as a means of quality control;</p>

13. ANY OTHER BUSINESS

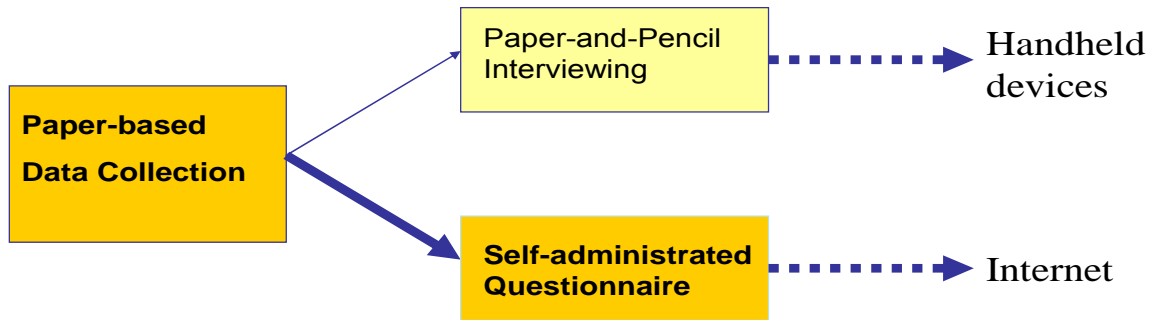
Agenda Item	Main Issues	Challenges/Best Practices	Main Decisions/Recommendations
	<p>OECS's harmonisation programme should take into account the CARICOM Secretariat coordinated Common Core and Non-core Questions already developed.</p> <p>The need for documentation starting from the onset of census processes was re-emphasized.</p>		<p>THE MEETING:</p> <p>Expressed appreciation and gratitude to ALL the Facilitators/ Consultants for their support and the desire for continued support in the future;</p> <p>Commended the Facilitators for the level of detail presentations throughout the Workshop and its usefulness in facilitating the Regional 2010 Census Programme of Work.</p>

Close of Meeting

The Meeting ended with an exchange of courtesies

*Caribbean Community (CARICOM) Secretariat
17 December 2009*

Self-administrated Questionnaire



ANNEX I to

LIST OF DELEGATES

**CARICOM WORKSHOP ON DATA PROCESSING FOR THE 2010 ROUND OF
POPULATION AND HOUSING CENSUSES, 28 SEPTEMBER -2 OCTOBER 2009, GROS
ISLET, SAINT LUCIA**

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AGENDA

C A R I B B E A N C O M M U N I T Y S E C R E T A R I A T

**CARICOM WORKSHOP ON CENSUS DATA
PROCESSING FOR THE 2010 ROUND OF
POPULATION AND HOUSING CENSUSES**

RESTRICTED

Castries, Saint Lucia

28 September–2 October 2009

6 August 2009

- 1 OPENING CEREMONY**
- 2 ELECTION OF CHAIRMAN**
- 3 ADOPTION OF AGENDA**
- 4 PROCEDURAL MATTERS**

- 5 COUNTRIES EXPERIENCES IN DATA PROCESSING DURING THE 2000 ROUND
AND APPROACHES FOR THE 2010 ROUND OF POPULATION AND HOUSING
CENSUSES**
 - a. DATA CODING SYSTEMS – MANUAL, COMPUTER - ASSISTED/
AUTOMATED CODING**
 - b. DATA EDITING:**
 - 7.1 Introduction to Data Editing - Concepts and Methods in Data Editing**
 - 7.2 Examples/Exercises of Editing Programs**

- 8. DOCUMENTATION AND ARCHIVING – METHODS AND PRACTICES**

9 DATA CAPTURE METHODS:

9.1 Design Requirements - Advantages and Disadvantages -

9.1.1 Optical Mark Recognition (OMR)

9.1.2 Optical Character Recognition/Intelligent Character Recognition (OCR/ICR)

9.1.3 Manual Data Entry

9.1.4 Personal Digital Assistant (PDAs) – Handheld Computers

9.1.5 Internet

9.2 Stages of the Scanning Process -

9.2.3 Mark/Character Recognition – Imaging, Interpretation and Verification

9.2.4 Quality Assurance Processes

9.2.5 Other Logistics in the Scanning Process

**10 DATA CAPTURE: PRESENTATIONS BY MAJOR DISTRIBUTORS/
COMMERCIAL SUPPLIERS**

**11. SELECTED ISSUES ARISING OUT OF THE ANALYSIS OF THE DATA
PROCESSING QUESTIONNAIRE**

12. RECOMMENDATIONS AND CONCLUSIONS

13. ANY OTHER BUSINESS
