

Planning and Organisation

The 2000 Census of Population and Housing was conducted under the authority of the 1950 Census Act, which provided for the issue of an order by the Governor published in the Gazette, directing that the Census be taken. On the publication of the Census Order, the Superintendent of Census and Assistant Superintendent of Census were appointed.

Preparations for the Census commenced in 1998 with an initial review of the phases of this major undertaking. In addition, the Statistician for social statistics was sent to the International Programs Center (IPC) at the United States Bureau of the Census for a course that outlined the many considerations that were vital in preparing a census plan. The new ideas and insights gathered were incorporated into the planning process. A Census Planning Team (CPT) was formed to plan and prepare for all phases of the Census.

Government departments and agencies were invited to submit items for inclusion in the questionnaire. The departments were provided with a list of the core questionnaire items in order to avoid the redundancy of their requesting items that were already on the questionnaire. Several departments made submissions that were assessed first on the basis of appropriateness for inclusion in a census questionnaire. The second stage of consideration involved prioritisation within the constraints of maintaining a manageable length for the questionnaire.

One-on-one refresher training at IPC was provided to the Acting Programmer for Censuses and Surveys in the manipulation of specialised software created by the Bureau. This package, Integrated Microcomputer Processing System (IMPS), is designed for the processing of census and survey data of countries of population sizes of less than one hundred thousand. A new windows-based version was acquired for the 2000 Census.

In 1999 a Census Pre-test was conducted in order to identify areas that needed fine-tuning. A sample of 150 households was enumerated. This allowed for the testing of phases of the census operation and assisted in the revision of training materials, the questionnaire, and the editing and coding plan.

Creation of Administrative Areas

In order to manage an exercise as mammoth as a census and to ensure maximum coverage, the country was segmented into small administrative divisions called census districts (CD's). Those used today were created for the 1970 Census and numbered 241. A new CD was added for the 2000 Census to incorporate the territory at South Side that was occupied formerly by the United States military base. This brought the number of census districts to 242. These were grouped into 70 supervisory areas for the purpose of enumerating private dwelling units and their occupants. In addition, the country was partitioned into three zones – eastern, central and western for the purpose of counting the inhabitants of all group dwellings and institutions. The eastern zone included all parishes east of Pembroke; the central zone included all of Pembroke; and western zone included all parishes west of Pembroke.



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Mapping

Critical to the achievement of good coverage of the population in any census is the mapping plan. For each of the 242 Census Districts, there needed to be a map firstly to guide the field staff through the enumeration process, so as to assure full coverage. Secondly, the map outlined the boundaries of the CD in order to prevent an enumerator's crossing the perimeter of the CD for which he or she was responsible and enumerating households outside of his or her assigned district.

The operational procedure for producing the field maps needed for the 2000 Census began in January, 1999. Prior to that, members of the CPT met on several occasions to review the process by which the maps were prepared for the 1991 Census. Meetings were held also with the Department of Works and Engineering to discuss other methods that could be implemented to improve the process of preparing maps for the 2000 Census. It was decided that the Department of Works and Engineering's Survey Section would produce digitised topographical maps for the Census Office using Geographic Information Systems (GIS) technology. The maps were delivered in December, 1999. This was a significant improvement over the extremely time-consuming process used in the 1991 Census of hand-drawing the census district boundaries onto the ordinance survey maps, cutting them up by census district and then making several photocopies of each district.

Recruitment and Training

Training, which impinges upon the quality of the data was a critical component of the Census operation. The objective was to impart to field staff an understanding of the concepts and definitions employed in the course of the administration of the questionnaire; instructions for completing the questionnaire; techniques for interviewing successfully; and instructions on the use of the census district map for traversing the area and covering the entire assigned district.

The first tier of training was the classroom instruction of 60 persons from whom were selected a group of trainers who in turn would instruct the supervisors and enumerators in their duties. The training of the trainers was conducted by Dr. Sonja Sinclair, Consultant Demographer, with the support of Census Planning Team members at the offices of the Department of Statistics. The trainers then had the responsibility for training the field staff. Classes were held at the Bermuda College on evenings and weekends. These were supplemented by classes at the offices of the Department of Statistics for persons who had schedule conflicts. At the conclusion of the training course, participants were tested and trainers made recommendations to the Census Office on their suitability for selection.

Publicity

In order to garner the support and cooperation of the community, it was necessary to ensure that the public was informed adequately about the Census, its objectives and how it would benefit Bermuda. To accomplish the sensitisation of the population to the census effort, the advertising firm, Advantage Ltd., along with the company, Fresh Creations Ltd., was contracted to build a comprehensive public awareness campaign. Advantage created the print advertising whilst Fresh Creations produced a variety of radio and television advertisements that were designed to appeal to varying segments of the community. The campaign slogan was "Because people count." About a week before the commencement of the

enumeration, post cards informing the public about the Census were mailed to every household throughout the Island. In addition, prominent members of the community were featured in television spots encouraging the community to participate. Other means of getting the message out included the following:

- press conferences;
- radio talk show appearances;
- hanging of posters about public places;
- postage franking;
- advertising on grocery bags; and
- featuring the Census as the topic for an issue of the supplement, Newspapers in Education, which targets the school population.

Special Areas

Prior to the enumeration period, it was important that special arrangements be made to enumerate or record the number of persons living in the following situations: institutions and group dwellings; guest accommodations; those on ships and yachts.

Persons living in institutions and those in group dwellings were enumerated by special area enumerators who reported to a special area supervisor. For persons living in institutions such as correctional facilities, hospitals, nursing and rest homes, reformatories and similar institutions, only selected questions were asked. In the cases of persons residing in group dwellings, however, such as hostels for nurses, police barracks, dormitories for hotel staff and boarding houses, the entire questionnaire except the Housing section was administered.

Visitors staying in hotels and guesthouses were enumerated by the management in response to a letter sent by the Census Office asking for a head count as of Census Day. Information concerning persons on ships and yachts was obtained from shipping agents.

Enumeration

On Census Day, 20th May, 2000, two hundred and six enumerators were distributed their kits for the commencement of the enumeration on the next day. This phase began with a shortage of field staff that the Census Office strove to overcome by extending the recruitment of enumerators and putting on additional training classes. Also, 21 (30%) supervisors who did not have their full complement of five enumerators to oversee were mobilised to assist in the enumeration process. Moreover, legislative authority was obtained to extend the enumeration period by one month to 31st August, 2000.

The additional training classes attracted sufficient numbers of applicants; however, half did not present themselves for training. The Census Office endeavoured to compensate for this disappointment by re-assigning to new areas enumerators who had completed their previous assignments and an all-out effort was under way in August to complete the exercise. To assist, census districts were sub-divided even further in order to apply more personnel to cover an area.



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Unfortunately, there were other countervailing factors. First, some field staff did not meet their responsibilities and failed to report their progress expeditiously. Second, whilst most of the community was quite cooperative, the field staff in the 2000 Census faced a greater degree of resistance from the public than was the case in 1991.

The consequence of the persistent personnel shortage, the lack of diligence on the part of some field staff and public resistance raised concerns about the level of coverage by the end of the enumeration period on 31st August. There were a few pockets of households that were left un-counted. In addition, spread throughout the Island were homes that enumerators had visited but from which an interview had not been secured. About 96 percent of homes had been visited. Many countries conduct post-census enumeration surveys to estimate the degree of coverage and use estimation to compensate for any undercount. Bermuda used the approach of identifying the homes that had not been enumerated by comparing Census visitation records with the Land Valuation listing of dwelling units. For the first time, the Census data were to be used by the Boundaries Commission for the determination of the number of seats in the House of Assembly and for the re-drawing of constituency boundaries. It was critical, therefore, that the Census count be as complete as possible. Thus, when Parliament reconvened in November, 2000 the Census Office was granted permission to send a team of enumerators to resolve the outstanding cases. This was accomplished and the proportion of homes visited increased to 99.5 percent. The result was a far more accurate count of the population and the number of eligible voters.

Remuneration

Payment for the training and enumeration was as follows: trainers were paid a flat fee of \$2,100 for approximately 70 hours of work between April and May; and supervisors were paid a flat fee of \$2,000 for the initial enumeration period. Supervisors who had a substantial work load during the month of August had their pay pro-rated for the extra month. Their compensation was assessed according to the number of enumerators under their supervision and the number of questionnaires they reviewed. Special area enumerators were paid \$2,100 to complete their enumeration area. Enumerators were paid \$22 per household with a progressive scale of bonuses. This was in order to encourage productivity at a pace sufficiently moderate to sustain accuracy. All trainees were paid a \$300 training fee if they attended all training sessions. For the second enumeration phase supervisors were paid a flat fee of \$750. Enumerators were paid \$25 per completed questionnaire and \$10 for each address on their assignment list that they verified as either having been enumerated already, or as a vacant unit, etc.

Post-Enumeration

The post-enumeration phase involved the processing of the questionnaires for the purpose of producing the final Census database. The first step was the editing and coding of 25,000 census booklets which contained 63,000 person records, i.e. individual questionnaires. Thirteen editors and coders were hired to conduct a manual check of each questionnaire for completeness and consistency and to apply codes to data items on household composition, industry, occupation held and occupation for which the respondent was trained or being trained. This stage of the process was slowed down by a level of error that was intolerably high.

The scanning of the questionnaires followed. This, was the procedure by which information was

transferred from the questionnaires into the Census database. The capturing of the responses of over 62,000 persons was accomplished with the rebuilt and upgraded OPSCAN –10 model 60 optical mark reader (document scanner). The optimum scanning capacity of the document reader was 11,000 double-sided sheets per hour. This phase was succeeded by a more complex and intricate computer edit of the questionnaires.

Challenges

An undertaking as major as a census is never without its share of challenges. The obstacles to the smooth running of the 2000 Census were, as outlined earlier, the persistent shortage of field staff, sub-standard performances from a number of field staff, and increased public resistance.

The unrelenting short supply of field staff was the greatest impediment to overcome amidst Bermuda's tight labour market. The personnel deficit commenced with an insufficient number of supervisors. This was addressed by inviting the higher-performing enumerator trainees to accept supervisor positions. This, of course, exacerbated the enumerator deficit.

Additional training was put on, therefore, in order to boost the numbers. This involved salvaging those trainees who did not meet the standard by putting on make-up classes; accommodating students returning from abroad and other persons who could not make the dates of the earlier courses. It was hoped that by the 10th June another 70 enumerators would have been deployed; however, only 42 more enumerators emerged from this round of training. Thus, a fifth and final group of training was staged. There were 120 applicants, and there was great optimism that such a large response would provide an adequate pool of enumerators. To the consternation of the Census Office personnel, only half presented themselves for training. About forty actually finished the training and began working. A number of these persons, however, as well as many enumerators from earlier training groups, either dropped out or worked too slowly and, therefore, were terminated.

Also, it was brought to the attention of the Census Office that some trainees who completed the training never intended going into the field. They were doing the training merely to obtain the \$300 training fee. A requirement of perfect attendance as a prerequisite for remuneration was intended to ensure the full course of instruction. It was not anticipated that such a nominal fee would attract persons with a lack of commitment to, and sensitivity for the importance of, this national effort.

The inadequate standard of performance of some field staff had to be contended with and presented difficulties for the monitoring of the progress of the enumeration. This included failure to administer the questionnaire according to the guidelines and neglecting to stay in contact with supervisors or the Census Office.

There were also numerous complaints from field staff about difficulties presented by the reluctance, and sometimes outright refusals, of some persons to cooperate. Pre-arranged visits with the respondents often went unanswered, despite obvious signs that someone was at home. The Census Office met this resistance with the delivery of warning letters to the households concerned. The letters reminded householders of their duties under the Census Act 1950 and of the penalties for failure to comply. In most cases this was sufficient to secure cooperation.



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The Budget

The Census cost \$2.1 million over a four-year period. The original amount budgeted was \$1.9 million. Additional costs incurred in temporary staff wages and advertising were met through savings in the Department of Statistics' budget.

The largest single item of expenditure was the remuneration of field staff, which accounted for 55 percent of the budget. The remainder covered disbursements in respect of items such as wages of temporary office staff, publicity, office supplies and printing.