

## THE 2006 CENSUS OF POPULATION AND HOUSING

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### 1. INTRODUCTION

Australia conducted its fifteenth national census on 8 August 2006. The census in Australia has been conducted every five years since 1961 and is authorised by the *Census and Statistics Act 1905*.

### 2. CENSUS COLLECTION OPERATIONS

#### **Background**

2. Australia conducts a drop off/pick up census, that is enumerators deliver a census form to each household. The form is completed by the householder with reference to everyone in the household on census night (ie enumeration is based on place 'where present' at census time; usual residence data are derived from the answers to a usual residence question on the census form). The enumerator returns to the household in the three weeks after census night to collect the completed census form.

3. Special enumeration strategies are adopted for some population groups. Those Indigenous peoples living in traditional communities are enumerated by interview using a specially designed form (it should be noted however that the vast majority of Australia's Indigenous people now live outside traditional communities and are enumerated using standard census methods). Special measures are also undertaken to enumerate the homeless population. A range of interpreter services and information in languages other than English are provided for those of non-English speaking background. A centralised telephone inquiry service is established to handle queries from the public.

## **Public Communications Campaign**

4. The success of the census ultimately depends on the willing cooperation of the public. One of the key elements to a successful census is a public communications campaign that firstly informs the public about the purposes of the census and why they should be willing to take part in it and secondly sets out how and when they can participate.
5. The Australian public communications campaign for the 2006 Census consisted of four elements: paid advertising, public relations activities to generate media interest and coverage, engagement with community leaders and groups and information on the ABS web site. As the budget for paid advertising is comparatively small, a great deal of focus is put on the latter three activities.
6. The paid advertising covered television, radio and print media and was consistent across all media. It was based around a well known and respected Indigenous Australian media personality, Ernie Dingo. There is evidence that, despite the relatively limited exposure, the advertising was well received by the public. The television advertising focused heavily on the purposes of the census for planning local services such as schools, hospitals and transport, and included a message about the protection of the privacy of census information. The other media were used to cover the "how and when" issues and any detailed questions that people might have about the census. The paid advertising proved to be an excellent underpinning of the other elements of the public communications campaign.
7. The census generated enormous media interest. In the week of the census, the census was the fourth most covered story in all media and was the number one topic on talk back radio. Around 93% of the coverage was assessed as either positive (where the media was seen to actually promote the census) or neutral (where the media simply relayed the messages from the ABS). Only 7% was assessed as negative. The key reason for this success of this aspect of the campaign was the ready availability of ABS spokespeople who could handle media enquiries and deal with any critical comments on the spot.
8. Enormous effort was expended on engagement at the community level with community leaders and community groups. This was especially the focus of the campaign to get the support and involvement of Australia's many ethnic communities. This involved many meetings with groups throughout Australia and working with them to get the census message to members of their own communities. In addition, for the first time, the ABS implemented a formal third party endorsement campaign where community leaders from business, trade unions, sporting groups, service clubs and religious groups were approached to give their formal support for the census.

9. The ABS web site was a key part of the public communication campaign. The web site contained a range of information about the census, including material for the media and a section containing "frequently asked questions". People could also readily access data from previous censuses for their own communities. In addition, through the ABS website, Census at Schools provided a range of learning activities for upper primary and high schools students that were designed to improve both statistical literacy and an appreciation of the role of statistics in society. During August, the month in which the census was conducted, nearly a million people visited the census home page (this was separate from people who were using the eCensus system).

### **eCensus**

10. A major innovation in the 2006 Census, was the offering to everyone in Australia of the opportunity to respond to the Census via the internet. Every household was supplied with both a paper census form and a sealed envelope containing a unique 12 digit PIN. Householders wishing to use the eCensus system logged on with a combination of the number supplied on the paper form and the PIN.

11. The major challenge in Australia was to incorporate the eCensus into the overall business processes of the census to ensure that households and people are counted once and once only. Australia does not have an address register. The solution involved informing the enumerator through a text message to the enumerator's cell phone to inform them that an eCensus form had been received for a particular household. This allowed the enumerator to update their own collection control records.

12. A major focus was ensuring the security of any information supplied. SSL end-to-end encryption was used. The security of the system and the data were separately tested by both the Defence Signal Directorate, the security arm of the Australian Defence Force and by a private firm.

13. Another key issue was the capacity of the eCensus solution to cope with a large volume of users on census night. Again the systems and processes were subject to extensive testing and tuning by ABS and IBM staff as well as by an external contractor.

14. Overall the eCensus proved to be a major success with 9% of households (780,000 households) logging on and submitting their census form online. The feedback from users of the system has been very positive, with most users finding it quick and very easy to use.

### **Census Processing**

15. Census processing is using many of the systems and processes developed for the 2001 Census: that is scanning using Intelligent Character Recognition, Repair and Automatic Coding with residual responses that cannot be automatically coded sent to clerical staff who will use images of the form and computer assisted coding to arrive at a code. However, the back end of the system has been redesigned around the use of Oracle Database that is providing greater flexibility in managing workflows and monitoring data quality.

16. The key issue for 2006 Census processing will be an assessment of the value, in terms of quality improvement and cost, of the clerical computer assisted coding element of the processing work. There has been a considerable improvement in Intelligent Character Recognition and Automatic Coding and there is some evidence from testing that many of the residual responses are of insufficient quality to be coded at the most detailed level of the classification. Many of these could be automatically coded at a higher level of the classification with no clerical examination. The advantage of more automatic coding is more consistent approach and therefore better quality in handling these responses, reduced processing costs and improved timeliness in the release of census data.

### **Census Output**

17. Major changes are being made in the basis and manner in which census data will be disseminated from the 2006 Census. For the first time, priority will be given to the release of usual residence data over as enumerated data. The prime mode of dissemination of 2006 Census data will be via the internet. The web dissemination systems are being totally redesigned to cater for a range of users from first time users to the most sophisticated. A range of facilities will be available via the internet for users to search, analyse and map the census data. A separate facility will also be established for users to run tabulations on line against the entire Census Unit Record File (Table Builder). ABS will also make available a 1% sample file on CD Rom and a 5% sample file through the ABS Remote Access Data Laboratory for those users who wish to undertake their own statistical analysis of the census data work on the census file.

18. Given the greater sophistication of users and the greater availability of census data, the method of automatically confidentialising census outputs has been totally revised. In the past, only cells of 0 to 3 were subject to randomisation, the new system will involve the possibility that any or all cells of any table may be subject to perturbation. However, part of the new confidentiality process will ensure that true table totals will be preserved.

19. The first stage of the new dissemination system has already been implemented on the ABS web site ([www.abs.gov.au](http://www.abs.gov.au)) using 2001 Census data and it is planned to rerelease the 2001 Census data using the new facilities prior to the release of 2006 Census data.

### **Towards the 2011 Census**

20. While the 2006 Census collection operations went very well, there were some issues that the ABS will need to consider in planning for the 2011 Census.

21. One of the key challenges facing traditional census taking is modern lifestyles that mean it is increasingly difficult for census staff to make contact with people in their homes. Factors that are contributing to this include increasing numbers of single person households, households where all adult members are employed, greater preferences for eating out in the evening and taking short breaks away from home on the weekends, and, in many of Australia's cities greater concerns about security that are leading to increased numbers of secured apartment buildings and estates or homes that are secured and that are difficult to access by the general public.

22. As well, the buoyant economy and low unemployment rate meant that it was difficult to recruit sufficient staff in some areas. In some cases, staff were required to take on double workloads in order to have all areas covered. Some preliminary analysis of 2006 Census data shows that this may have been at the cost of data quality.

23. For the 2011 Census, ABS will be actively promoting the internet option for people to return their census form and is looking at the possibility of moving to a mail back/internet census. (Australia does not yet have a high quality address register and is not in a position to consider mail out as an option). This will allow for a reduction in staff numbers and a focus on using the available staff to follow up the harder to collect from households.

24. The demand for inclusion of extra topics (or extensions of current topics) on the census form are growing with the greater interest in regional and small population group data. The 2006 Census form had 61 questions and was the largest form since the 1976 Census.

25. Most of the costs in conducting a census are now in the collection operations. This will be increasingly the case as further reductions in processing costs are likely through improvements in Intelligent Character Recognition and Automated Coding. It may be possible to expand the range of topics on the census form without any real increase in per capita processing costs. However, there is an issue with increased respondent burden. One way forward may be the use of two census forms and sampling. The range of topics collected on a census could be increased while at the same time keeping respondent burden on any one household at similar or reduced levels to the 2006 Census.

### **3. CENSUS POST ENUMERATION SURVEY**

26. The Census Post Enumeration Survey (PES) provides estimates of net undercount in the Census for rebasing of Estimated Resident Population (ERP). The PES also provides information for evaluating the effectiveness of Census collection processes. (In 2001, the PES estimated that the Census missed around 1.8% of the people in Australia on Census night.)

27. The PES is a household survey conducted independently of the Census. In 2006 it was conducted using Computer Assisted Interviewing at a randomly selected sample of approximately 33,000 households. Interviewers collected information face-to-face from any responsible adult on behalf of all members of the household who were in scope of the survey.

28. The PES collected standard demographic information such as age, sex, country of birth and marital status, plus a number of items aimed at identifying where a respondent was included on a Census form, whether they may have been included at any other address, and where they stayed on Census night. Some information was also collected on dwelling type and tenure.

29. Information collected in the PES is matched against corresponding Census forms to determine whether a person has been counted or missed in the Census, or counted more than once.

30. The PES testing program included several field tests, and a test of the match and search exercise using outputs from Census dress rehearsal processing. Test results were used to help finalise the 2006 PES questionnaire and related procedures and documentation.

### **Changes Since 2001 PES**

#### Improved quality of remote area/Indigenous undercounts

31. Remote areas and discrete Indigenous communities were included in the Australian PES for the first time in 2006. This change made the geographic coverage of the survey complete. The main reason for excluding them in previous years was difficulty of enumeration and the questionable quality of the data that would result. It was also difficult to implement procedures to ensure the independent nature of the PES was not compromised by overlap with Census staff and procedures.

32. Since 2001, the ABS has conducted a number of Indigenous surveys and has now become much more adept at managing the issues associated with data collection in these areas. A network of Indigenous facilitators has been established, and guidelines for enumerating discrete Indigenous communities have been developed, and continue to evolve. The PES testing program built on this experience, and included field tests in several discrete Indigenous communities.

#### The need for transparency in the methodology used for producing PES estimates

33. Following an evaluation of the 2001 Census, PES and ERP rebasing, a review of the match and search process was undertaken and the appropriateness of the 2001 general approach confirmed, but with some suggested improvement, which have been implemented for 2006.

34. The estimation methodology was also reviewed and improved, with a variant of the dual system estimator being proposed for the 2006 PES. Details can be found in the Information paper *Measuring net undercount in the 2006 Population Census, Australia, 2006* (cat.no. 2940.0.55.001) available free from the ABS website.

### **Current Status**

35. Enumeration of the mainstream PES sample (that is, other than discrete Indigenous communities) was conducted over a three week period in September, commencing almost four weeks after Census night. Obtaining sufficient interviewer capacity was difficult due to the large sample size and the proximity of the survey to the September Labour Force Survey. This is expected to have slightly reduced response rates from the 2001 level of 96%).

36. Enumeration of the 21 communities selected in the discrete Indigenous communities sample began on 11 September and continued until around 13 October. The timing of this component was dependent on the completion of Census field work in the selected communities.

37. Staff are currently conducting the match and search process in the Census Data Processing Centre, located in Melbourne. This process involves initially matching the PES address with a Census address, and secondly matching people in the PES with people in the Census to determine whether any persons in the PES questionnaire were found/counted on the Census form(s) for that address. This process is repeated for any other addresses given during the PES interview i.e. any other address where the person might have been counted in the Census.

#### **4. FURTHER INFORMATION**

38. Further information on the 2006 Census processes and procedures can be found in Information paper: *How Australia Takes a Census, Australia 2006* (cat no 2903.0). This paper is available free from the ABS web site [www.abs.gov.au](http://www.abs.gov.au).

39. Information paper: *Measuring net undercount in the 2006 Population Census, Australia, 2006* (cat.no.2940.0.55.001), released on 13 July 2006, explains how the 2006 PES was to be conducted and the methodology to be used for estimation. This paper is available free from the ABS website: [www.abs.gov.au](http://www.abs.gov.au).

40. The results of the 2006 PES will be published in *Census of Population and Housing, Data Quality - Undercount, Australia* (cat. no. 2940.0) scheduled for release in June 2007. These results will also contribute to ERP published in the December quarter 2006 issue of *Australian Demographic Statistics* (cat. no. 3101.0 ), scheduled for release in June 2007.