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New Zealand Census – 2006 and Looking Forward

Introduction

This paper uses the experiences of conducting the 2006 Census in New Zealand, to set the scene for the plans for the 2011 Census. It highlights some of the positive ways in which agencies co-operated in the development of the 2006 Census, and identifies areas for continued co-operation.

2006 Census – Overview

The 2006 Census was held on in New Zealand on March 7, 2006. Overall there was high public support and public awareness, but feedback from the field force was that we had to work much harder in the 2006 Census to get the same or similar result, as compared to other censuses.

Collection Phase

While the 2006 Census had some operational challenges (including issues with the deployment of telecommunications and problems with aspects of the Field Management Systems - the IT systems set up to support the work of the field); the largest challenges came from the increasingly complex society. Among the manifestations of this were:

- *More complex living situations:* Despite considerable preparatory work, we had difficulty in getting into apartment buildings in Auckland and Wellington, with resultant difficulties in determining whether units were eligible or not. Similar issues were evident in holiday areas and commuter belts.
- *More complex family situations:* As in other countries, New Zealanders have increasingly complex family situations, which are not always easily measured in a collection vehicle such as the Census. The complexity shows itself in many ways, including the increased numbers of people in New Zealand with more than one address - both those who live in more than one household, and those with two or more dwellings. In terms of the latter, there were signs that people want to have both locations counted; as well as data users wanting counts of ALL the housing stock, not just that occupied on census night.
- *The Auckland Effect:* It is harder to get responses in Auckland than in other regions, a factor found in other surveys as well. It is clear that there are a number of factors at play here - busier lifestyles, more commuting, greater ethnic and social diversity coming together to lead to relatively lower response rates
- *Public apathy:* Despite, what was seen as a successful advertising campaign, there appears to have been some public apathy towards the census. This was demonstrated by the fact that we had a higher number of people who filled out the forms only after we had followed up for non-response.

As a result of these issues, the field phase was longer than in previous censuses, with consequences for support services such as the Helpline, which needed to be

retained longer to answer calls from the public; managing mail back returns continuing for longer, and at a higher volume, than planned, as well as the extra effort required to follow up non respondents; which has continued through the prosecutions phase.

The final data, including metadata, is still being finalised; but the indications are that a result of this effort, as well as the work on the design of the forms, promotion and publicity etc; the final data will be of similar quality (and in some cases better) than in the previous census.

However, it was not without cost - as the responses to some of these challenges resulted in additional financial costs, which contributed to an overspend in the last financial year.

At the same time, as meeting some of these challenges, Statistics New Zealand did have a number of successes - one of which was the ability to successfully recruit sufficient field staff, in spite of very low unemployment rates. In 2001, problems were encountered with the pay rates for field staff, which contributed to quality issues in the data. This led to the commissioning of research which showed that approximately half of 2001 collectors surveyed reported that they worked on the census for financial reasons. However, the other half who mainly worked on the census for more public good reasons expected to be adequately rewarded. This was an important consideration in putting forward a successful case to government for more funding for field staff wages for the 2006 Census.

Through a number of ways, there was in effect differential pay rates paid in the 2006 Census. Using information from the 2001 Census, areas were assigned a difficulty rating and pay rates adjusted as appropriate. Generally this was seen as successful; however it will be necessary to review this approach if the overall environment for the 2011 Census is more difficult.

While some non-public facing aspects of the Field Management systems did not work as planned; both the On-line Form Option and the supporting text messaging services were very successful. Response to the on-line option was positive - with over 7 percent of forms returned via this method. The on-line option has received considerable praise, including from the Prime Minister; as well as making the finals of two IT Awards.

Looking forward to 2011, one of the challenges will be to ensure that the On-line form option is promoted in a way that encourages take-up but does not lessen trust in the other ways of returning forms. At the same time, the NZ public has clearly indicated support for mailing back forms, with approximately 10 % of forms returned using that mode.

Analysis of the modal impacts, if any, is still underway; however the early indications are that contrary to expectations, the quality of the mailed back data is not significantly different to the quality of data from the other paper forms. (On-line data is of better quality than the other modes).

As described in the Appendix in more detail, one of the other challenges encountered immediately prior to the Census, was publicity around the issue of New Zealander in the ethnicity question. Public discussion focused on the lack of a tick box for 'New Zealander'. Although no tick box was available on the census forms for New Zealander, respondents did have the option of selecting 'other', and writing New

Zealander in the blank space provided an option that had been available for the 2001 and 1996 Censuses.

Statistics New Zealand was well aware of the range of issues around the measurement of ethnicity - not just in the census, but in other contexts as well. Many of these had been raised in the Review of the Measurement of Ethnicity, carried out in conjunction with a wide range of stakeholders over the 2000 - 2004 period. One of the challenges going forward for Statistics New Zealand will be how to measure ethnicity in the future, in particular in the 2011 Census. As part of the review of ethnicity, users told us that the ethnicity question, including input categories should not change; as they wanted the question to remain consistent to enable them to conduct time series comparisons. (There has been a tendency in the past for this question to change between censuses, limiting consistent comparison). At the same time, a large number of the New Zealand public are clearly indicating a clear preference to be recorded as New Zealander.

Other Successes and Challenges are detailed in the Appendix

Processing and Data Evaluation Phases

Processing of data was completed by the end of August 2006, as per the original timetable, despite problems in the development of the systems. This has allowed time for the completion of a much higher level of reprocessing, due to issues with the interaction of alpha recognition and automatic coding.

Data evaluation, which at Statistics NZ, extensively involves analysts from across Statistics NZ has proceeded well. Information from that phase will be used to provide the data quality assessment aspects of the metadata. This will be supported by the results of the PES, which will be available in February 2007.

One of the ongoing challenges here is to ensure that Statistics NZ maximises investment in the Census IT systems, both in terms of the specific investment in the Census specific systems, and also in terms of the wider statistical infrastructure across Statistics NZ through the Business Management Transformation Strategy (BmTS).

Stakeholder Engagement

A critical aspect of the 2006 Census has been the increased focus on stakeholder engagement, both in terms of ensuring that Statistics NZ has a better understanding of how census data is used, and hence being able to actively consider the impact on users when making decisions, but also to ensure strong support for Statistics NZ and the census, among key stakeholders.

Examples of successful initiatives that have had benefits include establishing a programme of census advocates among local government who were used to identify local uses of census data, provide direct input into local youth and ethnic programmes as well as advocate the use of census data among their local authorities. Local government political engagement has also been much higher than in the past, supported by visits to local government leaders (politicians and senior officials) to explain how census and other population statistics interacted. The latter was very important in ensuring support from a range of local authorities, both for the collection phase but also when the Provisional Counts data was released.

This engagement will continue through the Output phase.

Outputs

The 2006 Census outputs were developed in a different way to the past. The content of the products and services has made extensive use of persona research, which enables Statistics NZ to understand who uses the different products and how they want to access them.

The 2006 Census outputs are being released in two main phases. The first phase, beginning in early December 2006, will provide quick stats, answer enquiries and announce the availability of the full, completed census database (to all parts of the user audiences - ie public, technical and professional). All variables will be released in simple, high-level outputs. The second phase products will be released progressively from February 2007 throughout the year and will provide detailed statistics that address the needs of all user audiences. In addition, information from the 2006 Census will play an integral role in the determination of the 2007 Electoral boundaries, which are re-set after each census.

Looking Ahead - the 2011 Census

Statistics New Zealand is beginning to consider the strategic direction for the 2011 Census and a key consideration is to position the strategy within a long-term view of the official statistics system. The strategy will build on the lessons learnt from the 2006 Census and look at the wider context for the census. Internationally recognised problems of cost and respondent compliance, the changing nature of data user expectations (for more detailed and integrated data) and the many opportunities that technology can now provide are key drivers for the census in the future.

Our strategic direction over the next 10 years is to move towards more integration of social statistics, including the census. The key component of building a coherent set of social statistics is to integrate the Census with the Programme of Official Social Statistics (POSS). This programme includes the development of a number of new surveys (eg the General Social Survey, Time Use Survey, Family Survey and Maori Survey), and anticipates the greater exploitation and integration of administrative data. A Household Survey Strategy, which foresees the integration of the social surveys into one large survey with a set of core questions, is also a key component of achieving the outcomes of the programme.

In this context, the future role of the Census will still be to provide demographic, regional and small population information, as the traditional Census has considerable value for these purposes. However the Census will also provide benchmarked information, which will enable users to compare census information with information provided on a more regular basis by social surveys on core questions about the population. In addition, the integrated approach will take pressure off the requests to expand the content of the Census, as new and emerging topics of interest would be able to be addressed within the social surveys programme or administrative data.

Over time it is expected that the proportion of data contributed by the census to social and population statistics will reduce as other sources of data via the Programme of Social Statistics come on stream. The strategy for 2011 Census will be to have minimal change to the content. However the output strategy could take full advantage of the technological opportunities (eg visualisation techniques) and there could be significant changes in the operational strategies for the 2011 Census. These operational strategies would build on the experiences of the 2006 Census by employing a variety of operational initiatives to maintain a high response rate. The strategy would focus on differentiated collection methods. These collection methods

would be tailored to different regions and groups in the community, rather than have a one size fits all approach of knocking on doors. Some of the more tailored and cost efficient solutions we will be investigating are:

- *Using mail back for keen respondents:* In Census 2006 around 10% of census responses were mailed back without being solicited by Statistics New Zealand. Actively promoting mail back offers the potential to get responses back from the keen respondents with a reduced effort from the field force. If mail back is successful, it could free up the field force to target more hard to get response areas.
- *Increasing collector resources for low response rate areas:* We will be targeting hard to get properties, such as apartment buildings, holiday homes and commuter belts by increasing collector resources to get responses.
- *Promoting the Internet option more vigorously:* The Internet option was a success in Census 2006 but the numbers using it were relatively modest, as it was the first time an Internet option was available. In 2011, we will be more actively promoting the internet option based on the demonstrated success of the Internet option Census 2006.
- *Developing Regional Strategies:* We need to develop more tailored strategies for different regions and provide Area Managers with greater autonomy to implement more specific regional solutions.

Areas for Continued Co-operation

In the preparation for the 2006 Census round, and indeed during aspects of the operation; Statistics New Zealand, the ABS and Statistics Canada developed a very close working relationship. This was characterised by regular meetings on a range of aspects of the census, with particular focus placed on those aspects that were new for agencies in the 2006 round. Other agencies, especially the ONS, and Bureau of the Census, have also taken part in a number of these forums. This led to participation from Stats NZ, ONS and Stats Canada in a formal review in late 2005 of the plans for the 2011 UK Census.

Statistics NZ and the ABS have also continued their more in depth exchange of ideas at all levels. Examples of this include participation in reviews of operational phases, as well as visits to review detail progress. The ABS also conducted a review of progress with the Statistics NZ processing system in mid 2005.

Moving forward, it will be important to continue the development and operational level liaison. A review of the 2006 Census activity is tentatively scheduled for early February 2007, and this will give Statistics Canada, the ABS, Statistics NZ, the ONS and several other invited NSO's, an opportunity to review the main operational lessons. Among the issues for immediate focus could be:

Strategic issues

- Greater integration of Census within the wider social statistics systems
- Implications of the revised UN Guidelines on Population Censuses
- Reviewing regional strategies

Operational issues

- Take-up of on-line forms - and how to promote - what lessons can be learnt from the different experiences
- Mail-back - both Australia and New Zealand had much higher rates of voluntary mailback. At the same time, Statistics Canada has experienced issues in following up mailback non-response. If Australia and NZ are to move to encouraging mailback, then both agencies need to understand whether there are systematic issues behind the Canadian experience.
- Making the census work for apartments, Non-private dwellings (hotels and motels) etc
- Potential efficiencies and technological opportunities

Capability

- Identifying the different skill mix required for the roles going forward

Statistics New Zealand
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Appendix - Summary of Collection Success and Challenges

As in any Census, in Census 2006 there were a small number of specific collection successes and challenges as outlined below.

Successes

On-line Form

The on-line form was very successful. Over 7 percent of forms were received via the On-line form option. It received a range of unsolicited praise across the New Zealand IT sector, and has been short-listed for two New Zealand IT Awards; as well as being the subject of a chapter in a forthcoming international textbook on E-government. At one IT award, the Prime Minister identified the on-line census option as an exciting example of innovation in the use of Information Technology within Government.

While the uptake was lower than testing has suggested; the follow-up research suggests that there were a range of factors (including perceptions of likely capacity based on commercial experiences of internet commerce, as well as lack of access of the E-pin) which may have had a role in influencing the take-up rate. Statistics NZ deliberately adopted a low promotion approach, and focused publicity through news media and advertising on the web. One of the challenges for the future will be to successfully promote the on-line option in a way that does not 'confuse or complicate' the overall key messages. Statistics NZ will be very keen to understand the learnings from Statistics Canada, who have clearly achieved high on-line form take-up rates.

Recruitment in Tight Labour Market

Unemployment in New Zealand is at very low levels (3.6% in the June 2006 quarter), and Statistics NZ knew that one of the significant risks with the 2006 Census would be the ability to recruit the necessary numbers of field staff. Research of fieldstaff following the 2001 Census showed that while approximately half of 2001 Census fieldstaff did the job from a community spirit, they and the other 50 % expected to be fairly compensated; and did not consider the compensation paid in 2001 adequate. Following a business case to Government, the funding available for field staff was significantly increased. A range of methods were used to recruit staff - both through contacting former field staff, word of mouth and formal recruitment advertising. The combination of this resulted in nationally approximately twice the number of applicants in 2006, compared with 2001. However, there were still parts of the country, where it was very difficult to recruit - particularly in inner city Auckland and tourism areas, where even the lowest skill jobs have pay rates well in excess of what the census work could offer.

This was accompanied by effectively using differential pay rates, where a difficulty allowance was paid to collectors who were working in areas that have historically been more difficult to enumerate. This allowance, which was based on 2001 Census data, took into account the makeup of the community (both geographical and in terms of factors which traditionally influence non response, and provided additional remuneration for the additional time it took to deliver and collect forms to these areas.

The ability to attract quality field staff certainly paid off, as in areas where it remained difficult to recruit, there were data quality issues.

Publicity and Promotion

Statistics NZ made use of a multi-strand approach to publicity and promotion. While it was recognised that promotion needed to ensure the support of the general audience; Statistics New Zealand identified that it needed to find more effective methods of reaching Māori, Pacific peoples, ethnic and youth communities. In addition, more focus needed to be placed on Auckland which has a concentration of these groups.

For the 2006 Census, there was a broad public communications programme, using advertising, news media, a series of community programmes and a website. The primary purpose was to provide information about the census and how to take part in a way that had a positive impact on the quantity and the quality of census data collected.

The resulting communication programme included a mass advertising campaign with a series of television advertisements to provide overarching communication to all New Zealanders. These were supported with targeted radio, print and Internet advertising, as well as text messaging to target the undercount groups with audience-specific messages. The advertising was also supported by the release of a series of media releases and the availability of spokespeople to provide information and respond to any issues raised.

In addition to the general communications campaign, specific Maori, Pacific, Ethnic, Youth and Community programmes were run; tailored to the specific audiences. Use of a high profile Māori sporting personality was an added bonus to the Māori programme. As in previous censuses, Statistics NZ employed teams of Kaitakaewanga (Maori Liaison Officers) and Pacific Liaison Officers to target Maori and Pacific communities respectively. These teams built on the work of the existing Liaison teams.

The Media were very supportive throughout the campaign - even when there was an incident involving a collector with an undisclosed background. Key to that support appears to have been that not only did Statistics NZ brief the senior people from the media organisations, but we ensured that people were always available for interviews etc.

As a result of the campaign, total awareness, that is both unprompted and prompted recall was very high. Figures ranged from Television advertising (90 percent), news programme media (81 percent), newspaper or magazine advertising (31 percent) to radio advertising (26 percent). The latter two are not surprising as those media formats were targeted to specific audiences

Helpline

Statistics New Zealand provided through a vendor, an 0800 Census helpline to assist the public with their inquiries about the census. Internet queries, emails and faxes were also managed through the helpline. The helpline was active from the 1 February 2006 (in conjunction with the launch of the publicity campaign), through to 1 May 2006 (when the district supervisors had finished their follow-up of outstanding forms). The service was available seven days a week, 24 hours a day. Assistance was offered in eight languages: English, Māori, Samoan, Tongan, Mandarin, Cantonese, Korean and Hindi. Māori and English language help was available 24 hours a day, while help in other languages was available from 7am to 10pm, except from the 6–8 March, when assistance was available 24 hours a day.

The helpline used a system of messages (interactive voice response) to allow callers to select the language in which they wanted to make their inquiry and to help determine what their inquiry was about. All calls were then transferred to an operator to be answered. Calls requiring more attention, such as technical inquiries regarding the online census option, or questions about field procedure, were escalated via email, and a member of the Statistics New Zealand staff would then call the respondent.

The field communication service was also run through the helpline. Collectors were notified of any helpline requests or forms received by Internet or mailback. This mainly occurred through text messaging to cell phones used by the collectors. A helpline action log was also set up to detail text message information sent to the field. This enabled district supervisors to identify areas experiencing problems, and pass on messages to contact collectors who were out of cellphone range. A total of 279,211 text messages were sent to collectors.

Unlike in previous censuses, Statistics NZ had a very successful experience with the helpline, with around 214,000 calls made to the helpline, down on 2001. Queries about the delivery or collection of census forms were the main type of inquiry. The public also commonly asked for assistance with specific questions on the census forms. It is however clear, that consideration will need to be given on how best to provide assistance to people who don't speak English or Maori. Helpline calls from non-English speakers often turned into translation assistance, rather than answering specific queries.

Design of Products and Services

Audience analysis formed an important part of the development of the 2006 Census products. Three broad audience groups were identified: the public audience, the professional audience and the technical audience. The public audience comprises all members of society wanting information in a personal capacity or on behalf of a community organisation. Data users might range from students completing school projects to interest groups wanting information about their communities. The professional audience is composed of professionals in the public, private and educational sectors who use and analyse Statistics New Zealand statistics for the purposes of policy-making and other high-level endeavours. The technical audience comprises professionals and academics and expert data users.

During 2005, a programme of ethnographic interviews with public, professional and technical data users was completed. The interviews focused on how data users access and use census data, with the aim of gaining a clear understanding of their goals, current frustrations, motivations and expectations. Following these interviews, a number of personas (models of people) were created to represent each of the audiences. The personas provided a useful planning tool to guide development of the 2006 Census outputs.

A methodology pioneered by Alan Cooper (author of *About Face 2.0: The Essentials of Interaction Design*) guided the development of the 2006 Census and Products and Services mix. This research is regarded as accepted practice for understanding user needs. Cooper recommended that the most effective means of obtaining good user information is to undertake interviews and observations with users. In recognition of this approach, Statistics New Zealand staff conducted a series of interviews with data users to discuss their needs and to observe how they used the Internet to access data. The information collected during this research was used to create personas that represented the public, professional and technical audiences (see Chapter 8 for further detail). The personas provided a descriptive model of the user, what he or she

wished to accomplish and why. These models were represented as individual people and were as realistic as possible with personalised names, jobs and interests.

This work resulted in a framework for the overall design of the products and services, which has more recently been used to help determine exact content of products as well.

Challenges

Apartment Dwellers

Form delivery for collectors in both the Auckland and Wellington central business districts was challenging, due to the high presence of inner-city apartments in these areas. Some collectors visited apartments three or four times and still found no one at home. In recognition of this issue, a media release was prepared urging members of the public living in apartments to contact the census helpline for forms.

Despite this, there were still significant challenges in determining the eligibility status of inner-city apartments where no contact had been made. As part of the collection phase, Statistics New Zealand staff undertook further research to determine whether the apartments should be treated as occupied, occupied but resident(s) away, or empty. Planning for the 2011 Census will look at developing improved strategies for delivering and collecting forms to and from people living in inner-city apartments.

Ethnicity Question - in particular, New Zealander

A further issue arising during the field collection phase, was the census ethnicity question. Public discussion focused on the lack of a tick box for 'New Zealander'. Although no tick box was available on the census forms for New Zealander, respondents did have the option of selecting 'other', and writing New Zealander in the blank space provided. This option was also available for the 2001 and 1996 Censuses.

Considerable coverage was given to this issue across all news media. In the public arena it became apparent that a campaign existed to write New Zealander as a response to the census question on ethnicity. The campaign started in January 2006 with releases in newspapers. Television coverage and other media releases about New Zealander were particularly prominent from 25 February when criticism was levelled at the ethnicity question used by Statistics New Zealand in the census by a senior politician along with email campaigns.

Statistics New Zealand spokespeople and a media release were used to advise the New Zealand public that the ethnicity question was the same as that asked in the 2001 Census. The same question was necessary to enable comparison between censuses and was recommended by a wide range of census data users during a review of the measurement of ethnicity completed in 2004. The number of people who wrote in 'New Zealander', will be included with the census results.

Impact of Mailback

Statistics New Zealand had a much higher rate of mailback than expected. Total mailback rates reached 10 percent, compared with the just over 7 percent, who submitted forms on-line. While some mailback went back to the District Supervisors, most went straight to the processing centre. Information still needed to be relayed to field staff to advise them that forms had been mailed back.

It will be critical in planning the 2011 Census, that the full impact of mailback is implemented into all of the relevant processes and procedures. As rates of mailback increase, Statistics NZ will need to move to automatic receipting of mailed in forms, with automatic messaging back to field staff (as used with the on-line form).

Problems with deployment of Field Management System

Statistics NZ developed and deployed a comprehensive system to support the local and Head Office management teams. While the public facing aspects of the systems worked well, there were a number of issues with the functionality used by field management staff.

There were two major issues - delays in deployment of phone lines, and poor speed and performance of the system. This resulted in a number of manual processes having to be deployed, which in turn resulted in additional clerical staff have to be hired, and considerable stress on field management staff. This was a factor in the overspend noted below.

The base functionality of the system remains very good however, and Statistics NZ is confident that this system will be the base for the Field systems for the 2011 Census.

Overspend

Statistics New Zealand incurred over-expenditure of \$2.7 million on the Census in the 2005/06 year. This over-expenditure was largely due to unexpected expenditure in the field phase of the census, as well as issues associated with elements of the IT systems put in place to support field staff; as well as additional costs across other aspects of the census.