



TE MANA RARAUNGA

Māori Data Sovereignty Network

Te Mana Raraunga Statement on 2018 New Zealand Census of Population and Dwellings:

A Call for Action on Māori Census Data

24 July 2018

The five-yearly Census of Population and Dwellings is the flagship of the Official Statistics System (OSS) and is essential for many of the functions that underpin democracy. Te Mana Raraunga, the Māori Data Sovereignty Network, is concerned that Census 2018 may fail to deliver high quality Māori and iwi data. Te Mana Raraunga supports a comprehensive independent review of Census 2018 and calls for Māori governance of Māori data across the entire Official Statistics System.

Problems with the 2018 Census and Stats NZ response

Interim figures for the 2018 Census released by Stats NZ indicate that full *or* partial information has only been received for about 90 percent of individuals, compared with 94.5 percent for the 2013 Census¹. Given that a key goal of the census is to count all usual residents in the country on census night², commentators are rightly concerned that up to ten percent of the population may be missing³. For Māori, the extent of the problem will inevitably be worse. Census 2018 may yet turn out to be the poorest quality enumeration of Māori in recent history.

But how poor? Stats NZ will not have a definitive answer for some months yet but the early signs are not positive. Let's begin with the 'full or partial' information received by 90 percent of individuals. One might have the impression that 'partial' information means incomplete information on an individual's census form. However, as used by Stats NZ, 'partial' information appears to mean a partial-response dwelling where there is no individual form but the dwelling form or household

¹ Stats NZ (2018). *2018 Census: Potential impacts of revised methodology*. Accessed here: <https://www.stats.govt.nz/methods/2018-census-potential-impacts-of-revised-methodology>; an early version had about 90 percent; a revised version had at least 90 percent. See also: <https://www.stats.govt.nz/news/2018-census-update>

² The Census also counts visitors in Aotearoa NZ on census night but not usual residents overseas.

³ <https://thespinoff.co.nz/society/10-07-2018/drop-in-census-response-rate-prompts-stats-nz-to-rely-on-other-data-to-plug-gaps/>
https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12090510

summary page has a list of people at the dwelling on census night⁴. We do not yet know what share of the 90 percent comprises partial-response dwellings, however we can gain some insight by considering the 2013 results. While recent Stats NZ releases report full or partial information was received for 94.5 percent⁵ of individuals for the 2013 Census, the total (or achieved) response rate was 92.9 percent⁶. The lower, and more informative, figure excludes all individuals in partly and completely missing households in 2013, as well as the 2.4 percent estimated national net undercount (coverage level) determined by the Post Enumeration Survey⁷ undertaken after the 2013 Census. Stats NZ has also noted that for Census 2018 'there are more households where no one has responded to the census than previous censuses'⁸.

What does all of this mean for Census 2018? It means that the total response rate will inevitably be below 90 per cent. For Māori, the 2018 total response rate will be significantly below 90 per cent. The crucial question is, how much lower? And at what point does this seriously compromise the quality and usefulness of the census data? To date Stats NZ has not provided any guidance on these important questions but needs to.

Constitutional and other implications for Māori

Recently Stats NZ announced that: 'New Zealanders can be confident the 2018 Census will produce accurate and high-quality data which can be relied on by communities and decision-makers'⁹. We question whether this will be the case for Māori communities, iwi and Māori decision-makers.

We already know that Māori (like other Indigenous peoples in colonial settler states) are much more likely to be missing from the census. In 2013, the Māori net undercount was 6.1 percent compared

⁴ Stats NZ (2018). *2018 Census: Potential impacts of revised methodology*, p.4.

⁵ The 94.5 percent figure used in recent Stats NZ press releases appears to be the sum of 92.9 percent (the total response rate in 2013) and the 1.6 percent of individuals in partly counted households whose records were imputed. See: Statistics NZ (2014). *Coverage in the 2013 Census based on the New Zealand 2013 Post-enumeration Survey*. Wellington: Statistics NZ, Table 5. For more on the PES, also see; Statistics NZ (2014). *Post-enumeration Survey: 2013*. Wellington: Statistics NZ

⁶ Total non-response is the number of people for whom a substitute form was raised in the census, and who are therefore included in the census count, plus the net undercount as measured by the Post Enumeration Survey.

⁷ The main purpose of a PES is to measure the level of coverage (undercount and overcount) of the census. In Aotearoa NZ, a high quality PES is essential for evaluating the census coverage; it is our second best shot at getting the numbers right. Coverage rates from the PES are used to produce national and sub-national population estimates after the census. Participants in the 2013 PES were drawn from PSUs in 127 strata, with oversampling of strata 'containing people who were deemed more difficult to count in the census' (Stats NZ 2014, p. 11). To date Stats NZ has released very little public information on the 2018 PES. There is no material on the Stats NZ website indicating if there was oversampling of Māori over and above what occurred for the 2013 PES, or if more resources were directed into the survey to ensure its success. This is important since the response rate to the PES has been declining over time; in 2013 the PES response rate was 87 percent, below the target rate of 90 per cent. **Stats NZ should release, as soon as possible, the response rate to the 2018 PES.**

⁸ Stats NZ (2018). *2018 Census: Potential impacts of revised methodology*, p. 5.

⁹ Accessed here: <https://www.stats.govt.nz/news/2018-census-will-deliver-reliable-data-for-new-zealand>

to just 1.9 percent for Europeans¹⁰. For Māori males aged under 30 years the net undercount in 2013 was just over 8 percent¹¹. The digital-first strategy pursued by Stats NZ for Census 2018, at the behest of the previous Government, has likely deepened, rather than improved, this problem. We may well be looking at a total Māori response rate of less than 80 percent, and even lower in areas that have historically had lower coverage, such as Northland and the East Coast.

Stats NZ has been tight-lipped about what the lower than expected national response rate might mean for Māori. None of the press releases or papers to date have given indicative response rates for Māori nationally. Nor has Stats NZ acknowledged the grave constitutional issues that arise from a lower than expected response rate and the potential impacts on the quality of Māori data.

Constitutional implications

The census has an extremely important constitutional function because census counts are used to determine the boundaries and number of General and Māori electorates. The Māori electoral population is calculated using a formula set out in the Electoral Act 1993¹². Key to this is a count of the “total number of ordinarily resident persons of New Zealand Māori descent as determined by the last periodical census”. The count of the Māori descent population not only affects the determination of the Māori electorates but also the General electorates. All electorates must have about the same population size. The number of South Island General electorates is fixed at 16 by the Act, thus to calculate the number of electorates the Government Statistician:

- divides the South Island General electoral population by 16 (this produces the South Island quota)
- divides the Māori electoral population by the South Island quota to work out the number of Māori electorates, and
- divides the North Island General electoral population by the South Island quota to work out the number of General electorates for the North Island¹³.

The number of Māori electoral districts also depends on the number of Māori who choose, during the Māori Electoral Option period, to be registered on the Māori electoral roll. If Māori descendants

¹⁰ The sampling error was ± 1.3 and ± 0.5 percentage points for Māori and European respectively. Statistics New Zealand (2014). *Post-enumeration Survey: 2013*. Accessed here: http://archive.stats.govt.nz/browse_for_stats/population/census_counts/PostEnumerationSurvey_HOTP13.aspx

¹¹ Statistics NZ, 2014, Fig. 8. Stats NZ does not publish detailed net undercount rates for sub-national sub-populations (e.g. Māori males in Northland) because of the large sampling errors.

¹² The Act defines the Māori electoral population as “a figure representing both the persons registered as electors of the Maori electoral districts and a proportion of the persons of New Zealand Maori descent who are not registered as electors of any electoral district and a proportion of the persons of New Zealand Maori descent under the age of 18 years”. Accessed here: <http://www.legislation.govt.nz>

For the actual computation of the 2013 Māori electoral population, see: Statistics NZ (2013). *The mathematics of electorate allocation in New Zealand based on the outcome of the 2013 Census and Māori Electoral Option 2013*. Accessed here: <http://archive.stats.govt.nz/methods/research-papers/mathematics-of-electoral-district-allocation.aspx>

¹³ <https://www.elections.org.nz/voting-system/electorates/how-electorates-are-calculated>

are missing in large numbers from Census 2018 this would reduce the size of the Māori electoral population and, potentially, the number of electorates.

There are other reasons to be concerned. Census data are crucial for a wide range of reasons. One is to inform decisions about the resourcing of national, regional and community services and infrastructure - schools, housing, hospitals, GP services, superannuation and roads are just a few examples. Census data form the basis of national, sub-national and ethnic population estimates and projections, all of which are essential for planning and policy.¹⁴

Population estimates also provide the denominators for rates, for example, fertility and mortality rates. Measured over time these rates provide important insights into the ways in which Aotearoa NZ is changing and whether life is getting better or worse for particular groups, especially those with the greatest needs. In terms of monitoring ethnic inequities over time, the impacts of poor quality data are more pronounced for Māori and Pacific peoples because of their smaller population share¹⁵. The Government has a number of policy priorities including improving housing, child wellbeing and poverty reduction, all of which disproportionately impact Māori and Pacific peoples. Addressing these issues requires access to high quality and relevant data.

The Census is also the sampling frame for a number of important nationally representative surveys, including the survey of Māori wellbeing, Te Kupenga. Clarity is needed on whether and how the quality of the Census as a sampling frame will be compromised, along with the accuracy of survey estimates.

Implications for iwi data

High rates of non-response will also compromise the quality of iwi data. Stats NZ recognises that iwi are Treaty partners and that it has a responsibility to collect and disseminate high quality iwi data. However Stats NZ has not been forthcoming about the potential impacts of census non-response on iwi data in Census 2018¹⁶.

For many iwi, the census is the only source of reliable data about their people. While most iwi maintain their own electronic registers of members, they do not have the resources or capacity to collect the sort of comprehensive demographic, social and economic data captured by the census. Stats NZ census iwi counts are also used in negotiations with the Crown and in other forms of

¹⁴ As part of its Census Transformation programme Stats NZ has developed experimental ethnic population estimates from linked administrative data in the Integrated Data Infrastructure (IDI), but has found major limitations. One is that administrative data, with the exception of birth registrations, tend to under-report people with multiple ethnicities. The method used to generate ethnic estimates also does not allow for changing ethnic self-identification over time. See: Stats NZ (2018). *Experimental ethnic population estimates from linked administrative data*. Accessed here: <https://www.stats.govt.nz/experimental/experimental-population-estimates-from-linked-administrative-data>

¹⁵ NZ European/Pākehā are buffered somewhat by these changes because of by their larger population share.

¹⁶ The 5 July paper on 2018 Census and the potential impacts of revised methodology only notes that 'no administrative data sources are available for some variables including iwi, occupation, household and families. Donor imputation will help towards improving this data' (p. 4).

decision-making affecting resource allocation¹⁷. High rates of census non-response for Māori not only have the potential to significantly decrease iwi census counts, but may also affect their composition (e.g., sex and age structure). Iwi whose customary rohe encompass areas with higher undercounts will be even more severely affected by high non-response rates in Census 2018.

The problem is compounded by recent changes to the Iwi Standard and Classification¹⁸. The standard provides guidelines for how to gather, organise, and report iwi and iwi-related groups' information and statistics. The classification includes a list of 100+ iwi and iwi-related groups that are recognised for official statistical purposes. A review of the Classification in 2016-2017 saw the addition of more than 20 'new' iwi and iwi-related groups. These changes are important because Stats NZ's solution for addressing low response rates will be to use statistical methods to impute missing data and for iwi data this will involve linking to iwi responses in the 2013 Census (see below). However, this approach will be very problematic, especially when dealing with iwi and iwi-related groupings that were recognised for the first time in Census 2018.

The use of imputation to plug data holes

Stats NZ's plan for dealing with low response rates is to plug the data holes using statistical methods of imputation. Imputation involves inserting a value when a respondent has not provided a valid response. On 5 July Stats NZ released a paper *2018 Census: Potential impacts of revised methodology*. The paper clearly states that the agency will be expanding its use of imputation for 2018: **'If we do not impute, there will be large amounts of missing data that will affect the overall quality of the dataset'** (p. 3). We have concerns about the extensive imputation that will be needed to deal with missing Māori descent, Māori ethnicity and iwi affiliation data in Census 2018. Each method inevitably brings some bias and analytical limitations. The census is unusual in that its undertaking is set out in some detail in legislation (the Statistics Act 1975), however there is no guidance on what level and method of imputation is acceptable. Such guidance will now be critical.

In the past Stats NZ has used a combination of item imputation and unit imputation to plug missing data in the census. Unit imputation (formerly known as substitute records) is used to add to the census count where there is sufficient evidence that a person exists, or a dwelling was occupied, but no individual form was received. Unit imputation may be used for one member of the household or for the entire household. The rate of unit imputation has increased steadily over time, from 2.9

¹⁷ A key example is the allocation of fisheries quota in the *Māori Fisheries Act 2004*. The document *He Kawai Amokura* contained the methodology used by the Treaty of Waitangi Fisheries Commission to determine the notional population of the 57 recognised iwi, as set out in Schedule 3 of the Act. The notional iwi population figures provided the basis for the allocation of fisheries assets and were derived from iwi data from the 2001 New Zealand Census of Population and Dwellings. Accessed here: http://teohu.Māori.nz/review/documents/foundation/he_kawai_amokura-report_to_the_minister_of_fisheries.pdf

¹⁸ Accessed here: <http://archive.stats.govt.nz/methods/classifications-and-standards/classification-related-stats-standards/iwi.aspx>

percent of the total number of people counted in the 2001 Census, to 4.8 percent in 2013¹⁹. For 2018 the use of unit imputation will be much higher²⁰.

Item imputation is used when an individual form exists but not all questions were answered so the data are incomplete. For past censuses, responses were only imputed for age, sex, place of usual residence and labour force status. Māori descent was also imputed for electoral counts²¹. For Census 2018, Stats NZ will impute responses for a much wider range of variables.

Where will the imputed data in Census 2018 come from?

The 2018 Census planned design relied on the use of 'donor' households to impute members of fully non-responding households. 'Donor' households are selected from households in the same neighbourhood that responded to the census. This approach is problematic when used in neighbourhoods with a relatively high share of non-responding households because they are unlikely to be 'missing at random'²². Because of this Stats NZ will have to supplement its method of donor household imputation with the use of government administrative data from the Integrated Data Infrastructure (IDI)²³. And, as Stats NZ acknowledges, 'It is more difficult to use administrative data to reliably derive whole households'²⁴.

Māori descent data are only reliably collected in the census (since 1991) and on birth registrations. Along with donor imputation, Stats NZ will need to impute missing Māori descent data by using individual data from the 2013 census and births registration²⁵. There are a number of problems with

¹⁹ Stats NZ (2018). *2018 Census: Potential impacts of revised methodology*, p. 4.

²⁰ Stats NZ (2018). *2018 Census: Potential impacts of revised methodology*, p. 5.

²¹ In the 2013 Census, just under 10 percent of the total usually resident population (N=420,603) did not provide an identifiable or valid response to the Māori descent question. A portion of these non-responders were counted as Māori descendants for electoral purposes. Thus the electoral Māori descent census UR population count was determined as **755,598** compared to the census UR Māori descent population count of **668,721**. For the specifics of how the Māori population is calculated, see: Statistics NZ (2013). *The mathematics of electorate allocation in New Zealand based on the outcome of the 2013 Census and Māori Electoral Option 2013*. Accessed here: <http://archive.stats.govt.nz/methods/research-papers/mathematics-of-electoral-district-allocation.aspx>

²² Stats NZ (2018). *2018 Census: Potential impacts of revised methodology*, p. 8.

²³ For more on the IDI see: http://archive.stats.govt.nz/browse_for_stats/snapshots-of-nz/integrated-data-infrastructure.aspx

²⁴ Stats NZ (2018). *2018 Census: Potential impacts of revised methodology*, p. 7.

²⁵ Stats NZ has indicated that imputation of Māori descent data will use, in order, the response to the 2013 Census, birth records, if the respondent answered the iwi question, and lastly if the respondent indicated Māori ethnicity in the 2018 Census. It is also important to note that the Māori descent question was made compulsory in the online form in Census 2018 and that Stats NZ anticipated that this would result in an 'increase in the proportion of the population answering "no" to the Māori descent question'. Stats NZ (2018). *2018 Census: Changes and how they might affect the data*, p. 16. Accessed here: <https://www.stats.govt.nz/assets/Methods/2018-census-changes-and-how-they-might-affect-the-data/2018-census-changes-and-how-they-might-affect-data.pdf>

this. One is that it assumes that how individuals identified in the past is an accurate indicator of how they will identify in the future. However, studies of Māori ethnic and iwi affiliation in the census have shown that patterns of identification can be volatile at the individual level. We cannot assume that how an individual responded to the Māori descent question in 2013 is how they would respond in 2018. The statutory importance of Māori descent data calls for a high level of transparency and duty of care, including clarity over what level of imputation is acceptable for electoral purposes.

The wider use of administrative data to impute missing data in Census 2018 also raises the need for a public conversation about how individual data are being used in the IDI. Many individuals who participate in the census may be unaware that their names and addresses are retained²⁶, and that these details are used to link their census records to their previous census records, and to other Government administrative data about them held in the IDI²⁷. While identifying information is always removed before it is made available for research and analysis as part of the ‘five safes’ framework used by Stats NZ²⁸, it is important that New Zealanders are well informed about how their data are being used. This issue is particularly sensitive for Māori who have a long history of being surveilled by the State. Transparency is absolutely essential for maintaining trust in the census and the OSS.

In addition to technical issues, imputation raises a bigger question about the right of Stats NZ, as a Crown agency, to make a determination about who is Māori or not. It is problematic that the State should be deciding on whether someone is Māori or not, albeit statistically. This undermines rights of Māori to self-identify, which include the right to refuse, or choose not to, identify. Stats NZ had already anticipated using more imputation well ahead of the Census, including imputation for both Māori descent and Māori ethnicity variables²⁹. Members of TMR strongly cautioned against the use of imputation without significant engagement with Māori communities, iwi and other collectives, and urged a thorough consideration of the disproportionate impact of imputation on Māori data. TMR never received a response to the concerns raised.

Moving ahead: An independent review and Māori governance of Māori data

In a global context, Aotearoa NZ is distinctive in being one of a very small number of countries that has multiple comprehensive sources of Indigenous statistical data, and Stats NZ is often looked to as best practice for the collection and dissemination of indigenous statistics. There are potential opportunities in census transformation in Aotearoa NZ, but only if Māori are able to fully participate in making decisions about our data and the future direction of the census. To date, significant

²⁶Stats NZ (2018). *Looking after your information*. Accessed at: <https://www.census.govt.nz/your-information/>

²⁷ In cases where Māori descent and iwi variables are imputed (i.e. attached to an individual’s data), this imputed data is included in the IDI with a flag to indicate its imputed status. This could mean that an imputed variable in the census could be linked to an individual’s data over a long period of time.

²⁸ For more on the ‘five safes’ see: http://archive.stats.govt.nz/browse_for_stats/snapshots-of-nz/integrated-data-infrastructure/keep-data-safe.aspx
Also see: Stats NZ (date). *Integrated Data Infrastructure extension: Privacy and impact assessment* (4th ed.).

²⁹ Stats NZ (2018). *2018 Census: Changes and how they might affect the data*. Accessed here: <https://www.stats.govt.nz/methods/2018-census-changes-and-how-they-might-affect-data>

decision-making has occurred in the absence of any substantial Māori input. This risks repeating colonial statistical approaches whereby Māori are excluded from meaningful input and decision-making - this has to change.

Looking ahead:

The first step in addressing the concerns that we have raised is transparency from Stats NZ about the extent of the issues arising from Census 2018 (and any potential issues with the PES), and the impacts on the accuracy of national and sub-national statistics, and their derivatives such as electoral populations. This cannot be reduced to a technical discussion with expert users.

Second, there needs to be an immediate independent external review of Census 2018 to understand the reasons for the lower than expected response rates, what went wrong, where, for whom and why. This review should include the differential reach of the digital-first policy, the Census 2018 planning process, data collection and community engagement strategy, as well as the resourcing of the Census 2018 programme.

Te Mana Raraunga also sees a critical need for Māori governance of Māori data across the entire Official Statistics System. Official statistics are a strategic resource for both national and Māori development³⁰ - there is a common interest in ensuring that the census and other official data remain robust, relevant and trustworthy. A Māori data governance group would develop the principles and processes by which to sustainably govern Māori and iwi data through Treaty-based partnership. There is also an expectation that the ongoing collection of Māori data should benefit those from whom the data were collected or are about. Giving Māori a real say over how our data are collected, managed and analysed is essential for maintaining trust and confidence in the census and the OSS more broadly.

In the longer term, we may need to rethink the current model of official statistics. Rapid changes in data ecosystems, analytics and computing offer new ways of collecting, storing and analysing data. Internationally, there are a growing number of indigenous-led data collections undertaken independently and in partnership with Government³¹. In Aotearoa NZ we have instructive models from the past, such as the community-based data collection by the Māori Womens Welfare League for the 1984 report *Rapuora: health and Maori women*.

The rise of Indigenous Data Sovereignty, as an Indigenous-led movement and as a field of research, has underscored the clear rights and interests that Māori have in relation to Māori data. Te Mana Raraunga is committed to ensuring the realisation of those rights and interests.

About Te Mana Raraunga:

³⁰ Bakker, C. (2014). *Valuing the census*. Accessed here: <http://archive.stats.govt.nz/methods/research-papers/topss/valuing-census.aspx>

³¹ See, for example, the work of the First Nations Information Governance Centre: <http://fnigc.ca/first-nations-regional-health-survey.html>; and the Yawuru 'Knowing our community' survey: <http://www.yawuru.com/our-culture/knowing-our-community/>

EMBARGOED UNTIL NOON 24 JULY 2018

Te Mana Raraunga, the Māori Data Sovereignty Network, brings together more than 100 Māori researchers, practitioners and entrepreneurs across the research, IT, community and NGO sectors. TMR advocates for Māori rights and interests in data and for the development of Māori, iwi and hapū data infrastructure and capability.

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