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Census communication and dissemination, including the use of Geographic Information Systems (GIS)

### **The strategy for disseminating the results of the 2011 Census in England and Wales**

**Note by the Office for National Statistics, United Kingdom**

#### *Summary*

One of the most basic decisions in a census operation, and indeed a key decision about the quality of census results, is the trade-off between timeliness and accuracy. This is particularly important in designing the output strategy, in that the decision affects not only the dissemination team but all the preceding stakeholders in the census programme. In general, it can be expected that the faster a process is undertaken the greater the level of inaccuracy in the results of that process. It is also a general rule that users of census data will expect a high level of accuracy in the information provided by an official census agency. The census agency will have to manage this trade-off. United Nations Department of Economic and Social Affairs<sup>1</sup>

This paper briefing sets out the strategy for disseminating the results of the 2011 Census in England and Wales within the currently agreed funding arrangements.

## I. Introduction

1. In the United Kingdom, the Office for National Statistics (ONS), together with the General Register Office for Scotland and the Northern Ireland Statistics and Research Agency, recognises that the investment of time and resources in a national census is only justified if the results are made accessible to users speedily and in a clear and usable form. As was also the aim in the 2001 Census, ONS intends that technological developments should be harnessed in the 2011 Census in order to improve the accuracy, timeliness, accessibility and user-friendliness of published output.

2. In disseminating the results of the Census much emphasis will be put on responsiveness to users' requirements on content, format and means of access, and on high standards in the production of statistics. ONS is thus proposing that outputs should be in such a form as to meet the changing requirements of users, but anticipates that there is likely to be a requirement for national, regional and local authority summaries, and for reports on key findings on particular topics. Also it proposes that outputs should be made available in a range of media to provide for ease of access to the user and the general public alike.

3. There are two ways of making the results of a census available under current United Kingdom legislation. Firstly, section 4 of the Census Act 1920 requires that: printed reports on the census in England and Wales are to be laid before Parliament and published; and that statistical abstracts may be provided to users on request, and for a charge, from ONS. Secondly, section 20 of the Statistics and Registration Service Act 2007 provides for the UK Statistics Authority (the statutory body legally responsible for conducting the censuses through its executive arm, ONS) to produce and publish statistics relating to any matters relating to the United Kingdom or any part of it.

4. Official reports of the Census in Wales will be laid before Parliament and presented also to the National Assembly for Wales. (The Registrars General for Scotland and Northern Ireland are similarly required to present the results from the 2011 Census in reports to their respective legislatures.) While there is no statutory requirement to present such reports for Great Britain or the United Kingdom as a whole, the National Statistician intends that results for Great Britain and the United Kingdom should be made available, where the data collected permits, as a priority once the processing of the data has been completed.

5. Furthermore, the National Statistician will have the responsibility to fulfil the United Kingdom's obligations to provide results of the Census to the Eurostat under the provisions of the Census Regulation EC 763/2008) and the United Nations Statistical Commission.

## II. Meeting the needs of United Kingdom users

6. In the light of the concerns of users that the 2001 Census outputs were insufficiently co-ordinated across the three Census Offices to allow for the production of fully comparable United Kingdom statistics, the Treasury Select Committee<sup>2</sup> recommended that there should be a more harmonised approach across the United Kingdom for the 2011 Census to ensure consistency in outputs. Accordingly, in recognition of the importance of providing consistent outputs across the United Kingdom, the National Statistician and the Registrars General for Scotland and Northern Ireland are co-signatories to an Agreement<sup>3</sup> on the conduct of the 2011 Census in general and, in particular on the production of harmonised statistics with specific attention being given to common questions, population bases, definitions, disclosure control methodologies and output formats.

7. As currently envisaged and announced in the UK Statistics Authority's proposals for the 2011 Census (published in a Government White Paper, *Helping to shape tomorrow*, in December 2008<sup>4</sup>) the 2011 Census results would be available, at all levels of output geography (see below) online from the National Statistics website. There is, however, likely to be a continued demand for hard copy publications of tabulations, supplemented by outputs in CD/DVD formats, to meet users' particular needs and the requirements of Parliament.
8. The main national and local results will be released, to a pre-announced timetable, as speedily as possible over a short period of time once processing is completed and the total population of the country has been determined. Concurrent release for all areas in England and Wales would ensure that comprehensive results are promptly available for use in the systems for financing local government and the health service, and would also provide users with the ability to compare immediately any part of the country or sector of the population with any other.
9. To meet specialist user requirements, ONS will develop simple, cost-effective and rapid systems and procedures for users to request non-standard statistical abstracts. The service for such bespoke or commissioned output will become available as soon as the main results are released. Where such outputs do not provide sufficient detail necessary for particular statistical research purposes, access to more detailed levels of data will be possible within strictly controlled laboratory conditions, and where the bona fides of researchers meet the criteria set out in the Statistics and Registration Service Act 2007.
10. Similarly, a service for making available microdata, such as samples of anonymised records (SARs) of people and households, will be made available to approved researchers so that they may carry out their own analyses that are not possible using aggregate data. Such access will be subject to the overriding need to ensure complete confidentiality of personal data. The availability of such samples was a major, and successful, innovation of the 1991 Census, and these were extended in 2001.
11. The UK Statistics Authority proposes to extend the ONS Longitudinal Study by adding data from the 2011 Census for England and Wales to those records already included from the 1971-2001 Censuses. The Longitudinal Study (a database of linked census and vital event data for a one per cent sample of the population of England and Wales) is covered by the same rigorous confidentiality conditions as the Census itself, and the database is held securely within the ONS, with access strictly controlled and subject to the provisions of the Statistics and Registration Service Act 2007. Similar arrangements will also extend to the respective Longitudinal Study in Scotland and in Northern Ireland
12. Metadata, in the form of definitions, classifications and quality indicators will also be produced for use with the statistical outputs. These will include, in particular, confidence intervals and other quality measures and information from post-census coverage and quality surveys such as local coverage rates, item non-response, and imputation rates.
13. Statistics from the Census to be provided to the Statistical Office of the European Union (Eurostat) under the provisions of the EU's Census Regulation<sup>5</sup> is likely to be made accessible through a proposed European Census Hub. By this means data would be held securely within ONS and released to Eurostat and/or Member States on request to an agreed level of statistical and geographical breakdown. Such data would be subject to the same strict confidentiality and statistical disclosure control measures that will apply to domestic requests for information. The development of such a system is also being considered for the purpose of disseminating Census outputs domestically. The statistical results from the 2011 Census required by Eurostat in the form of a set of pre-specified hypercubes will be supplied by the end of March 2014.

14. Whatever the form of output supplied, to domestic or international users, the greatest care will be exercised to avoid the inadvertent disclosure of information about identifiable individuals through the statistical results of the Census. To ensure the protection of statistical confidentiality, various disclosure control measures will be applied

### **III. Output geography**

15. ONS is aiming to meet users' requirements for statistical results to be made available, at varying levels of detail, for a number of geographies, subject, of course, to the overriding requirement to protect statistical confidentiality. Such geographies will be created essentially from the same building bricks as in the 2001 Census – Output Areas.

16. Output Areas (OAs) are the smallest area for which Census statistics are produced and were first created for the 2001 Census. Super Output Areas (SOAs) are larger areas constructed from groupings of OAs and have been extensively used for the publication of Neighbourhood Statistics and for a range of key statistics from 2001 Census. ONS carried out a wide consultation between November 2006 and February 2007 in order to gain users' views on the value of OAs and SOAs as the core output geographies for the 2011 Census. Response to the consultation was extremely positive and revealed a great deal of support for the key principles of stability and continuity with outputs from 2001 that had been suggested.

17. Following this review of user requirements for an output geography ONS announced in October 2007 that the OAs for which 2011 Census outputs will be presented would be largely unchanged providing a degree of geographical stability to enable closer comparability with 2001 Census outputs. Where there are areas with significant local population change or housing development, it may be necessary to create revised boundaries – primarily by splitting or merging existing OAs - to ensure that the key criteria of size and homogeneity are followed. However, ONS does not anticipate changing more than 5 per cent of current OA boundaries in order to meet these requirements. Where there are such major changes to local populations there will also be a similar need to split or merge a small number of SOAs. All such revisions will be organised so that users will be able to compare data between 2001 and 2011 Census geographies, with revised OAs nesting into a stable hierarchy of Lower and Middle SOAs. (For more details see the paper Exploring the need for maintenance of the 2001 output geographies in order to create the 2011 output geographies for England and Wales (Paper 12).)

18. Administrative geographies – the statistical regions (NUTS 1), counties (NUTS 2) and local and unitary authorities (NUTS 3), and wards and civil parishes/communities in Wales (LAU 2) – and areas built from them, such as Parliamentary constituencies, and Urban and Rural Areas, will relate to boundaries in existence at the time of the Census. Where boundaries subsequently change and where there is sufficient demand ONS will consider providing outputs for the newly-defined areas, though these may necessarily be on the basis of a best fit of whole OAs in order to protect statistical confidentiality.

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