



General Register Office for Scotland
information about Scotland's people

2011 CENSUS BUSINESS CASE

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Amendment Suggestion

If you have suggested amendments please make them to Peter Scrimgeour or Simon Hazlewood.

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1. Executive Summary

1.1 Although there has been a Census held in Scotland every ten years since 1801 (except in 1941), the development of many other collections of data about the population, and the relatively high cost of a census, mean that the case for a Census in 2011 needs to be established.

1.2 This paper first sets out the strategic case for a Census in 2011, and then considers a number of options for delivering it.

1.3 Following the introduction (**Chapter 2**), **Chapter 3** describes the many uses to which Census data is put; explains how the data produced by the Census could not be provided from other sources – at least at present; describes some of the particular benefits that the comprehensive nature of Census data offer; and shows how the conduct of a Census every 10 years helps the Government to meet domestic policy requirements and certain international obligations. Key arguments include:

- Many of the other sources of data are not consistently collected, and it would be very time consuming, and therefore costly, to seek to replicate the data which can be collected by means of the Census from these other sources. The task of cross-matching and validating the data would be substantial. This would be an inefficient use of Government resources;
- Because the Census uniquely covers every member of the public, the data can be used for multivariate analysis at very local levels, particularly important for targeting resources and policy initiatives at deprived and needy groups;
- The Census data provides the basis for allocating resources to local authorities and NHS Boards. Failing to carry out a Census in 2011 would lead to potential misallocation of resources. The estimated amount of such misallocation is such that it is estimated that one year's misallocation would cost more than the total cost of the Census;
- The Government has obligations to provide data about the population to the European Union and other international organisations. The Census currently provides the only comprehensive source of that data.

1.4 **Chapter 4** describes the major practical options for delivering the Census, covering Censuses containing varying numbers of questions and describing the characteristics of a sample, or a hybrid – part sample part universal – Census. It also considers different means of conducting the Census – traditionally, using enumerators; increased use of postout/postback; and use of the internet – and it looks at options for carrying out more or less sophisticated analysis of the data; at options for outsourcing elements of the work; and at the prospects for charging for Census data.

1.5 **Chapter 5** assesses these options and **Chapter 6** summarises the conclusion of this analysis. It concludes that the optimum option is to conduct a Census similar in size and scope to that carried out in 2001; to rely primarily on the enumerator network to guarantee a good response rate; and to maximise the opportunities for outsourcing and charging within relevant policy constraints. It also concludes that the option of allowing electronic completion of the Census form should be considered

further, although doing so could require at least £1.2million more than a wholly traditional approach.

1.6 **The cost** of conducting the Census is currently estimated, simply by uprating the 2001 Census for inflation, at some £43million (plus the additional cost of providing any on-line completion option). However, GROS has carried out a Census test in early 2006. The assessment of that test will enable more precise and fuller costs to be submitted for Spending Review 2007.

2. Introduction

2.1 A population Census has been carried out in Great Britain every 10 years since 1801 except in 1941. Separate but similar Censuses are conducted in Scotland, England and Wales, and Northern Ireland. Following the normal pattern, the next Census in Scotland will take place in 2011. However, in order to ensure that the Census is carried out successfully, it is important to allow time for research, testing and preparation.

2.2 Accordingly, some preparatory work has already started - including a Census Test in April 2006 - but the bulk of the work and expenditure will occur in the next few years.

2.3 In planning the next Census, the General Register Office for Scotland (GROS) has drawn on the experience of previous Censuses, and is working closely with the Office of National Statistics (for England and Wales) and the Northern Ireland Statistical Research Agency (NISRA). This paper sets out the business case for a Census, describing the benefits delivered by a Census, and considering a number of options for delivery.

3. Background and general case for a Census

3.1 Since the Census was first conducted in 1801, the uses to which the data collected have been put have become more sophisticated. Despite the enormously increased demand for information about population characteristics in recent years, no satisfactory alternative source of such basic data has been developed yet. The Census remains the only comprehensive consistent source of national and local data about people and their key characteristics, and about housing.

3.2 The output of the Census is used extensively by national and local government; by the NHS; and by the private and voluntary sectors. It provides not only statistics on the basic characteristics of population units – age and sex – and on the make up of households and families, but also provides the opportunity for more sophisticated multivariate analysis. The ability to analyse data covering a wide range of variables at small area or postcode level is particularly valued. Currently the Census provides the only comprehensive source of such data.

3.3 An indication of the perceived value of the Census is provided by the number of times Census data have been accessed by various agencies. In the first year following publication of the 2001 Census results (on 13 February 2003), the SCROL (Scottish Census Results On Line) website recorded over 157,000 visits. A wide range of different sectors seek information from the Census database. For example, by November 2003, there had been 15,535 visits by Central and local government organisations, more than 45,000 by commercial organisations, and nearly 6,000 by academic organisations. GROS Customer Services unit received 2,273 requests for data in the year following publication. These requests ranged from the straightforward reproduction of standard outputs to complex non-standard items, such as a breakdown of the Census data by Church of Scotland parish. GROS continues to deal with a very high level of requests for access to 2001 Census data, via both telephone calls to the customer services unit and the SCROL website.

3.4 This indicates a strong demand and a *prima facie* case for the kind of data the Census provides. But the 10 yearly Census is an expensive exercise, and it is important to consider whether the same outcome could be achieved in different ways. The 2001 Census cost £34.2million, split roughly evenly between printing and preparation (including testing); enumeration; and coding and analysis. Allowing for inflation, a similar Census in 2011 would cost about £43million spread over a number of years.

3.5 When the Census was first conducted, Government played a smaller part in the lives of individuals than it does today. Annex 1 gives more information about the social history of Scotland, and the way in which the Census has reflected that. As the welfare state has developed, Government agencies have had to collect and retain more data about the people for whom services are provided. These various data sets contain at least some, and arguably much, of the information collected through the Census. If that information could be collated and made consistent, it would be possible in theory to do without a separate Census every ten years. Indeed, such an approach could provide a regularly updated or even continuous flow of information, rather than the current 10 yearly snapshot.

3.6 However, the data collected by the various Government agencies are not collected on a consistent basis; there are known inaccuracies in some of the data sets (for example, more people are registered with the NHS than the population of Scotland); and it is not currently permissible to exchange certain data between Government departments. Allowing such exchanges would raise data protection issues. Furthermore, before any data from such an approach could be used it would be necessary to establish a clear baseline position so that the information arising from the new system could be compared with past Census data. The only practicable way of establishing a baseline for such a new approach would be through a traditional Census carried out with that end in view. So using Government administrative records to provide a "rolling census" is an aspiration for the future, but is not practical as a replacement for the proposed 2011 Census.

3.7 The population in each of the local authorities and NHS Board areas is the key criterion in determining how much expenditure needs to take place in their respective areas. The Census information enables the GROS to produce mid-year population estimates and population forecasts which are used for a wide range of purposes. The mid year estimates are a key factor in allocating public expenditure among local and health authorities. For example, the Arbutnott Committee's report, which determined a new, more sophisticated formula for allocating resources to NHS Boards, considered a range of options for assessing the population in each Board area, and concluded after careful analysis that the GROS mid year population estimates were the best option.

3.8 But the Census information provides more than simply a reliable population count. The detailed breakdowns that are made possible by the Census allow authorities and central government to achieve a number of further desirable objectives:

- Targeting resources at areas of greatest need for certain services
- Planning for future population and demographic change
- Understanding the demographic effects of policy developments
- Identification of small areas with particular needs
- Meeting parliamentary, public and media demand for population related information
- Helping business to plan for population change to improve its competitiveness
- Meeting international obligations.

3.9 Government needs an effective means to allocate and target resources, particularly in the context of the Efficient Government agenda, under which every opportunity must be taken to provide services more efficiently. In 2006-07, local authorities in Scotland are expected to spend some £9billion in revenue expenditure, of which some £8.3billion comes from central government allocations (including non domestic rate income). Scottish NHS Boards are expected to spend some £9.3billion, virtually all of which is allocated by central government. Between them they account for more than two thirds of Scottish Executive managed public expenditure. A reliable source of population data is essential if allocations are to reflect need.

3.10 GROS has conducted an exercise to estimate how much resource would have been misallocated between NHS Boards over the ten year period from 2001 to 2011 if no Census had been carried out in 2001, and population estimates had been extrapolated from the 1991 figures. Details are in Annex 2, but overall, the misallocations would have comprised a total rising from £21million to £31million a year, with some Boards consistently receiving more, and others consistently less than their appropriate share. Though the misallocated money would not be misspent, it would be spent sub-optimally and the cumulative effect of this would be very significant. It is reasonable to assume that the position for local authorities would be similar. This indicates that the total cost of the Census would be less than the total amount of one year's misallocation to the NHS and local authorities.

3.11 As well as avoiding misallocation of resources at the local authority and NHS Board level, the Census information enables government at all levels to identify trends in demographic change, not only within Scotland as a whole, but also within smaller areas. That is an aid to policy making, allowing for more finely tuned policies targeted more appropriately. In particular, the Census is the only nationally consistent source of data relating to areas smaller than local authorities, even down to post code level. This allows the identification of pockets of deprivation and narrowly defined areas in need of special or more intensive services, important in pursuing the Government's equality agenda. It also facilitates the identification of small population sub-groups, such as ethnic minorities, in a sufficiently specific way to enable their needs to be targeted effectively. Similarly, the business sector benefits from more accurate population and demographic data, which feeds in to their research and development of new products to meet the needs and demands of Scots in the future.

3.12 Increasingly, everything that Government does is subject to scrutiny in Parliament, by the media, and by members of the public, all of whom look to Government to provide accurate and timely information. While expressing concern about the need to protect individuals' data from unauthorised and inappropriate use, they nevertheless assume that comprehensive information, particularly on matters like population numbers, will be readily available. The Census assists in meeting Government's obligations for this; and the fact that the Census is well established and has a good record in keeping sensitive data confidential, while producing useful information, helps to alleviate any concerns about data protection. At present, any alternative means of providing equivalent information would be likely to raise concerns about the confidentiality of sensitive data.

3.13 Scotland has both intra-UK and international obligations to provide certain demographic data. Census information is used in policy development and implementation by UK Government departments with responsibilities that cover Scotland. Censuses traditionally take place simultaneously in Scotland, England and Wales, and Northern Ireland. If any one or two of the Censuses did not take place, not only would there be a need to find other ways of providing the necessary data, but there would be a significant risk of inconsistencies between the data from different parts of the UK. That in turn could result in distortions of policy, disadvantaging one or more parts of the UK. Even if Censuses were carried out in

all parts of the UK a similar, although lesser, risk could arise if the questions asked were greatly different in the different Censuses. That is why the Registrars General within the UK and the three Census Departments work closely together to ensure consistency wherever appropriate, while allowing for differences between the countries where necessary. For example, there has been a perceived need for different data about ethnicity in the English Census than in the Scottish and Northern Irish Censuses; the secondary school examination systems, which lead to formal qualifications, differ; and the Scottish Census includes specific questions on the Gaelic language.

3.14 The statistics generated from Censuses are also used by the European Commission to allocate funding to member states. Although there is not currently a legal requirement to provide this information, the UK (like other member states) has agreed to do so, and the agreement states that:

“...only population and housing censuses conducted at regular intervals.... will permit the collection of periodical and reliable statistical data, at different geographical levels, on the population....”.

3.15 The strategic case for a Census is strong. It supports policy making, development and implementation; it ensures more accurate allocation of resources in line with needs; it provides useful information for the business sector in designing and developing new products and markets; and it helps Scotland to meet its obligations both within the UK and internationally. While in theory much of the information emerging from the Census could be derived from other sources, in practice there are obstacles to that approach which could not be resolved before 2011 when the next Census would fall due. The absence of a Census would be likely to result in an increasing level of misallocation of resources, less available support for policy making and implementation, and difficulty in meeting international obligations.

4. The options

4.1 *Introducing the options*

4.1.1 GROS has considered a range of options for the content, coverage, and means of data collection of the Census. The **content** could vary from a minimum number of questions to a substantial increase in questions compared with 2001. In terms of **coverage**, options could range from not carrying out a Census at all through sample Censuses of varying lengths, to a rolling Census based on other sources of data. **Data collection** could be electronic or paper based. The Census could be conducted electronically, by phone, by post, or by various deployments of enumerators; and there are also options around the degree of analysis of the emerging data to be carried out.

4.1.2 The earlier section discussed the strategic case for the Census. By implication, that discussion has made some of the theoretical range of options unlikely to be serious runners in 2011. Accordingly, this section concentrates on the most practical options. Others are discussed briefly in Annex 3. The options discussed in this section are:

- Option 1a Modified version of 2001 Census
- Option 1b Enhanced Census
- Option 1c Mini Census
- Option 2a Sample Census
- Option 2b Part sample, part full Census

4.1.3 This section also includes consideration of the options for data collection and analysis of the data collected.

4.2 *Questionnaire content*

4.2.1 The number of questions included in the Census has increased since the first Census in 1801. There is always a balance to be struck between maximising the benefit of the unique opportunity which a Census offers to collect data about the population with the need to keep the Census manageable so as to ensure that as high a response rate as possible is achieved. Therefore while a Census could in principle be of any length, the three main options which are considered here are:

1a: a Census similar in length to the 2001 Census, including much the same range of questions, with improvements and adjustments where desirable.

1b: an enhanced Census, including perhaps a page more of questions per individual enabling a wider range of data to be collected.

1c: a Census limited to collecting the basic data needed to meet international obligations – head count, sex and age etc. i.e. a ‘mini’ Census.

4.3 *Option 1a*

4.3.1 A Census similar to that carried out in 2001 would be a traditional Census taking place on a single day and seeking to enumerate every household in Scotland. The intention would be to have a 3 page per person form, including questions covering basic information about the number of people in each household and their characteristics in terms of age and sex as well as other data such as ethnic origin, religion, type of accommodation and the facilities available in the house.

4.3.2 This option has a number of benefits. Following the model of previous Censuses would ensure a high degree of continuity, make for easier planning and enable comparisons to be drawn and trends to be detected reasonably straightforwardly. Furthermore, since the Censuses in England and Wales and Northern Ireland are likely to be on similar lines, it would enable UK wide data to be collated. A full Census ensures that consistent data is available across virtually the whole population, which allows analysis to be carried out at postcode level, a facility which is much valued.

4.3.3 However, there are some potential disadvantages. In order to enumerate the whole population on a single day, the Census requires substantial expenditure to cover, among other things, a large number of field staff who are employed around the date of the Census. This expenditure is not spread evenly over many years but is inevitably concentrated at various points in the development of the Census work. This means that there is a premium on sound financial planning and forecasting and an early commitment to budget. Second, a form comprising three pages of questions will appear onerous to some of those being asked to complete it. Obtaining a substantial enough return rate of completed forms is a major task, and one that appears to be becoming harder in the current climate. Third, although most of the population is relatively easy to contact there is a minority which is harder to locate.

4.4 *Option 1b*

4.4.1 An enhanced Census would expand the number of questions, resulting in a form of about four pages per person instead of three. In preparation for the Census, Government Departments are asked to indicate what questions they would like included. This option would allow more of those requests to be met. Most of the other benefits associated with Option 1a would continue to apply – there would still be continuity with earlier Censuses, and an ability to collate data across the UK where appropriate. Data would still be available at postcode level.

4.4.2 But the disadvantages would also apply, and in some cases would be greater. The cost would still be concentrated at various points in the process. But those costs would be greater. Not only would there be the extra cost of an extra page (which could increase printing costs by up to 20%-25% and also processing costs), but the costs of analysing the data emerging would also be commensurately higher.

4.4.3 Furthermore a longer form would be likely to meet more resistance from those asked to complete it, with the potential for either reducing the comprehensive nature

of the information, or requiring additional expenditure on follow up work by enumerators or other means to chase up those forms not completed.

4.5 *Option 1c*

4.5.1 A mini Census would seek to collect only the data which is required for a basic head count. It would be a much shorter form asking for name, age, gender ethnicity and household relationships. Printing, processing and analysis costs would be less than with a full Census, although the costs associated with preparing for the Census, getting Parliamentary approval, issuing and collecting the form would still be as large. The benefit of this approach, apart from the cost savings, would be that people asked to complete the form would find it a less onerous task.

4.5.2 However, adopting a mini Census approach would mean that the information collected would be very limited. There would be many areas where comparable figures across the UK would no longer be possible; and the value of the information to researchers, policy makers and others would be severely constrained. The consequence would be likely to be that they would seek other, less comprehensive sources of information which could have an adverse effect on the reliability of their plans and might lead to the reduction in the burden on the public being partly offset by the institution of new sample surveys and other data collection exercises as well as by less optimal allocation of public expenditure. There would also be a big increase in the costs of data matching work required to pull these other sources of information together.

4.5.3 Annex 4 describes the steps which GROS is taking to test public reaction to questions which might appear in the Census. It also discusses the questions which might be in a mini Census, the range of topics in a traditional full Census, and some of the questions that might be included in an enhanced Census.

4.6 *Coverage of the population*

4.6.1 The five main coverage options are:

- No Census
- A sample Census
- A full Census carried out on traditional lines
- A Census comprising a short set of questions directed at the whole population, and a longer set answered by a sample
- A Census based solely on other data sources.

4.6.2 For the reasons set out earlier, failing to carry out any Census would lead to costly gaps in the information available to public and other authorities, and would put Scotland at risk of failing to meet international obligations; and a Census based on other sources of data is not practicable at present. These options are therefore not considered in detail here, although Annex 3 sets out their characteristics.

4.6.3 The benefits and drawbacks of a traditional full Census are discussed in paragraphs 4.3.1 to 4.3.3. This section considers further the case for:

- a sample Census (Option 2a); and
- a part sample, part full Census (Option 2b).

4.7 *Option 2a*

4.7.1 A sample Census would seek to enumerate only a proportion of the population and extrapolate national results from the sample. Sampling is a widely used technique to obtain information without contacting everyone in the population of interest. The printing and enumeration costs would be less than for a full Census.

4.7.2 However, while for some questions a sample response might provide a reasonable approximation for policy makers and others to work with, conducting only a sample Census would lose the comprehensive picture that Censuses provide, and thus reduce substantially the quality of the information. In particular, it is likely that the response rate from groups of the population that are difficult to enumerate (people who have a mobile or unsettled lifestyle) could fall to such a low level that effective statistical analysis of these groups would become impossible.

4.7.3 People in these groups are among those who benefit most from government initiatives informed by the Census and their characteristics may differ significantly from those of the mainstream population, thus rendering extrapolation from the achieved sample dangerous. Furthermore, it would not be possible to compare accurately results from a sample Census with those from earlier Censuses; there would be difficulties in collating information across the UK; and the only comprehensive and reliable source of data at a level below that of the local authority would be lost.

4.7.4 Although some costs would be reduced by this approach, others would increase. The need to identify a representative sample for the Census would require investment; and the cost of analysing the data would be increased because of the need to identify how far the results can be extrapolated to the population as a whole.

4.8 *Option 2b*

4.8.1 A variation of the sample Census would involve a mini Census form distributed to the whole population, supported by a fuller form directed at a sample. This would avoid some of the drawbacks associated with the mini Census in that the information deficit would be reduced; and, unlike the solely sample Census, there would still be comprehensive data on the basic headcount variables. But this approach would share many of the drawbacks of both those options.

4.8.2 Furthermore, much of the cost saving which would be associated with either of those two options would be lost – the enumeration savings associated with the sample Census would no longer be available, and the savings on analysis costs of the mini Census would also be lost. Indeed, costs could actually increase as it would be necessary to print and process two distinct types of Census form.

4.9 *Data collection*

4.9.1 Under any of the options, there are various available methods of collecting the data. The use of enumerators to ensure optimal delivery and collection of forms is a well established feature of the Census. That involves recruiting a team of people who will distribute and then collect the forms from people, and, if necessary help them to complete the forms.

4.9.2 In 1991 and earlier the approach was to expect enumerators to be the prime means of distributing and collecting the forms. In 2001 more use was made of the postal service for form collection. However, enumerators still played a key role in chasing up those forms which were not returned promptly.

4.9.3 With major advances in technology since then, further options are now possible. Many people are used to providing information – even sensitive information – over the internet, or over the telephone. Allowing people to complete the Census in these ways could be attractive to some. The main benefit would be the potential for a better response rate if people found these approaches more convenient.

4.9.4 On the other hand, it is arguable that those who find it most difficult to complete the paper based form, or who are reluctant to do so for whatever reason, would also be least likely to be prepared or able to use alternative means to complete it. So the benefit in response rate might be limited. It would not be possible to rely solely on the web or on the telephone, since some people do not have access to these facilities, and some would continue to have doubts, however unfounded, about the security of providing data in this way.

4.9.5 So there would be significant additional costs in providing the different kinds of form, and in integrating the various completion modes. It would also be necessary to ensure that any such alternative options had adequate security processes, to protect the confidentiality of the Census. In addition there would be additional costs in recycling duplicate paper and internet forms for some individuals and households at the processing stage.

4.9.6 The Government has a policy of encouraging the availability of electronic means of interaction between Government and people where possible and appropriate. Society nowadays expects that online completion is available for most services and this expectation is likely to be greater in 2011.

4.9.7 There is therefore a presumption that a web based option for completing the Census should be offered. This will need to be offered as an alternative to, rather than instead of, a paper based form. Apart from the need to establish a help line for people having difficulty in completing the form, and perhaps to provide for telephone based form completion for people with certain disabilities, for example those with sight problems, wider use of the telephone would not be worth pursuing, because any small additional convenience to the public would be outweighed by the substantial additional cost, and the potential loss of confidentiality.

4.9.8 There will undoubtedly remain an important role for the enumerators. While the forms could be issued by post, and people can be asked to return them by the same method, enumerators will still be required to deliver forms to households missed by the post and to chase up forms which are not returned. Furthermore, there are various groups in society – those who have no permanent residence, and those who change their residence frequently for example – who are difficult to trace to get them to complete a form. In addition many kinds of “communal establishments” e.g. hospitals, care homes, prisons need special attention to ensure that the population living there are enumerated properly. By making more use of the postal service, more of the enumerators’ time can be freed up to deal with these more difficult matters.

4.10 Data processing and statistical analysis

4.10.1 The main options for data processing – data capture and coding – are in-house processing and outsourcing. The data have to be coded in such a way that they can be readily used, without breaching confidentiality, for the various purposes desired by Government and other agencies - a process which is obviously most efficiently and securely done once, under GROS's control.

4.10.2 The intention for 2011 (like 2001) is to outsource this work under a UK-wide contract and the procurement process is already well-advanced. Partnership with the chosen contractor will enable efficiencies and quality improvements to be explored.

4.10.3 Once the data are coded, processed etc. they are available for statistical analysis. This task is carried out mainly by GROS itself, although certain other users may be permitted to access part of the data for analysis under strict conditions put in place to ensure the maintenance of confidentiality and the integrity of the information generated. In each Census, GROS seeks to improve the quality of the output by developing more sophisticated analyses and output arrangements.

4.10.4 If it did not do so, other agencies would not only be disappointed but would seek to achieve the same end themselves, probably in inconsistent ways, and resulting in a cost shift from GROS elsewhere, higher cost to the public purse overall, and inefficiency in the use of public resources. But there is a balance to be struck between the sophistication and extent of the analysis and the associated costs.

4.11 Outsourcing

4.11.1 GROS needs to manage the whole process of preparing, conducting and coding and analysing the data arising from the Census. But it does not make sense for all the work to be done in house. Because the Census is a ten yearly event, some of the work associated with it requires additional staff for relatively short periods. For example, a large number of enumerators is required to help conduct the Census. GROS plans to outsource work where that is appropriate and where it provides best value for money. It would be inappropriate to outsource the core work

on Census planning – the staff of GROS are experienced, and work on the Census is an integral part of their duties.

4.11.2 But GROS is already testing the market for discrete elements of the work – such as printing, the distribution of forms, publicity and data capture, and the contact centre to deal with public questions about completing the form. This avoids the need for GROS to employ staff directly to cover some of these functions, but allows control to remain firmly in the Department.

4.12 *Charging*

4.12.1 GROS recognises the need to consider the scope for charging for the information it provides as a result of the Census. Much of the information cannot be charged for – it is provided to other Government agencies (where to charge would simply be to cost shift). Charges have previously been levied for some paper publications, but now publication is increasingly on the web. Indeed because the Census provides such basic information about the nation, which has been provided by the public, it would be inappropriate to charge for access to it.

4.12.2 However, where specific analyses or data sets which would not otherwise be produced by GROS are requested, a charge is made. GROS proposes to continue with this policy, treating each such request on a case by case basis. The Department will seek to maximise income within these policy constraints.

5. Assessment of the options

5.1 This section assesses the main options against some specific criteria and considers the preferred option in terms of the risks which the project faces.

5.2 The following criteria are important for considering the relative merits of different options:

- *Population count*: how accurate a count of the population the Census provides.
- *Population structure*: how comprehensive a picture of the population it gives in terms of age, sex, employment, housing tenure etc.
- *Scope for analysis*: how far it allows for detailed analysis of the results at local level.
- *Comparability*: the ease with which the data are comparable across the whole of Scotland, and with the other parts of the UK.
- *Cost*: the cost of the Census.
- *Ease of completion*: how easily members of the public will find it to complete.

5.3 In the following table, the benefits were scored from on a scale of 0 to 3, with 3 representing greatest benefit, and 0 representing no benefit. For the purposes of this exercise, the 6 characteristics were all weighted equally. The cost of any of the options is substantial, and therefore none was awarded a score of 3.

Table 1 Benefit scoring

	Options				
	<i>1a</i>	<i>1b</i>	<i>1c</i>	<i>2a</i>	<i>2b</i>
Criteria					
<i>Population count</i>	3	3	3	1	3
<i>Population structure</i>	3	3	1	1	2
<i>Scope for analysis</i>	3	3	2	1	1
<i>Comparability</i>	3	3	2	0	1
<i>Cost</i>	1	0	2	2	1
<i>Ease of completion</i>	2	1	3	2	2
<i>Total</i>	15	13	13	7	11

5.4 **This simple analysis indicates that a traditional Census scores highest, and is therefore the preferred option.** However, not all the characteristics necessarily have equal weight. The requirement to produce basic population count and population structure data is more important than the availability of data at small area level for analysis (although that is of course highly desirable), or the ease of completion of the form. But option 1a – the traditional census – scores particularly highly on these more important characteristics. So that confirms its selection as preferred option.

5.5 The risks to carrying out a successful Census need to be managed carefully. Some risks are of a detailed practical nature; others are more strategic. GROS has a robust risk management programme in place. Key risks include:

- Credibility of results may be called into question
- Resistance to completion of the Census
- Failure to achieve Parliamentary and other agreement on the content and form of the Census early enough
- Confidentiality of data may be breached or appear to be breached
- Insufficient resources – financial or staffing – are available to complete the Census
- Suppliers of outsourced services fail to deliver on time or on budget
- Technology fails

5.6 By pursuing largely the traditional model of Census, some of these risks can be mitigated. For example, the familiarity of the traditional model, and the high regard in which the output of previous Censuses has been held will help to establish the credibility of the results.

5.7 GROS has a programme of Census testing under way to assess public reaction to possible questions and to the format of the Census. This is described in more detail in Annex 4, but is designed to reduce some of the risks identified above. In particular, the outcome of the test should enable more informed advice to be put to Ministers and Parliament in good time for final decisions to be taken.

5.8 Although it would be inappropriate to allow completion of the form only by electronic means (since a substantial proportion of the population is not connected to the internet), it would be possible to allow forms to be completed online as an additional way of completing the Census. Canada and New Zealand have already introduced online completion as part of their 2006 Censuses. Experience elsewhere suggests that there may be a benefit in terms of the quality of the data submitted electronically as electronic forms guide the user as to the type of data expected.

5.9 On the other hand, an online completion option could potentially increase the risks relating to technology failure due to volume take up and require additional reassurance about the security of the process and the confidentiality of the data collected. There would be further costs in terms of reconciling duplicate paper and internet returns. These risks would be reduced in Scotland by buying in to the ONS systems if ONS decide to offer an internet option (at an additional cost currently estimated to be about £1.2million). By running any new online completion system in parallel with the paper based, enumerator collected system the risk posed by any technology failure would be reduced.

5.10 An online option for completing the Census is desirable, but its justification is primarily in terms of the benefits for the Scottish Executive's wider electronic government agenda and in meeting public expectations, rather than for reasons directly related to the conduct of the Census. Therefore it should be pursued only if the necessary additional finance can be made available. It should not be pursued at the expense of other parts of the Census exercise.

6. Conclusion

6.1 This paper has sought to demonstrate the case for holding a Census in 2011. The arguments are strong:

- There is no other way that could be developed in time to produce the same range of data to the same level of accuracy as a Census;
- The UK has obligations – both internationally and to various users in the UK – to make information available which can currently only be provided by the Census;
- The data produced from the Census uniquely allows for multivariate analysis of data at a local level, which in turn facilitates targeted policy making focussed on population subsets with identifiable special needs;
- The cost of the Census is justified by the identified misallocation of resources to local authorities and NHS Boards which would be likely to occur if population numbers (and their characteristics) were estimated by some other means;
- England and Wales and Northern Ireland will be conducting Censuses in 2011. In the interests of consistency and continuity across the UK and over time a Scottish Census is also desirable.

6.2 A consideration of a number of practical options for the format and conduct of the Census in Scotland has shown that a Census similar in scope to that in 2001, comprising 3 pages of questions per individual, would provide the optimum balance between cost and benefit. This conclusion allows for the substitution of new questions where this is desirable, and also allows for adjustment of the precise deployment of enumerators to ensure the maximum response rate.

6.3 Furthermore, in addition to a telephone helpline for those who have difficulty in completing the form, there is a case for offering an on-line option for people who would prefer to complete their Census form by that means. However, offering that option would increase the cost of the Census by an estimated £1.2million.

6.4 The precise total costs of the Census are not yet identifiable. Simply uprating the cost of the 2001 Census for inflation would indicate a cost of some £43million (with potentially an additional £1million for the on-line option). However, there are several factors which may affect this. For example, societal and environmental changes may make it more difficult (and therefore more costly) to track down certain groups of people to ensure they are enumerated (and these people will often be those with particular needs that Government will wish to address).

6.5 On the other hand developments in technology may make certain aspects of processing the data less expensive. The precise costs will be refined over the coming months as the Census test results are assessed, and the specifications for outsourced work are developed. A full estimate will be available for submission as part of SR2007.

7. Annex 1 – History of the Census and related social developments in Scotland

7.1 A Census of population has been carried out in Great Britain every 10 years since 1801 (except in 1941). The form and content of the Census has evolved in response to changing demands and demographic change. The first Censuses were designed simply to collect basic details about every person living in the country.

7.2 For example, during the industrial revolution there were substantial flows of population from rural areas into the towns. The Census enabled these movements, and the associated changes in occupation, to be tracked reliably. It was also used to monitor family size and birth and death rates. The requirement to register births and deaths meant that the ten yearly Census figures could be updated from time to time to produce revised estimates of population, including a breakdown by age and sex.

7.3 In the 20th Century, international movement became more common, both from Great Britain to other countries, and from other countries into Britain. While the estimates of population made between Censuses included adjustments to try to take account of these movements, inevitably, they were not as accurate as figures produced from a full Census every ten years, which remains important as a benchmark for the estimates made annually.

7.4 Following the Second World War, the pace of social change accelerated, with the development of the Welfare State and, notably in Scotland, major changes in employment patterns. The Census helps to record accurately these changes, providing a baseline of sound data for the development of policies to deal with their consequences.

7.5. As social policies developed, and Government was expected to provide more services to the population, it became important to be able to identify where those services are most needed, and where particular concentrations of certain population characteristics arise. The Census has developed to meet these requirements. Increasingly the demand is for data at local authority and smaller level.

7.6 More sophisticated analysis techniques, together with the fuller data now collected by the Census, make it possible to consider information at post code level, which allows for more precise and accurate targeting of resources and services. A full Census is the only source of information comprehensive and consistent enough to provide a description of the size and characteristics of the population at such local levels.

7.7. There are some particular features about Scottish society which benefit from the detailed information available from the Census. Scotland's overall population has been in decline, leading to wide ranging public debate. Although recent figures suggest that the population may no longer be declining, any growth is much lower than, for example, in England.

7.8 At the same time, Scotland's population, like that of much of the rest of the Western World, is becoming older on average. Government needs to know the pace

of these changes. The Census data provides an opportunity every ten years to obtain a fully accurate picture of the position. The advent of devolution in 1999 has meant an increased focus on the need for the Government in Scotland to develop policies tailored to the particular needs of Scotland.

7.9 The Census provides currently the only comprehensive means of identifying where social patterns differ between Scotland and other parts of the UK, and of identifying such needs at sufficiently local level. Since relative population figures between Scotland and England are used to determine the changes to Scotland's public expenditure allocation in each Spending Review (by means of the Barnett formula), having a regular check on the accuracy of the figures being used affects every part of the Scottish Executive's activity.

8. Annex 2 – Cost-benefit analysis for 2001 Census

8.1 Introduction

8.1.1 The 2001 Census was criticised on a number of grounds, including cost (£32m). Therefore, we must be able to justify the cost of the Census. This paper presents a simple cost-benefit analysis. It concludes that the 2001 Census was justified.

8.1.2 The justification is based on the difference between the mid year population estimates by Health Board Areas (HBAs) - with and without the 2001 Census. The Census provides, at the most basic level, a count of the population. Annual population estimates are produced in inter-Census periods by modifying the Census count by “ageing” the population, adding in births, subtracting deaths and adding or subtracting net migrants. However, these estimates become less accurate over time.

8.1.3 This is also true for population projections which are based on similar data and take into account life expectancy, number of women of child-bearing age, family size, etc.

8.1.4 There are important implications for government expenditure since budget distributions are always to some extent based on population estimates and projections. Differences between the true population and that used in budgetary allocation lead to a misallocation of resources (either over- or under-provision).

8.1.5 This paper measures the potential misallocation in the NHS Scotland and compares it to the cost of the Census. Assumptions have been made about how the budget is distributed (described below); a comparison has also been made of population projections from 2002 to 2011, obtained from the:

- 2000 MYE (derived from the 1991 Census); and
- 2001 Census.

8.1.6 Approximate figures have been used for the 2004-5 NHS Scotland (NHSS) budget¹. The NHSS budget figures were used for this exercise because:

- Demand for health services and this expenditure is closely linked to basic demographics such as age and sex:
- The NHSS budget, at about one third, is one of the biggest in the Scottish Executive budget².

8.2 Details

8.2.1 The total Health Department budget for the financial year 2004-05 was £6.656bn. This figure was used instead of the larger Department Expenditure Limit

¹ <http://www.scotland.gov.uk/library5/finance/sbd05-07.asp>

² <http://www.scotland.gov.uk/library5/finance/sbd05-02.asp>

(£8bn). The difference between the two figures is due to NI contributions. This goes straight back to the Treasury however it is allocated.

8.2.2 Approximately 80% of the total NHSS budget is divided between HBAs³. This money is distributed using the Arbutnott formula according to 4 key elements:

- The size of each HBA's population;
- The age and sex profile of each HBA's population;
- Needs arising from ill health (morbidity) and life circumstances (such as deprivation, poverty and ethnicity) in each HBA's population;
- Unavoidable excess costs of delivering healthcare in rural and remote areas of Scotland.

8.2.3 The last three elements modify the results of the first element. The first element rests on the Census and subsequent births, deaths and migration. The second element also derives from the Census but is modified according to needs of different age/sex groups. The third element is a mixture of factors but many of them (e.g. incidence of long-term, limiting illness) derive from the Census. The fourth element is not derived from the Census.

8.2.4 Although the same indicators have been re-calculated using the 2001 Census data, they have only been available since March 2004. It will therefore probably be some years before 2001 data is used in practice, although the Arbutnott Review did recommend that mid-year population estimates should be used as an annual measure of the population.

8.2.5 Population and age/sex distributions for health spending are mainly based on MYEs. They are annually updated and, since 2002, have used 2001 Census data. Therefore, these figures have been used in the cost-benefit analysis of the Census.

8.2.6 We also need the weighting that is assigned to age/sex population figures. For each HBA, the relative spending factors give the cost of providing medical services in that HBA relative to the average for Scotland due to each Arbutnott criterion. An overall relative cost factor for the HBA is then calculated simply by multiplying them together. Therefore the age/sex distribution has a weighting of 1/3rd.

8.2.7 Approximately 8% of the HBA budget is spent on 'General Medical Services' (GP funding). For this budget, the Community Health Index is used to give the population by GP patient lists. This population is used since demands on this service are dependent on GP lists rather than HBA populations (in 1996 27,000 people were registered with a GP located in a different health board area to the one in which they lived⁴). Cost benefits, therefore, cannot be applied to this portion of the NHSS budget.

³ <http://www.scotland.gov.uk/library2/doc01/fsas-02.htm>

⁴ <http://www.scotland.gov.uk/library2/doc01/fsag-13.htm>

8.2.8 The money at risk of misallocation is therefore:

$$\begin{aligned} & [\text{Proportion of NHSS budget allocated to HBAs}] \times \\ & [1 - \text{Proportion of HBA budget allocated to GMS}] \times \\ & [\text{Weighting assigned to age/sex data (assuming } 1/3^{\text{rd}} \text{ because there are 3} \\ & \text{factors)}] \times \\ & [\text{Total NHSS budget}] \\ & = 0.8 \times 0.92 \times 1/3 \times \text{£6.656bn} = \text{£1.635bn each year} \end{aligned}$$

8.2.9 This figure was used to calculate the overall misallocation from 2002 to 2011. Annex A contains the tables used to calculate the misallocation (Please note that, due to rounding, some columns may not sum exactly to the given total).

Table A1	1991 based HBA populations.
Table A2	2001 based HBA populations.
Table A3	HBA allocations on a 1991 population base.
Table A4	HBA allocation on a 2001 population base.
Table A5	Difference in allocation on the two bases.

8.3 Conclusion

8.3.1 The misallocation sums to £0 but, if presented on an absolute basis, sums to between £21M and £31M each year and £284m over the 10-year period, almost 9 times the cost of the Census.

8.3.2 This analysis has not taken into account other major uses of Census data for budget allocation such as the Local Authority GAE. We could do further analysis if further justification was required. However, we feel this analysis is conservative and does, of itself, justify the Census.

8.3.4 ONS has drafted a more thorough preliminary 115 page business case. It concludes that the [ir] sensitivity analysis based on the current quantified benefits and costs estimates derived from the 2001 census suggests that the project [2011 Census] is economically viable. ... and also that a cautious approach has been taken to estimating those benefits included.

Annex A

Table A1: 1991-based MYEs projections 2001-2011

HBA	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Argyll & Clyde	421,817	420,163	418,568	416,958	415,356	413,727	412,104	410,453	408,792	407,130	405,468
Ayrshire & Arran	372,261	371,056	369,950	368,845	367,698	366,527	365,326	364,114	362,885	361,633	360,368
Borders	107,038	107,095	107,105	107,096	107,069	107,019	106,947	106,862	106,770	106,659	106,544
Dumfries & Galloway	144,973	144,278	143,768	143,239	142,682	142,097	141,483	140,845	140,191	139,520	138,837
Fife	350,847	350,954	350,853	350,760	350,643	350,508	350,351	350,174	349,985	349,800	349,600
Forth Valley	278,629	279,156	279,709	280,260	280,793	281,318	281,826	282,327	282,837	283,333	283,831
Grampian	521,429	519,688	518,342	516,945	515,456	513,901	512,276	510,585	508,845	507,091	505,282
Greater Glasgow	902,377	900,156	898,121	896,337	894,747	893,334	892,076	890,997	890,043	889,223	888,520
Highland	208,610	208,480	208,275	208,037	207,744	207,407	207,035	206,633	206,188	205,732	205,250
Lanarkshire	561,900	561,666	561,540	561,386	561,190	560,941	560,640	560,274	559,879	559,421	558,939
Lothian	787,343	790,484	793,327	796,281	799,280	802,350	805,476	808,642	811,865	815,132	818,455
Orkney	19,391	19,290	19,186	19,083	18,972	18,855	18,727	18,598	18,475	18,348	18,210
Shetland	22,188	22,068	22,037	22,001	21,969	21,938	21,904	21,876	21,840	21,810	21,771
Tayside	383,021	380,651	378,647	376,607	374,529	372,406	370,255	368,070	365,866	363,650	361,423
Western Isles	26,846	26,528	26,266	26,002	25,733	25,456	25,182	24,901	24,605	24,316	24,021
Total	5,108,670	5,101,713	5,095,694	5,089,837	5,083,861	5,077,784	5,071,608	5,065,351	5,059,066	5,052,798	5,046,519

Table A2: 2001 based MYEs projections (2001-2011)

HBAs	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Argyll & Clyde	420,491	418,750	416,233	414,498	412,733	410,950	409,144	407,367	405,616	403,844	402,092
Ayrshire & Arran	368,149	367,060	365,372	363,961	362,495	361,004	359,467	357,892	356,322	354,736	353,139
Borders	106,764	107,400	107,548	107,794	108,006	108,201	108,363	108,515	108,649	108,775	108,895
Dumfries & Galloway	147,765	147,310	146,695	146,199	145,676	145,113	144,523	143,894	143,237	142,569	141,884
Fife	349,429	350,620	350,992	351,390	351,742	352,066	352,369	352,665	352,963	353,238	353,520
Forth Valley	279,480	279,370	279,947	280,675	281,374	282,052	282,715	283,354	283,996	284,622	285,251
Grampian	525,936	523,290	520,953	519,311	517,564	515,716	513,801	511,797	509,733	507,623	505,453
Greater Glasgow	867,150	866,080	863,919	859,926	856,197	852,718	849,489	846,550	843,844	841,436	839,275
Highland	208,914	208,140	207,820	207,541	207,211	206,828	206,409	205,952	205,463	204,954	204,405
Lanarkshire	552,819	552,910	551,942	551,422	550,813	550,127	549,400	548,622	547,827	547,006	546,160
Lothian	778,367	779,100	781,697	784,840	788,023	791,216	794,452	797,767	801,142	804,567	808,088
Orkney	19,245	19,210	19,066	18,972	18,872	18,772	18,655	18,536	18,417	18,299	18,165
Shetland	21,988	21,940	21,829	21,864	21,899	21,920	21,948	21,979	21,998	22,026	22,064
Tayside	389,012	387,420	385,363	383,800	382,197	380,568	378,887	377,186	375,475	373,776	372,062
Western Isles	26,502	26,200	25,890	25,631	25,368	25,113	24,858	24,598	24,333	24,065	23,795
Total	5,062,011	5,054,800	5,045,266	5,037,824	5,030,170	5,022,364	5,014,480	5,006,674	4,999,015	4,991,536	4,984,248

Table A3: HBA allocations on 1991-based MYEs projections (2001-2011) (£1000s)

HBA	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Argyll & Clyde	134,833	134,487	134,135	133,773	133,415	133,051	132,690	132,322	131,950	131,577	131,203
Ayrshire & Arran	118,992	118,769	118,555	118,336	118,107	117,872	117,629	117,383	117,132	116,873	116,609
Borders	34,214	34,279	34,323	34,360	34,391	34,416	34,435	34,450	34,463	34,470	34,476
Dumfries & Galloway	46,340	46,181	46,072	45,955	45,830	45,697	45,555	45,406	45,251	45,090	44,925
Fife	112,147	112,334	112,435	112,534	112,629	112,720	112,807	112,889	112,969	113,049	113,125
Forth Valley	89,063	89,353	89,636	89,916	90,193	90,469	90,743	91,017	91,294	91,568	91,843
Grampian	166,673	166,343	166,108	165,851	165,568	165,266	164,944	164,603	164,246	163,883	163,501
Greater Glasgow	288,442	288,125	287,813	287,572	287,399	287,289	287,233	287,240	287,289	287,381	287,511
Highland	66,682	66,731	66,744	66,744	66,729	66,700	66,662	66,614	66,554	66,489	66,416
Lanarkshire	179,610	179,780	179,952	180,109	180,258	180,394	180,517	180,622	180,718	180,795	180,864
Lothian	251,672	253,020	254,230	255,471	256,734	258,029	259,350	260,691	262,055	263,436	264,839
Orkney	6,198	6,174	6,148	6,122	6,094	6,064	6,030	5,996	5,963	5,930	5,892
Shetland	7,092	7,064	7,062	7,059	7,057	7,055	7,053	7,052	7,050	7,049	7,045
Tayside	122,432	121,840	121,342	120,827	120,301	119,763	119,216	118,659	118,095	117,525	116,951
Western Isles	8,581	8,491	8,417	8,342	8,266	8,186	8,108	8,028	7,942	7,858	7,773
Total	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972

Table A4: HBA allocations on 2001-based MYEs projections (2001-2011) (£1000s)

HBA	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Argyll & Clyde	135,648	135,279	134,720	134,356	133,988	133,616	133,238	132,866	132,498	132,117	131,736
Ayrshire & Arran	118,762	118,580	118,258	117,975	117,679	117,377	117,061	116,730	116,396	116,051	115,698
Borders Dumfries & Galloway	34,441	34,696	34,809	34,941	35,063	35,180	35,289	35,393	35,491	35,586	35,677
Fife	47,668	47,589	47,480	47,389	47,292	47,182	47,064	46,932	46,790	46,641	46,485
Forth Valley	112,724	113,269	113,604	113,900	114,188	114,471	114,749	115,025	115,298	115,561	115,823
Grampian Greater Glasgow	90,158	90,251	90,609	90,979	91,344	91,706	92,066	92,418	92,770	93,114	93,456
Highland	169,664	169,051	168,614	168,331	168,020	167,680	167,320	166,927	166,509	166,068	165,600
Lanarkshire	279,737	279,790	279,620	278,738	277,952	277,253	276,637	276,110	275,649	275,274	274,969
Lothian	67,394	67,240	67,264	67,273	67,268	67,248	67,217	67,173	67,116	67,050	66,968
Orkney	178,336	178,620	178,644	178,739	178,813	178,868	178,913	178,938	178,952	178,952	178,936
Shetland	251,096	251,691	253,007	254,400	255,820	257,256	258,714	260,199	261,700	263,213	264,751
Tayside	6,208	6,206	6,171	6,150	6,127	6,104	6,075	6,046	6,016	5,986	5,951
Western Isles	7,093	7,088	7,065	7,087	7,109	7,127	7,147	7,169	7,186	7,206	7,229
Tayside	125,493	125,157	124,728	124,406	124,075	123,738	123,385	123,023	122,652	122,280	121,897
Western Isles	8,549	8,464	8,380	8,308	8,235	8,165	8,095	8,023	7,949	7,873	7,796
Total	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972	1,634,972

Table A5: Misallocations by 2001 and 1991-based projection differences (2001-2011) (£1,000s)

HBA s	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Argyll & Clyde	815	792	585	584	573	565	548	544	548	540	533
Ayrshire & Arran	230	189	297	361	428	495	568	654	737	822	912
Borders	227	417	486	581	671	764	853	943	1,028	1,115	1,201
Dumfries & Galloway	1,328	1,408	1,408	1,434	1,461	1,485	1,509	1,527	1,539	1,551	1,560
Fife	576	935	1,169	1,366	1,559	1,750	1,942	2,135	2,330	2,512	2,698
Forth Valley	1,095	898	973	1,063	1,151	1,237	1,323	1,402	1,475	1,546	1,613
Grampian	2,990	2,707	2,505	2,479	2,452	2,414	2,376	2,324	2,263	2,185	2,099
Greater Glasgow	8,705	8,334	8,193	8,833	9,447	10,036	10,596	11,130	11,640	12,106	12,542
Highland	713	509	520	528	539	548	556	559	563	562	553
Lanarkshire	1,274	1,160	1,308	1,370	1,445	1,525	1,604	1,684	1,766	1,843	1,927
Lothian	576	1,329	1,223	1,071	914	773	635	492	355	223	88
Orkney	10	31	23	27	33	40	45	50	53	57	59
Shetland	1	24	3	28	53	72	95	116	136	157	184
Tayside	3,061	3,318	3,387	3,579	3,773	3,975	4,169	4,364	4,557	4,755	4,947
Western Isles	32	27	38	34	30	21	13	5	7	14	23
Total	21,633	22,079	22,117	23,340	24,529	25,701	26,833	27,928	28,996	29,988	30,937

9. Annex 3 – Options

9.1 Introduction

9.1.1 This Annex describes briefly a wider range of options in relation to the Census, beyond those which are assessed more fully in paper. For each option, there is a short description, an indication of the costs that would arise in comparison with the base case of a traditional Census, the benefits of the option, and the drawbacks. The options are:

- No Census
- Simple head count
- Mini Census
- Traditional Census
- Sample Census
- Part full, part sample Census
- Enhanced (4 Page) Census
- Ambitious Census
- On-line Census
- Telephone Census
- 'Census' based on administrative data
- Rolling Census.

9.2 No Census

<i>Description:</i>	No Census held in 2011. Any data required obtained by from 2001 data
<i>Costs:</i>	£0
<i>Benefits:</i>	No requirement for additional staff and work associated with conduct of a Census.
<i>Drawbacks:</i>	Increasingly inaccurate population data; Inconsistent comparisons with England; Failure to meet international obligations; Loss of detailed information to support policy

9.3 Simple head count

<i>Description:</i>	A very basic population count on a fixed date, providing information on numbers sex and age only.
<i>Costs:</i>	would be the same as for a full Census. There would be additional costs for policy makers and others in finding other sources for the data not provided by the Census. Savings on printing since the form would be very short. Savings since there would be very little data to code and analyse but the cost of setting up the operations for the processing and coding is the same regardless of number so savings are not likely to be so great. But the costs of preparation and enumeration would be the same as for a full Census. There would be additional costs for policy makers and others in finding other sources for the data not provided by the Census.

<i>Benefits:</i>	Financial savings. Likely better response rate for a simple form. Ability to meet international obligations.
<i>Drawbacks:</i>	Information of interest and use to policy makers and others not available, leading to inconsistency.

9.4 Mini Census

<i>Description:</i>	Short Census, asking fewer questions than in 2001, but more than in the simple head count.
<i>Costs:</i>	As for the simple head count, there would be savings on printing and coding and analysis (although less than for the simple head count), but the substantial costs of preparation and enumeration would remain.
<i>Benefits:</i>	As for simple head count, and some of the additional information desired by users would be provided.
<i>Drawbacks:</i>	Much of the information of interest and use to policy makers and other users would not be available, leading to inconsistency and inefficient duplication of work to obtain data.

9.5 Traditional Census

<i>Description:</i>	A Census about the same length as in 2001 (about 3 pages of questions), providing a range of information; distributed to every household, and with enumerators taking the lead in collection.
<i>Costs:</i>	Total cost about the same in real terms as in 2001 – about £43million in today's prices, spread over about 7 years but peaking in 2010-2012.
<i>Benefits:</i>	Continuity with earlier Censuses; availability of wide range of data at postcode level; ability fully to meet international obligations; many people will recall earlier Censuses, and their familiarity should help with return rates.
<i>Drawbacks:</i>	Three pages remains a substantial amount of form filling which may reduce return rate; some desirable questions could not be asked.

9.6 Sample Census

<i>Description:</i>	A Census of whatever length sent only to a representative sample of the population.
<i>Costs:</i>	Some savings on printing, distribution and collection; but additional costs for selecting the representative sample, and for extrapolating the sample data to give a nationwide picture.
<i>Benefits:</i>	Need to contact only a proportion of the population, saving enumerators' time. Possible ability to gather data relating to more areas of interest.
<i>Drawbacks:</i>	Extrapolated data would be less accurate than those gathered from the whole population. Ability to analyse at post code level would be lost.

9.7 Part Full, Part Sample Census

<i>Description:</i>	A basic head count Census for the whole population, with a wider range of questions sent to a sample.
<i>Costs:</i>	Small savings on printing and distribution costs; but additional costs for selecting the sample and for extrapolating sample data.
<i>Benefits:</i>	Full headcount would mean that all international obligations were met; sample survey would allow more areas of interest to be covered.
<i>Drawbacks:</i>	No ability to analyse sample data at postcode level, and extrapolated data would be less accurate than those gathered from the whole population.

9.8 Enhanced (4 page) Census

<i>Description:</i>	As the traditional Census but with an extra page of questions.
<i>Costs:</i>	Additional printing, preparation, coding and analysis costs.
<i>Benefits:</i>	Ability to gather data on a wider range of matters.
<i>Drawbacks:</i>	A longer form might encounter more resistance from those asked to complete it.

9.9 Ambitious Census

<i>Description:</i>	As the enhanced Census, but not limiting the size of the Census to 4 pages, enabling all questions potential users want to be asked.
<i>Costs:</i>	Additional printing, preparation, coding and analysis costs.
<i>Benefits:</i>	Data gathered for a much wider range of matters; possibility of replacing some other data collection exercises.
<i>Drawbacks:</i>	Likely to be a very long form with potential major implications for response levels; major additional task to ensure no duplication with other data collection exercises.

9.10 On-line Census

<i>Description:</i>	Any size of Census to be completed purely on line rather than on a paper form.
<i>Costs:</i>	Extra costs in designing and testing an on-line form; savings in collection costs; savings in coding and analysis costs. Compared with a traditional Census there would be more costs before the Census is conducted and fewer afterwards.
<i>Benefits:</i>	Checking and editing could be done automatically at the point of data entry, improving speed and accuracy; analysis could be started more quickly; in line with Government's policy to encourage electronic access to services etc.
<i>Drawbacks:</i>	Significant proportion of population still not on line; many users may not be comfortable with using the technology; need new procedures to detect mistakes; need to provide reassurance about security of data etc.

9.11 Telephone Census

<i>Description:</i>	Conduct the Census by phone.
<i>Costs:</i>	Additional costs for establishing and staffing telephone service centre (one call to complete a census form is approx. 40 minutes – very costly) to conduct the Census; savings on printing, distribution and collection.
<i>Benefits:</i>	Many people now use the phone to conduct business; quicker results; consistency of completion of data.
<i>Drawbacks:</i>	Not everyone has a phone; difficulty of confirming identity of respondent on the phone; need to provide reassurance about confidentiality of data; possible data quality implications particularly for some questions; cost.

9.12 Figures based on administrative data

<i>Description:</i>	Use other sources of administrative data to provide the information collected by the Census.
<i>Costs:</i>	Large costs to identify the best sources of the data, to ensure it is accurate and consistent, and to create links between different data sources. Savings on preparation, printing distributing and collecting Census forms.
<i>Benefits:</i>	Makes efficient use of many existing data sources; avoids having to contact the whole population every 10 years.
<i>Drawbacks:</i>	Not currently a practical proposition – would probably require data sharing legislation; would need a baseline position to calibrate the other data sources, which would require a Census type survey; data confidentiality issues would need to be resolved, since data collected for one purpose would be used for another. Data matching would also be difficult to carry out and not consistent.

9.13 Rolling Census

<i>Description:</i>	Instead of holding one Census every ten years, take a Census of say one tenth of the population every year.
<i>Costs:</i>	Overall higher than for a single Census, but costs would be constant each year rather than peaking every ten years.
<i>Benefits:</i>	Maintain expertise among enumeration etc staff, instead of having to retrain every ten years; provide more dynamic data collection.
<i>Drawbacks:</i>	Major methodology change would be expensive and likely cause delay; the population does not remain static for ten years, so mobile people could be more likely to be missed leading to an incomplete picture; unlikely to be able to produce as useful data at postcode level.

10. Annex 4 – Census testing and possible questions

10.1 GROS is **consulting** on all aspects of the Census. They are seeking views from a wide range of people across Scotland who will be asked to complete the Census and from users of the data which emerges. The consultation takes place from 2004 to 2009. There are four elements to the consultation:

- Formal Consultation: Before 2011, there will be three rounds of consultation on the Census: before the 2006 Census Test, the 2009 rehearsal and the 2011 Census.
- Questionnaire Consultation: Questionnaires will be available for online completion on GROS's website.
- Consultation Papers: Consultation papers outlining plans for 2011 will also be published on the website.
- Topic Groups: GROS often meets groups and individuals who have specialist knowledge in a particular topic.

10.2 A major element of the preparation for the Census is the carrying out of a **test Census**. GROS conducted a Census Test on the 23rd of April 2006. The test was designed to test different ways of conducting a Census and explore likely reaction to the inclusion of a question on income. It was also designed to help with the design of the follow-up survey to the Census, with the evaluation of other possible new Census questions, with planning the processing of the information on the forms, the quality checks and the production of the Census results.

10.3 The test took place in parts of Glasgow City, West Dunbartonshire, Highland, Stirling, Perth & Kinross and Argyll & Bute Council areas. About 52,000 households were asked to complete a Census Test form. A number of new or revised questions have been included in this test to meet the changing needs of Census data users.

10.4 The results of the Test Census will be evaluated so as to inform decisions about the form and content of the actual Census in good time for the rehearsal (carried out throughout the UK) in 2009. In particular, the inclusion of a question in the Test Census does not necessarily mean that it will be included in the 2011 Census.

10.5 The Test Census will help to determine how possible questions would be received. But whatever Census is pursued some basic information would be required. This includes:

- The number of people in the household;
- Their age and sex
- Their place of birth
- Their ethnic origin
- Basic information about their accommodation

10.6 A Mini Census would contain these questions and not much more.

10.7 The Test Census is a guide to the range of questions which would be asked in a traditional Census. In addition to those above, they might include:

- More questions about accommodation
- Employment
- Household income
- Religion
- Marital status
- Health status
- Car ownership
- Whether Gaelic speaking
- Visitors on Census night
- Qualifications
- Transport to work/place of study
- Language

10.8 An enhanced Census would allow more questions to be asked, for example on:

- Sexual orientation
- More about health and caring responsibilities
- Citizenship
- Second residences
- Income