



**General Register Office for Scotland**  
*information about Scotland's people*

**2006 CENSUS TEST**  
**Fieldwork Evaluation Report**

**April 2007**

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## 1. Introduction

1.1 Five areas in Scotland, covering about 50,000 households, were purposively chosen for the 2006 Census Test because each presented particular Enumeration challenges.

1.2 Breadalbane and Lochaber were selected because of the large number of holiday homes and the presence of a number of gypsy/traveller sites; part of South Glasgow was chosen because of its high ethnic diversity; part of North Glasgow was chosen because of the high numbers of asylum seekers and part of West Dunbartonshire had poor housing stock, deprivation and large numbers of young males – one of the hardest groups to enumerate.

1.3 Census Test day was Sunday 23 April 2006. Censuses, and hence Census Tests, are often held in late April in the UK because research has shown that this time represents the most propitious combination of important enumeration advantages. More people are likely to be at home (as opposed to being on holiday), students are at their term time address, the weather is clement enough, and the daylight hours long enough to conduct the enumeration in relatively benign circumstances.

1.4 Two strategies for delivery of the Census form to households were tested. Half of the households within each Enumeration District (ED) had forms hand delivered by an Enumerator and the other half had the forms posted out to them by Royal Mail. Forms were to be posted back but, in hand delivery areas, the option to have the completed form collected by the Enumerator was also offered.

1.5 For the first time, a question on household income was included. Half of the households within each ED received a form with the income question whilst the other half received a form without this question. Some questions from the 2001 Census such as ethnicity were re-structured, so we also tested what impact this might have. We also asked for information on second residencies and visitors on Census night.

1.6 To manage the operation in the field, 3 Census Regional Managers (CRMs) were recruited to cover Breadalbane/Lochaber, Glasgow and West Dunbartonshire. These areas were subdivided into 5 Census Districts (CDs), Breadalbane, Lochaber, North Glasgow, South Glasgow and West Dunbartonshire, each managed by a Census District Manager (CDM). In addition, 14 Census Team leaders (CTLs) and 114 Enumerators were recruited.

1.7 The public forms, enumeration documents and other materials, (bags, pens, personal alarms etc) were all produced under contract by Astron – the Scottish Executive call-off contractor. The contract for capturing the data from the completed census forms was awarded, after competition, to Advanced Data Systems (ADS).

1.8 Within GROS, Fieldwork and Community Involvement (FCI) Branch led the field work aspects of the Test and were supported by Census and Statistical IT (CaSIT) Branch in the development of IT solutions to back-up aspects of the field operation. These were field staff pay, the Field Management Information System (FMIS) and the equipping of remote offices. In addition, the Geography IT function

within CaSIT Branch supplied the address lists and maps which supported the enumeration. The whole process was overseen by the Census Management (CM) Branch.

1.9 Some aspects of what would constitute a fieldwork in a real census are not commented upon in this report, either because there were no issues to test or because test strategies were not developed. An example of the former is field staff training, where the successful 2001 model was repeated, and an example of the latter is the Enumeration of Communal Establishments.

## 2. Summary of Recommendations

### 2.1 Address Check

2.1.1 A national Address Check, on the lines of that tested in the 2006 Test (i.e. carried out 5 months in advance) should not be carried out for 2011. It is costly, and, on the evidence of the 2006 Test, does not deliver sufficient Address List improvement which could not be delivered by Enumerators much nearer the Census. FCI Branch should continue to monitor Address List improvements with a view to using the most up-to-date and comprehensive list of residential addresses to aid 2011 Enumeration.

2.1.2 Enumerators should be asked, before delivery of Census forms commences, to reconnoitre their EDs checking the addresses in their Enumeration Record Books and adding, subtracting and changing as appropriate. These changes could be fed back for master address lists to be amended if a need for a pre-validated address list is required by processing or output. This need not lengthen the employment term of Enumerators from the 2006 Test since according to field staff feedback, the time allowed [when? (also adjust 3.5.2)]for delivery of Census forms was over-generous.

### 2.2 Enumeration Area Planning

2.2.1 FCI Branch needs to involve Geography in the development of ED Planning thinking from the outset to ensure that a specification will not be made too late to be met.

2.2.2 If the principle of equalising enumerator workloads, in terms of estimated hours to be worked, is to be the basis for ED Planning for 2011 then something more akin to the 2001 model should be repeated.

2.2.3 The 2001 model differentiated between urban 'easy' and urban 'difficult' areas and adjusted the Estimated Household Value (EHV) of planned EDs by allocating fewer households to difficult areas. For rural EDs, distance to be travelled was taken into account – the greater the distance to be covered, the fewer properties were assigned. This should help alleviate the considerable disparity in hours worked, especially in rural EDs, and is more in tune with the concept of equal time worked for equal pay.

2.2.4 Geography should undertake a programme of work to ensure that Enumerator maps, especially for rural areas, are up to the specification required for the job.

### 2.3 Delivery/postout

2.3.1 Delivery of Census forms to households in 2011 should normally be by hand by an Enumerator. Postout should only be considered in circumstances where:

- residential properties are in remote, scattered areas, where sending an enumerator is relatively expensive and where the postperson's local knowledge is a key factor in locating addresses in the correct order of travel round the area. GROS should introduce a programme of work to identify these areas; or

- it is deemed that a particular area is too dangerous to send enumerators out, even in pairs or teams. These will be predominantly urban areas. FCI Branch should work with local authorities and other appropriate Government agencies, and use such up-to-date information about small-area deprivation as exists, to identify such areas; or
- an emergency has occurred, similar to the 2001 outbreak of foot and mouth disease, which prevents access to residential properties.

2.3.3 The period allowed for delivery should be re-visited so that field staff momentum is maintained and householders clearly associate delivery of the Census form with an important and imminent event (Census Day). The actual period allowed will depend on the numbers of households allocated to enumerators (see recommendation 4.5.1). The guiding principle should be that the forms have to be delivered before Census Day but as near as possible to it.

## 2.4 Postback

2.4.1 Postback to local sorting offices should be used in 2011. Discussions with the postal service provider should be ongoing to continually improve the service. It would be desirable if the liaison arrangements involve all 3 Census Offices and, certainly, the aim should be to obtain appropriate service level assurances from the postal service provider. In particular, the Census Offices must insist on reviewing instructions given to postal service provider staff for the handling of Census mail. This can be put to the test again in the 2009 Rehearsal

2.4.2 Unless methods and guarantees of improved throughput can be negotiated with the postal service provider, consideration should be given to starting follow-up later to allow more forms to be returned, to reduce the frustration of field staff having to re-visit addresses with the form 'in the post' and to reduce public anger at being visited when the form has already been posted back.

2.4.3 GROS statisticians should devise a simple forms completeness check which can be quickly carried out and easily understood by Enumerators. The burden on getting a comprehensively complete form should be borne within an imputation system rather than by enumerators who are unlikely to understand many of the concepts involved and who will not act consistently.

## 2.5 Forms reconciliation

2.5.1 FCI and CaSIT Branches must liaise in developing a forms reconciliation system for enumerators which;

- Accounts for every form;
- Is simple for enumerators to understand;
- Can be completed quickly;
- Can be checked quickly by field managers; and
- Results in a scannable document for the processor providing clear information about the accompanying forms.

2.5.2 GROS should consider whether enumerators should be asked to undergo a handwriting test before being hired but should also consider other ways of reducing writing on forms. Poor handwriting can create a number of operational inefficiencies in a processing operation highly dependent on character recognition. At the very least, enumerator instructions and training should stress the importance of clear handwriting, especially on scannable documents and should show acceptable and unacceptable examples.

2.5.3 Design of the placeholder form should be re-visited to determine whether there are any design factors which adversely affect completion.

## 2.6 Forms Design and Printing

2.6.1 With contractual responsibility for the printing of scannable documents and the scanning of those documents integrated with one supplier in 2011, GROS should centre responsibility for these contract specifications within CaSIT branch.

2.6.2 Census Division management needs to clarify at an early stage where contract management responsibility will lie for all Route A and non-Route A contracts. Staffing plans for the responsible Branches should reflect the considerable resource that will be required.

2.6.3 Originating Branches need to ensure that policy decisions affecting the design, content or format of scannable documents are made early enough to enable timeous delivery of forms to the print supplier.

2.6.4 The Forms Design Team will work with ONS to establish, early in the procurement of scannable document print services, the questionnaire design software which will be used and ensure that appropriate internal staff are trained to use it and have access to it.

2.6.5 An integrated mechanism should be set up within GROS to ensure that the questionnaire design, fieldwork, data capture and data processing interests are represented at all stages of the process of questionnaire production and are all aware of key milestone dates and timelines.

## 2.7 Field Staff Recruitment

2.7.1 In [also amend 7.4.1]2011 Field Staff recruitment should continue to be done in-house. Census Division staff, with FCI Branch taking the lead, should be directly responsible for the recruitment of Regional Managers. Responsibility should then be cascaded to Census Regional Managers to recruit Census District Managers and to Census District Managers to recruit Census Team Leaders and Enumerators.

2.7.2 Local Authorities (LA's) have always provided a fruitful source for recruitment of field staff, including in this Test, and liaison with LA's for this purpose should feature in future recruitment strategies.

2.7.3 Early liaison needs to be established between GROS Development Centre and SE HR to establish clear roles and responsibilities in relation to the formulation of:

- A recruitment strategy;
- A recruitment scheme which uses the best and most appropriate of SE recruitment procedures but seeks derogation from those which seem 'over the top' for temporary part-time recruitment; and
- A Recruitment advertising policy.

2.7.4 Similarly, early liaison is advised between FCI Branch, CM Branch and, if necessary, CSD procurement interest, to determine clear roles and responsibilities for the procurement of local interviewing accommodation for field staff (NB: this also applies to the procurement of local training accommodation – often the same location) If done centrally, this will be an onerous task in a countrywide Census and there should be a presumption that the task will be undertaken locally provided procurement rules are not breached.

## 2.8 Pay forms

2.8.1 The design of expenses claim forms needs to be revisited. FCI Branch should seek to achieve further simplification of the expenses claim and payment system. By 2011, it is inconceivable that online claiming of expenses will not be possible and early discussion should be held with auditors to determine how best this might be done to achieve both system simplicity and a proper checking and authorisation regime. Consideration should be given to paying enumerator expenses fortnightly to reduce the authorisation and throughput burdens on field managers and HQ staff.

2.8.2 Instructions to field staff for the completion and checking of expenses claims are clearly inadequate and should be revisited with a view to making them comprehensive but simple to follow. Examples should be provided where possible and greater emphasis should be placed on this matter in field staff training.

## 2.9 The Pay System

2.9.1 FCI Branch should lead further research into options for an in-house operation in 2011[also amend 8.12.1], identifying the costs, benefits and risks involved with each option and, in particular, identifying the roles and responsibilities required of key stakeholders. This work should consider any further simplifications which might be possible within the system, for example, online, or less frequent, expenses claims.

2.9.2 Should an in-house operation be sanctioned for 2011, a field pay project team should be set up to take ownership of the project and tasked to commit the required resources at the required time to see the project through from systems design and installation to completion of field pay. The project should be led by a FCI Branch representative (the customer) but should contain representation, at a sufficiently senior level, from other stakeholders which might include CaSIT support, the software technical team, BST, Auditors, SEAS and SCOTS. A presumption guiding



the project should be to recognise that the uniqueness of the census field pay project may require exceptional derogations from the normal corporate roles, responsibilities and procedures in order to work in the most operationally efficient way. For example, being on SCOTS was a substantial operational disadvantage in 2006. Should the research indicate that the system would be more streamlined if it was 'off-SCOTS' and on a separate internal network, then this should be done.

2.9.3 Further research should be carried out by FCI Branch into the concept of Annual Leave entitlement in the context of part-time and temporary posts. Discussions should be held with appropriate authorities to seek derogation from this requirement, perhaps by adding an additional pay element to fees in lieu of leave.

## 2.10 Field Logistics

2.10.1 FCI Branch should conduct a research project into the feasibility of a network of field offices being set up throughout Scotland to which supplies can be delivered, stored and picked up from. The research should further consider whether, if such premises were available, they could also be used for other functions, for example, interviewing field staff, holding field training sessions, acting as a remote office etc. Local Authorities, as a prime customer for Census information, might be a useful first stop as potential suppliers of such premises but there would also be others. [also amend 9.4.1]

2.10.2 A small team within FCI Branch should be set-up to co-ordinate all the logistical aspects of the Census. In particular, the co-ordination between scannable documents being created internally, then printed by one contractor, admin documents and other field materials being created by a different internal source then probably being supplied by another contractor and IT equipment for field managers probably being required from a third contractor. All of these supplies have to be brought together and picked and packed (a fourth contractor?) and distributed (possibly a fifth contractor). CM Branch should note the number of procurements which might be required in this area and ensure they are resourced to cope.

## 2.11 Field Communications

2.11.1 If Remote Offices for field staff are to feature in the Census Rehearsal and the full Census, GROS should insist that a project manager within the telecommunication company be appointed to oversee all GROS requirements to ensure that the issues which arose during the 2006 Test, and the difficulties experienced in having to deal with various areas of the organisation, are not repeated.

2.11.2 As soon as the appointment of Regional Managers is confirmed, and their address known, arrangements should be made to have a Census dedicated telephone line installed.

2.11.3 In general, within GROS, the procedures for procurement of technical but non-IT equipment, such as telecoms equipment, need to be looked at and revised, with responsibility being delegated where appropriate to allow those personnel with the required technical knowledge to deal with the contractors directly. This 'delegated authority' should apply for the lifetime of the 2011 Census project.

2.11.4 Consideration should be given to outsourcing the procurement and delivery of the equipment required for remote offices unless CaSIT Branch were to be staffed to supply, install and support the PCs and other equipment for the whole of Scotland. CaSIT Branch could, however, continue to be responsible for training in the use of the equipment. The SE SCOTS Team should also be considered as they currently supply remote offices for other SE Departments

2.11.5 Field staff requirements for IT and other electronic or technical equipment should be re-visited by FCI Branch (the customer). The passage of time between now and the 2009 Rehearsal, especially given the rapid advances in communications equipment generally, would probably mean that the 2006 equipment supplied will be out-of-date. A key point is that the final decision on the equipment to be supplied should rest with the customer (FCI Branch), with technical advice from CaSIT Branch.

## 2.12 Field Management Information System

2.12.1 If mobile devices are to be used to a greater extent in the 2011 Census, a separate contract should be negotiated for the provision of the devices. Furthermore, based on feedback from the field, these devices should be purchased with car re-charger cables.

2.12.2 For 2011, FCI and CaSIT Branches will need to ensure that everything is done to try and anticipate corporate issues, such as the migration to SCOTS, which could cause problems, and that sufficient time is built into the Project Plans to ensure the most cost effective and practical solution for the deployment of the FMIS is achieved. The GROS Senior Management Team will also have an important role to play to ensure that any wider corporate issues are taken into account.

2.12.3 For 2011, submission of FMIS reports will need to be more tightly controlled by FCI Branch given the volumes of reports and reporters concerned.

2.12.4 The solution for 2011, which could be based on the foundation of the 2006 FMIS, should allow for a two way transference of data and more effective and efficient use should be made of the help and informational elements of the solution. It will also need to dovetail [also amend 11.5.4]with the proposed Operational Intelligence solution to capture the elements of central data required to inform the Scottish field operation.

## 2.13 Publicity

2.13.1 Before Regional Managers are in post for the Rehearsal, FCI Branch need to initiate discussions with any contractor being used for the Rehearsal to clearly delineate the boundaries in the responsibilities for the various initiatives. In particular there is a need to be clear about where responsibility lies for implementing local publicity initiatives, particularly in local newspapers and local radio.

2.13.2 Media Awareness training for Field Managers needs to be done shortly after their recruitment for the skills learned to best be deployed in their local publicity campaigns.

#### 2.14 Community Liaison

2.14.1 The programme of Community Liaison should be continued and should be widened and deepened in the run-up to 2011. Although no hard evidence from the Test can be brought forward to prove the success of the programme, it must be right that the Census is seen as inclusive and positive in the eyes of those we seek to reach if we are to secure maximum response.

### 3. Address Checking

#### 3.1 Purpose

3.1.1 50% of the forms in the Census Test were to be posted out so Test forms had to be pre-addressed. It was seen as essential, therefore, to have as up-to-date, comprehensive and accurate an address list as possible on which to base postout (although it would also benefit enumerator hand-delivery).

3.1.2 Based on research conducted on enumerated addresses in 2001, the Royal Mail's Postal Address File (PAF), was not considered accurate enough for postout without being enhanced. It was decided, therefore, to conduct an on-the-ground check of all the addresses in the Test areas.

3.1.3 This Address Check was designed to:

- Measure the quality of the addresses contained in PAF for the Test areas;
- Deliver improvements to the enumeration address base; and
- To create, effectively, a Census Test Address List.

#### 3.2 Test Issues

3.2.1 To test a procedure for updating the currently-used address list (PAF) in order to provide an up-to-date and accurate base for pre-addressing Census forms.

#### 3.3 Description

3.3.1 Address check timing was determined by the fact that printing the Test forms, and pre-addressing them, had to be done some months in advance of the Test. So, address checking had to precede forms printing and was scheduled for the 5-week period from 5 November to 11 December 2006.

3.3.2 Since field staff would have to be recruited to carry out the Test Enumeration, it was decided that the intermediate field grade, Team Leader, would be recruited earlier than would otherwise have been the case. The Team leaders would carry out the Address Check before continuing on to their enumeration duties.

3.3.3 Team Leaders were assigned to a Test area and provided with the latest PAF list of addresses for that area. Team Leaders in urban areas were assigned between 3,900 and 4,200 addresses to check whilst Team Leaders in rural areas were given about 3,000 addresses to check. Each Team Leader was also provided with a map showing the area they were responsible for checking. These maps identified the boundary of the area to be covered and the postcode IDs and boundaries within.

3.3.4 The idea was that they would reconnoitre the area and, from a visual check, categorise each address as OK, NR (non-residential), CE (Communal Establishment) or NA (Not applicable because derelict, demolished, outside the boundary or non-existent). The amended list would be passed back to Test HQ and

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the changes incorporated in an updated address list on which postout (and enumeration generally) would be based.

3.3.5 For multi-occupied addresses, Team Leaders were also to check that the address was listed the correct number of times.

3.3.6 For Communal Establishments only, the Address Checker was required to make contact to try to establish the number of residents and visitors likely to be present on Census Test night. This was to facilitate the distribution of CE and I forms.

3.3.7 The Team Leader's Instructional Handbook contained a section of Address Checking Instructions. These instructions were also covered in a Training course one week before the start of Address Checking. In view of the findings below, these may have been inadequate but this is irrelevant if no future Address Check on the 2006 model is contemplated – see recommendations below.

3.3.8 Addresses on the Team Leaders Address List were to be marked as 'OK', NR (non-residential), or NA (not-applicable by virtue of being a duplicate, being demolished or derelict or not existing – at least within the boundary shown on the map). New addresses encountered were listed on a separate document (the Address Check Report. The Address List showing address status, together with the Address Check Report were returned to GROS where Geography used the information to update 'master' address lists before pre-addressing Census forms and Enumeration Record Books.

### 3.4 Conclusions

3.4.1 The Address Check, covering all 50,000 addresses in the Test areas, was not well done, in any of the Test areas. In all, 829 new addresses were added (1.5% of all addresses in Test areas) and 795 (1.5%) were categorised as 'not applicable' either through being demolished, derelict, non-existent or outwith the given boundary. But Enumerators, at Test enumeration, added a further 1060 new addresses (1.9%) and found another 1488 'not applicable' addresses – all of which had been missed by the Address Checkers.

3.4.2 There was some annoyance from field staff that changes to particular addresses (for example, changing Rose Cottage to Primrose Cottage) had not been taken on board in the address lists following the address check and erroneous addresses were repeated when the Enumeration address list was released. This had a dampening effect on field staff morale. This arose because the specification from FCI Branch instructed Geography not to process such changes. No reason was given for this, on the face of it, curious omission but it was indicative of internal communication difficulties being experienced at the time.

3.4.3 The system was not tested nor were timetable targets set for Address Checkers to submit reports to Census HQ (beyond start and completion dates for the exercise). The result was that reports were slow to arrive with Geography and this led to processing difficulties. Moreover, not all the types of query encountered had been envisaged in the FCI system specification to Geography (a result of not testing

the system) and, since contact with the Address Checkers was difficult and there was a reducing time window for processing changes, EDs often had to be 'closed' before all the queries were resolved.

3.4.4 Address Checking is costly. Team leaders were paid for 70 hours work, despite only taking between 19 and 48 hours (urban) and between 44 and 96 hours (rural) to complete the task. The last figure relates to the very large area stretching from Oban to Ballachulish and hints at the extreme difficulty of visually checking over 3,000 addresses in that sort of area.

3.4.5 Team Leaders were paid £588 for the task (£8.40 per hour for 70 hours). The individual who completed in 19 hours was, therefore, paid at a rate of over £31 per hour! Indeed, we can calculate how much money was wasted by subtracting the actual hours worked in total by the 13 Address Checkers who provided their hours worked logs (514) and subtracting it from the hours we paid for (70 x 13 = 910). We therefore paid for 396 wasted hours at £8.40 per hour giving £3326.40! In the context of a Census, this would equate to more than £150,000. Indeed, a similar Address Check of 2 million addresses, in the context of a full Census, and based on these Test pay arrangements, would cost around £0.45m!

3.4.6 Enumerators have traditionally been required to reconnoitre a much smaller area to check addresses. Typically, this will be around 400 addresses (urban) or about 200 (rural). These much more manageable areas are far more likely to be Address Checked thoroughly. Moreover, the main method of delivery of Census forms will require enumerators to try to make contact with householders to confirm addresses and the number of households living there.

### 3.5 Recommendations

3.5.1 A national Address Check, on the lines of that tested in the 2006 Test (i.e. carried out 5 months in advance) should not be carried out for 2011. It is costly, and, on the evidence of the 2006 Test, does not deliver sufficient Address List improvement which could not be delivered by Enumerators much nearer the Census. FCI Branch should continue to monitor Address List improvements with a view to using the most up-to-date and comprehensive list of residential addresses to aid 2011 Enumeration.

3.5.2 Enumerators should be asked, before delivery of Census forms commences, to reconnoitre their EDs checking the addresses in their Enumeration Record Books and adding, subtracting and changing as appropriate. These changes could be fed back for master address lists to be amended if a need for a pre-validated address list is required by processing or output. This need not lengthen the employment term of Enumerators from the 2006 Test since, according to the feedback from Field staff, the time allowed for delivery of Census forms was over-generous.

## 4. Enumeration Area Planning

### 4.1 Purpose

4.1.1 To plan Enumeration areas to prescribed sizes, in terms of the estimated number of households, and to provide maps and pre-addressed Census Forms and Enumeration Record Books as aids to Enumeration.

### 4.2 Test Issues

4.2.1 To test how enumerators would manage with larger sized EDs than in 2001 and without taking distance to be travelled into account in the planning of rural EDs.

### 4.3 Description

4.3.1 FCI Branch specified EA Planning requirements to Geography in September 2005, although not finalised until February 2006 – very late. This specification detailed how the 3 Test Census Regions and 5 Test Census Districts should be formed and how Test Enumeration Districts were to be formed within the Test Census Districts. This largely followed the 2001 procedure of aggregating postcodes to form EDs to a given Estimated Household Value (EHV) and made specifications as to shape of ED (broadly round or square shaped and compact) as well as accessibility (not crossing rivers without bridges or mountain ranges etc)

4.3.2 Estimated Household Values (EHVs) for each ED were set to higher than 2001 values to reflect the fact that 50% of the forms in each ED were being posted out and, if posted back, would create little work for the Enumerators. In 2006, urban EDs were planned to an EHV of 500 urban (300/400 – depending on difficulty- in 2001) and 400 rural, against up to 200 in 2001 depending on distance to be covered.

4.3.3 Another difference from 2001 was that distance was not considered as a factor in determining rural ED workloads. All rural EDs were to be planned to a target of 400 EHV, irrespective of the distance involved

4.3.4 One important planning factor made the 2006 Test EA Planning process much more complicated than the 2001 process. This was the decision to trial 4 different enumeration models within each Enumeration District. These were postout/income; postout/non-income; Enumerator delivery/income and Enumerator delivery/non-income. To complicate further, the specification decreed that the block of postcodes within which 'income forms' were being posted out should not be contiguous with the block of postcodes within which 'income forms' were being hand-delivered. No rationale was given for this stipulation.

4.3.5 The specification then went on to specify the requirements for maps for all levels of field staff and for address lists for the Address Check and for the Enumeration. The maps were not produced by GROS Geography but by SEGIS because the latter were prepared to do it for free whilst getting Ordnance Survey

involved. As we would otherwise have to have done, would have had a substantial cost which was not considered justifiable in the context of a Census Test.

#### 4.4 Conclusions

4.4.1 The ED Planning Specification was finalised very late – February 2006 – and would have caused problems in a larger scale exercise.

4.4.2 ED Planning was one of a number of systems affected by an over-complicated design. The decision to have 4 different enumerations within each Enumeration District, with 4 different blocks of postcodes, and the contiguous/non-contiguous rule noted at 4.3.4 above, did not translate into a workable enumeration scheme. Moreover, it meant that the enumeration address lists (in the Enumeration Record Books) had 4 different organisations of addresses within each ED. This made location of addresses for Enumerators extremely frustrating.

4.4.3 The EHV targets rebounded adversely on rural Enumerators. Analysis of Hours Worked Logs show that the least hours worked by Enumerators, on average, was in Glasgow North. Glasgow South was next with West Dumbarton third, Lochaber West fourth and Lochaber East fifth. Taking Glasgow North as a baseline, Enumerators in Lochaber West worked 35% more hours and those in Lochaber East worked nearly 48% more hours! Moreover, only in the two Lochaber CDs did the number of hours worked exceed the estimate for the whole enumeration task set by GROS.

4.4.4 Given the scattered nature of the population in the rural area selected, the variation in hours which had to be worked was, unsurprisingly, marked. Whilst in the urban EDs, the standard deviation from average hours worked was between 11.8 hrs (Glasgow North) and 15.7 (Glasgow South), in Lochaber East (which included Fort William) it was 24.5 and in Lochaber West it was a whopping 48.3hrs.

4.4.5 Maps produced by SEGIS were not up to the 2001 standard. Although urban maps were, in the main, acceptable, field staff feedback made clear that rural maps were not up to specification and were unfit for purpose because of the absence of settlement names and the overwriting of map detail by postcode identifiers. Many deficiencies in the rural maps were caused by the very large areas assigned to rural enumerators. Most rural enumerators purchased OS LandRanger maps which they found more suitable.

#### 4.5 Recommendations

4.5.1 FCI Branch needs to involve Geography in the development of ED Planning thinking from the outset to ensure that a specification will not be made too late to be met.

4.5.2 If the principle of equalising enumerator workloads, in terms of estimated hours to be worked, is to be the basis for ED Planning for 2011 then something more akin to the 2001 model should be repeated.

4.5.3 The 2001 model differentiated between urban 'easy' and urban 'difficult' areas and adjusted the Estimated Household Value (EHV) of planned EDs by allocating



fewer households to difficult areas. For rural EDs, distance to be travelled was taken into account – the greater the distance to be covered, the fewer properties were assigned. This should help alleviate the considerable disparity in hours worked, especially in rural EDs, and is more in tune with the concept of equal time worked for equal pay.

4.5.4 Geography should undertake a programme of work to ensure that Enumerator maps, especially for rural areas, are up to the specification required for the job.

## **5. Enumeration Methodology and Royal Mail**

### **5.1 Purpose**

5.1.1 To test the effectiveness of postout by Royal Mail against hand delivery by Enumerators.

### **5.2 Test Issues**

5.2.1 To test how enumerators would manage with mixed methods of enumeration.

### **5.3 Description - Delivery/Postout**

5.3.1 50% of forms within each ED were posted out by Royal Mail and 50% were hand delivered by Enumerators. In addition, 50% of forms within each ED had an income question and 50% didn't. The design was balanced across these 2 "treatments", so that half of the posted out forms included an income question, etc. All forms were to be posted back but arrangements were in place – in enumerator delivery areas - for the Enumerator to return and collect the form, should the householder so wish.

5.3.2 Test Census Form packs were enumerator delivered, or posted out, between 8 and 21 April. In the Enumerator delivery areas, few problems were encountered and most felt that the period allowed was too long.

5.3.3 In postout areas, anecdotal evidence from the field, corroborated by HQ staff, showed that postmen had not delivered as many as 800 out of 17,300 forms in Glasgow and West Dumbarton. This represented about 4.6% of postout addresses in these areas. A similar situation in a real Census could result in more than 100,000 Census forms undelivered. And this was whilst using the Royal Mail's own Postal Address file!

5.3.4 These undelivered forms were passed to Field Managers to arrange Enumerator delivery of postout packs. Clearly this situation had not been envisaged because it was not covered in the Instruction Handbooks. Once enumeration was over and the material had been picked up from the field, some 158 postout packs were returned, presumably because the field staff could not deliver them either. The main reasons given for non-delivery were that properties were vacant, were 2<sup>nd</sup> or holiday homes, duplicate addresses, non-residential addresses or refusals.

### **5.4 Description - Postback**

5.4.1 Overall response in the Test was 46% so about 23,000 forms were posted back. These were posted back to local delivery offices (using PO Box Nos) where they were sorted to ED order by RM.

5.4.2 The arrangement was that District Managers and/or Team Leaders would pick up the returned forms from RM Delivery offices and distribute them to enumerators who would then check the forms for completion and, if acceptable, update Enumeration Record Books.

5.4.3 Feedback from District Managers make it clear that, similar to 2001, postback arrangements did not work well. Royal Mail staff were often categorised as sullen, uncommunicative and uninterested in the Test. Moreover, the erratic throughput which characterised 2001 was repeated. In one of the CDs in Glasgow, virtually no forms were received on any day for nearly two weeks despite many hundreds being returned for the other CD. When a complaint was made, a flood of forms ensued almost immediately.

5.4.4 The erratic nature and the slowness of the throughput were reinforced by the large number of householders who, when followed-up by enumerators for not posting back the form, complained that the form had already been posted, and this often some considerable time before the follow-up visit, again just as in 2001.

5.4.5 After the enumeration was completed (18 May) any returned forms were to be directed to Ladywell House. Some 2,122 forms were delivered to Ladywell House after 19 May and up to the end of August, long after the Census date of 26 April 2006. This represents about 8.5% of all forms posted back and, if repeated in a Census with the same cut-off date, would result in nearly 200,000 forms coming back direct to Ladywell House!

5.4.6 Whilst accepting that we cannot know the date that any of these forms were posted, it can be argued that the date of signature is at least an indication of the approximate date of postage. Analyses of these direct returns give some insight into the erratic flow of forms through the postal system. Of the 2,039 forms which contained a signature date, only 28 (1.4%) were received within 5 days of that signature date; 85 (4.2%) within 10 days and 216 (10.6%) within 20 days. 1,396 (68.5%) took more than 25 days to get to Ladywell House after being signed!

5.4.7 Some 650 direct return envelopes had a postmark date so we know that they were definitely in the postal system on that date. Of these, only 76 (under 12%) were received within 5 days of the postmark date. In contrast, 57% took longer than 15 days to arrive and 27% took longer than 25 days!

## 5.5 Description - Follow-up

5.5.1 When Enumerators received a form, they had to check it for completeness. 'Completeness' was defined in the Enumerators' Instructions and was quite stringent. If the form was incomplete, Enumerators were expected to return once to try to achieve completion.

5.5.2 Because so many forms were delayed in the postal system, and because 50% of people in the Test areas were refusing to participate in the Test, Enumerators by and large could not cope with the large number of missing forms to be followed-up. The average time spent on follow-up in every Test Census District exceeded the time estimate of 15 hours. From field staff debriefs it is clear that time simply ran out because follow-up had to finish on 18 May to allow 2 days for the forms to be reconciled before being passed to Team Leaders.

## 5.6 Description - Forms Reconciliation

5.6.1 The Form Reconciliation Document (FRD) was designed by FCI Branch and was used to ensure that a form was forwarded to the processing Contractor for every line number entry in the ERB.

5.6.2 Detailed instructions on the use of the FRD was included in the Enumerator Collection, Post back and Follow-up Handbook, which provided details on how to complete the FRD and stated that completed forms should be placed in box 1 of n boxes in which they were returning Census forms.

5.6.3 The intention was that the FRD would be the document that would be retrieved first from the boxes of completed forms and scanned, giving GROS a detailed breakdown of the numbers of different types of forms that had been returned by field staff. However, the processing contractor confirmed that the proposed design, while superficially scannable, would not allow the capture of the data due to the lines and boxes on the form being too close together to allow the scanning equipment to differentiate between marks in adjacent boxes.

5.6.4 An alternative design was proposed by CaSIT that was both scannable and would allow the capture of the data. However, this was rejected by FCI as it reduced the number of lines per page from 50 to 25 and would have doubled the number of pages, which was deemed to place an unnecessary extra burden on the field staff. As a result, the reconciliation information had to be keyed rather than scanned.

5.6.5 On receipt of the boxes of forms from the field, the first task expected of the processing contractor, Advanced Data Services (ADS), was to capture and provide the data on the FRD to GROS within 48 hours. It was intended that release of the final payment to Enumeration staff would be dependent on the accuracy of the reconciliation process. In the event, all Enumerators received the reconciliation 'bonus' because the view was taken that it was cheaper to pay than to get involved in possibly protracted correspondence, possible even litigation, by refusing the 'bonus' to some.

5.6.6 The main problems encountered by ADS were that the FRD's were not always in box 1 and that in the majority of forms the pages were not stapled together as one cohesive document. On investigation it was discovered that a number of field staff, roughly estimated at 50%, had split the FRD forms into separate pages and associated them with the 50 forms listed on it. This, more crucially, also applied to the summary pages which were to be utilised by ADS to provide the initial reconciliation findings. A number of these summary pages were eventually found inside Enumerators Record Books which had erroneously been returned in the boxes with the completed forms.

5.6.7 Subsequently, due to these and the other problems associated with the boxes of completed forms, the reconciliation process as initially designed was abandoned, and an alternative solution devised. This involved passing the census booklets through the scanners and capturing the barcode information on the front page. This was done prior to the data capture process and meant that the front page of each form was scanned twice.

5.6.8 ADS were asked to complete the reconciliation process, as initially devised, at the end of the main data capture phase. This work was in the event completed prior to the data capture process and is currently held by CaSIT.

5.6.9 Because of the importance of the FRD to the enumeration process a further examination of the FRD documents was undertaken by CaSIT to obtain and provide evidence to aid the evaluation process. The investigation was carried out by examining each FRD individually and included: a check on completeness (ie, were all pages present); a random check on line completeness (ie, do all lines have a valid entry); and a random check on the arithmetical count on the summary page. The investigation showed up FRD completion errors in a number of EDs across all Census Districts. Full details of the errors are available from CaSIT Branch on request.

## 5.7 Conclusions - Delivery/Postout

5.7.1 Mass postout poses an unacceptable threat to coverage. First, the Test shows that we cannot guarantee that a form will arrive at each address. Postmen will not consistently deliver in circumstances in which we would expect enumerators to deliver, e.g. to vacant properties, 2<sup>nd</sup> and holiday homes etc and it is much more difficult to get a postman to do what we need them to do than it is an enumerator. Second, it can be difficult to establish the internal living arrangements at an address without making contact so that there is a risk that additional households at an address may be missed. Third, people with special needs could have these needs overlooked because of lack of contact with an enumerator. It would be odd to inaugurate a significant programme of Community Liaison and involve enumerators in that process if we missed many of the people we were trying to help because there was no personal contact with householders.

5.7.2 Postout could be justifiable in remote, scattered communities. where

- Sending an enumerator is very costly;
- The postman/woman is more likely to be intimately acquainted with the community he/she serves and will know the order in which the addresses are best encountered;
- The housing stock – and consequently the addresses - are comparatively stable; and
- These communities contain comparatively few 'hard-to-enumerate' sub-groups and are more likely to return the Census form, irrespective of the method of delivery.

5.7.3 Postout might also be justified, as a last resort, in areas deemed too dangerous for Enumerators, even if operating in pairs or as a team.

5.7.4 The only other circumstances in which postout should be considered is where an emergency, as in the 2001 outbreak of Foot and Mouth disease, makes access to properties impossible.

5.7.5 Test results show that a form was more likely to be completed and returned if it was hand delivered by an Enumerator rather than arriving through the post. Detailed figures are in the statistical evaluation in Part 2 of this report.

5.7.6 The feedback from the majority of field staff was that too long a period was allowed for delivery. Delivery started on 8 April and was due to be completed by 21 April – a period of 13 days. The task was estimated to take 25 hours but took only about half of this time in urban areas, although the rural areas were closer to the estimate (but still below it). This means that enumerators needed work only between one and two hours per day to achieve completion by 21 April. Most stated that the task could easily be accomplished in less time. Given that very few forms required to be collected personally after Census Test day (single figures in most EDs) and that follow-up did not start until 6 May, there is a significant amount of enforced idleness of enumerators at this time, with the accompanying danger of them losing momentum, as well as interest. Coverage too is threatened if delivery is too far in advance of Census Day and the Householder loses the connection between the two.

## 5.8 Conclusions - Postback

5.8.1 There are many problems associated with postback and these are documented at 5.3.5 to 5.3.11 above. Despite the difficulties encountered in 2001 and 2006, however, postback does represent the cheapest and quickest way to get a Census form returned, and makes the enumerators job easier. It should be used in 2011. Local postback to RM delivery offices centred near local Field Managers means that the envelopes can be readily picked up by Field Managers and delivered to Enumerators where the envelopes can be opened. This seems a better (and safer) solution than postback to a central location, which has yet to be tested.

5.8.2 Provided that a decision is taken to use enumerator delivery, liaison with the postal service provider should focus mainly on the postback issue and seek ways to improve the service provided up to now.

## 5.9 Conclusions - Follow-up

5.9.1 Given the slow and erratic pattern of postback, follow-up started too early and created frustration amongst the field staff and anger amongst the public because, it was claimed, so many forms had been completed and were 'in the post'. This was a repeat of the 2001 experience.

5.9.2 The forms completeness check didn't work in so far as a judgement can be made from the Enumeration Record Books. According to these 99 forms were returned incomplete and subsequently completed after an enumerator visit. This figure represents 0.4% of forms returned. Closer examination, however, reveals that the North Glasgow CD was responsible for 65 of these with the other 4 CDs contributing only 34 between them. This seems highly unlikely and probably means that the enumerators in that area misunderstood their instructions and mis-recorded in their ERBs. These totals are very low and suggest that the completeness checks were simply not carried out, even in North Glasgow.

5.9.3 The completeness check was extremely stringent and complex. It required that

- All household questions be answered, except income if included in the form;
- There were responses for every person entered in Table 1;
- Individual questions 1 to 4 were answered for each person in Table 1; and
- The majority of the rest of the questions were answered (unless answered 'No' to question 5, namely that a schoolchild or student did not live at 'this address' during term time).

5.9.4 This check assumed far too sophisticated a level of knowledge on the part of the Enumerator, was open to misinterpretation and, if followed properly, could result in substantial numbers of fairly well completed forms failing the check. If carried out properly it would have significantly increased the burden on enumerators.

#### 5.10 Conclusions - Forms Reconciliation

5.10.1 The accompanying evidence shows that this was not well done. It was not well done in 2001. This is one of the most important part of an enumerators task and must be done better. Feedback from the field blamed lack of time, both from the enumerators' and the Team Leaders' point of view.

5.10.2 A number of Enumerators failed significantly to follow instructions for completion and submission of the Forms Reconciliation Document (FRD). This caused considerable difficulty for the processor. Whilst manageable work-arounds were possible in the Test, this would be impossible in a Census if the standard of Enumerator reconciliation was the same.

5.10.3 There is no point in having a payment for reconciliation being done properly if everybody gets it irrespective of whether it is done properly or not.

5.10.4 Handwriting on placeholder forms must improve and the design of the placeholder form must be re-visited. There are numerous examples where the line number handwritten onto a placeholder form by an enumerator has been mis-captured and has created masses of apparently missing forms. For example, in one ED in Glasgow, a placeholder form was captured as relating to line number 815 rather than 315 and created the impression that there were 322 missing forms from the ED. There weren't.

#### 5.11 Recommendations - Delivery/postout

5.11.1 Delivery of Census forms to households in 2011 should normally be by hand by an Enumerator. Postout should only be considered in circumstances where:

- residential properties are in remote, scattered areas, where sending an enumerator is relatively expensive and where the postperson's local knowledge is a key factor in locating addresses in the correct order of travel

round the area. GROS should introduce a programme of work to identify these areas;

- it is deemed that a particular area is too dangerous to send enumerators out, even in pairs or teams. These will be predominantly urban areas. FCI Branch should work with local authorities and other appropriate Government agencies, and use such up-to-date information about small-area deprivation as exists, to identify such areas; and
- an emergency has occurred, similar to the 2001 outbreak of foot and mouth disease, which prevents access to residential properties.

5.11.2 To the extent that postout is used, the period allowed for delivery should be re-visited so that field staff momentum is maintained and householders clearly associate delivery of the Census form with an important and imminent event (Census Day). The actual period allowed will depend on the numbers of households allocated to enumerators. The guiding principle should be that the forms have to be delivered before Census Day but as near as possible to it.

#### 5.12 Recommendations –Postback

5.12.1 Postback to local sorting offices should be used in 2011. Discussions with the postal service provider should be ongoing to continually improve the service. It would be desirable if the liaison arrangements involve all 3 Census Offices and, certainly, the aim should be to obtain appropriate service level assurances from the postal service provider. In particular, the Census Offices must insist on reviewing instructions given to postal service provider staff for the handling of Census mail. This can be put to the test again in the 2009 Rehearsal.

#### 5.13 Recommendations - Follow-up

5.13.1 Unless methods and guarantees of improved throughput can be negotiated with the postal service provider, consideration should be given to starting follow-up later to allow more forms to be returned, to reduce the frustration of field staff having to re-visit addresses with the form 'in the post' and to reduce public anger at being visited when the form has already been posted back.

5.13.2 GROS statisticians should devise a simple forms completeness check which can be quickly carried out and easily understood by Enumerators. The burden on gaining getting a comprehensively complete form should be borne within an imputation system rather than by enumerators who are unlikely to understand many of the concepts involved and who will not act consistently.

#### 5.14 Recommendations -Forms reconciliation

5.14.1 FCI and CaSIT Branches must liaise in developing a forms reconciliation system for enumerators which

- Is simple for enumerators to understand;
- Can be completed quickly;



- Can be checked quickly by field managers; and
- Results in a scannable document for the processor providing clear information about the accompanying forms.

5.14.2 GROS should consider whether enumerators should be asked to undergo a handwriting test before being hired, but should also consider other ways of reducing the necessity for writing on forms. Poor handwriting can create a number of operational inefficiencies in a processing operation highly dependent on character recognition. At the very least, enumerator instructions and training should stress the importance of clear handwriting, especially on scannable documents and should show acceptable and unacceptable examples.

5.14.3 Design of the placeholder form should be re-visited to determine whether there are any design factors which adversely affect completion.

## 6. Forms Design and printing

### 6.1 Purpose

6.1.1 To produce all printed material required in the Test, including scannable documents, to agreed quality standards and to timetable.

### 6.2 Description

6.2.1 Early in the forms design process a decision was made by FCI Branch to use MS Word to design the Census Forms for the 2006 Test. However, MS Word does not readily lend itself to this type of design work and this decision resulted in unnecessary time delays which caused difficulties in the final stages of the in-house QA of the forms as it was not possible to quickly update and amend draft forms in the formats required by the print contractor. This in turn led to more unnecessary time delays waiting for the print contractors' in-house design team to make the required amendments to the forms, and then return them to both GROS and the Data Capture contractor for QA review and sign off.

6.2.2 During this period it became clear that a possible short circuit in this process would have been for the Data Capture contractor and representatives from both CaSIT and FCI Branches to meet directly with the printer's form design staff. In this way design ideas could have been tried out on the correct design software to see if they worked. This proposal was put to the print contractor but they did not deem it appropriate although no clear explanation of why was forthcoming.

6.2.3 The Data Capture contractor was also concerned that when early versions of the proofs were issued to them for QA'ing and testing through their scanners, it was only ever the front page that was provided.[why was this?] They were therefore hesitant to sign off the form as every page was different and needed to be tested through to the scanners. This was another area where there was subsequently an unnecessary time delay in completing the process.

6.2.4 The Appendix to this section contains a number of comments and observations compiled from the experiences of both the Data Capture contractor and the CaSIT Technical staff, based on their experiences when completing forms for testing purposes, and while processing and quality assuring the actual forms completed by the public.

6.2.5 Initial delays in the award of the Data Capture contract (due to the OJEU timeline being longer than anticipated) meant FCI branch were unable to award the print contract until the end of November 2005. Whilst discussion had been ongoing with Astron, FCI branch were unable to specify any processing requirements for personalised and scannable forms until the initial meeting with CaSIT, FCI and the print and processing suppliers in December 2005. The print supplier had little time from award of contract to initial delivery of forms.

6.2.6 Print services were delivered via the SE call off print contract (Astron) and managed internally by FCI Branch. This route was considered to be best value to GROS and enabled FCI branch to deliver the field operational products without the

need to become involved in procuring external services via the OJEU route. Because the design, printing and personalisation of the forms are inextricably linked to the data capture process, CaSIT staff were involved in Quality Assurance (QA) of both the forms design and the drafting of guidance on forms design.

6.2.7 Relations between GROS and Astron were established early in 2005 to ensure Astron understood the Census business, built relationships and enabled them to consider which of their preferred suppliers would be best placed to deliver these services on our behalf. Initial interest was expressed by a print services partner who could deliver both the print and data capture services. However, CaSIT were unconvinced of the technical competence of the suggested supplier and undertook to procure the services of a processing supplier separately via OJEU. Following the decision to outsource the data capture services, this print provider withdrew their interest in delivering services for Astron.

6.2.8 A further provider (Graphic Inline) was secured in October 2005 but initial meetings with the data capture supplier did not take place until December 2005 due to the OJEU process delaying contract sign off.

6.2.9 Astron's preferred supplier was unable to deliver the print requirements and at the end of January 2006, Astron and Census CM agreed to move the work to another print provider. The full reasons for their failure to deliver the required products have been discussed with SE CM and Astron who advise the issues arose due to changes in key personnel within their preferred supplier and also poor communications within that organisation. The forms were printed and delivered either for field staff use to Station Rd or collected by Royal Mail. Both deadline dates were 24 February and these were met but with no further slippage time available within the project plans.

6.2.10 This was a difficult and complex area due to competing time lines and the over arching need to have forms printed and distributed in time to meet the Census Test date of 23 April. A lot of the complexity arose from the fact that two separate business areas were letting contracts, both of which required to have input into the forms design process.

6.2.11 Also, due to the relatively late appointment of the data capture contractor, specific technical requirements in relation to drop out colours, text box size & spacing, etc, were not known during the initial internal form design phase. As a result the print contractor had to produce their first version of the Household Form, based on the MS Word examples provided by FCI, with no prior knowledge of the technical requirements.

6.2.12 Difficulties were also experienced in establishing a common understanding of, as well as the need for, the technical requirements being specified by CaSIT. Including, but not limited to, the requirement for unique barcode labelling on every page of each form. This subsequently led to problems when these details were transmitted on to the print contractor.

6.2.13 Once the forms design process was complete, problems were then experienced with the print subcontractor who had been brought in to provide the

form personalisation. E.g. one of specified requirements, the ability to drop out the pre-printed address details, was initially reported as being feasible to carry out in one pass of the form. It turned out that the subcontractor couldn't actually meet this requirement.

6.2.14 Then, following an extended period of delay due to the malfunction of their personalisation software, a decision was made to give this work to another sub contractor. The second sub contractor undertook this work at short notice and successfully fulfilled the form personalisation requirements. However, it turned out not to be possible to print the address information in a drop out colour and this requirement was dropped.

6.2.15 A few errors were noted with the personalisation work that was done.

6.2.16 The print services for both scannable and non-scannable forms were delivered on time and within the original budget. Only a small number of errors, on a small number of forms, have been reported from the data capture contractor as follows:

- CD / ED and line number codes went from being centred to the right hand side of the box.
- Small number of forms where barcode printed at the top instead of the bottom.
- Address details repeated on a number of pages in the forms instead of only front page.

6.2.17 Where required, these errors were transcribed by staff within FCI branch.

6.2.18 A full QA was completed by FCI branch at the printers – this was aided by the printers being physically located in Edinburgh. Samples were checked during production of all public and non public forms by a B3 and admin staff.

6.2.19 Additional issues with change control were experienced with the printer when they made changes from the hard copy to the electronic version. On a number of occasions errors that had been reported and corrected in earlier versions reappeared in later versions received from the printers. This meant revised versions not only required QA to establish original errors had been corrected but additionally the whole form needed to be QA'd in full.

6.2.20 Whilst the GROS project team met to discuss requirements, communications were frequently protracted as one branch's requirements varied from another.

6.2.21 The items delivered were not printed using the one pass method which had been our original specification. We were also unable to deliver the items by Royal Mail walksort and instead used normal 2<sup>nd</sup> class mail.

6.2.22 Negotiation secured a saving of £30K from Astron to represent the additional cost and inconvenience to GROS.

### 6.3 Conclusions

6.3.1 The project plans for the 2006 Test were developed with a significant amount of contingency within the timelines and it is without doubt that this enabled successful delivery of the personalised public forms. The non-personalised documents were easily delivered and with little issue.

6.3.2 The Census questionnaire cannot be viewed simply as an instrument used by Fieldwork for respondents to complete. Once the data has been entered on the forms they become a storage medium for that data, and it should therefore also be the responsibility of the team which will have to specify and provide the information technology to ensure that it is fit for this purpose. In this instance the size and thickness of tick boxes, the width of margins, the positioning of deskew marks and the position size and format of barcodes is analogous to the physical size, file structure and connectors on a disk drive. Subsequently, failure to ensure the media is compatible with the capture system means that it simply won't work.

6.3.3 Following from this, separating the contractual responsibility for the printing of scannable documents from contractual responsibility for the scanning of those documents was a mistake and should not be repeated. There is a lack of satisfactory justification for separating these responsibilities in 2006 given that they were not separated in 2001 and will not be separated in 2011. This separation built in a number of operational inefficiencies, strained inter-Branch relationships, complicated the liaison with the contractors and posed some very high risks to GROS.

6.3.4 Many parts of the organisation have requirements from public forms for varying reasons and a far more joined up approach to design and delivery of forms needs to be established for the future. A lot of the time delays and issues could have been better managed or avoided through closer working between both the internal teams and the contractor teams with a better understanding of the whole process being achieved through education days and joint workshops. This may also have addressed the problems of the long chain of teams involved and the large number of steps required to achieve an outcome.

6.3.5 The late appointment of the Data Capture Contractor was unfortunate but was due to changes in the procurement rules and the requirement to allow a cooling off period to allow the unsuccessful bidders to make representations.

6.3.6 The internal decision not to invest in a professional forms design software package was made due to a lack of knowledge of the way print proofing works and the significance of correct design standards, and an appreciation of the significant technical constraints imposed by this type of forms design. The experiences encountered during the 2006 Test clearly indicate that such an investment would have provided a much more effective and efficient forms design process. It would have also made GROS a much more informed customer for future similar contracts.

6.3.7 The print contract management function became a heavy load on the one B3 responsible for print delivery and numerous other responsibilities within the Test.

6.3.8 Formal QA processes with product descriptions and QA panels were late in being established and frequently the QA panel did not capture all the errors on the documents which meant further iterations when captured.

6.3.9 The resource requirement for the revision process impacted on staff at Christmastime and tight deadlines made this a challenging process and one which must be improved for 2011. The QA process needs to flow in a smoother manner and the full project team need to be communicated with deadline dates for changes being made to documents. Control of this would have significantly reduced the resource intensive process this became to QA panel members, PSO team, Contract Manager and the printer.

#### 6.4 Recommendations

6.4.1 With contractual responsibility for the printing of scannable documents and the scanning of those documents integrated with one supplier in 2011, GROS should centre responsibility for these contract specifications within CaSIT branch.

6.4.2 Census Division management needs to clarify at an early stage where contract management responsibility will lie for all Route A and non-Route A contracts. Staffing plans for the responsible Branches should reflect the considerable resource that will be required.

6.4.3 Originating Branches need to ensure that policy decisions affecting the design, content or format of scannable documents are made early enough to enable timeous delivery of forms to the print supplier.

6.4.4 The Project Support function should establish a robust QA panel with agreed terms of reference for the QA of all documents, scannable or otherwise, with a strong document management back-up for version control and change control.

6.4.5 The Forms Design Team will work with ONS to establish, early in the procurement of scannable document print services, the questionnaire design software which will be used and ensure that appropriate internal staff are trained to use it and have access to it.

6.4.6 An integrated mechanism should be set up within GROS to ensure that the questionnaire design, fieldwork, data capture and data processing interests are represented at all stages of the process of questionnaire production and are all aware of key milestone dates and timelines.

## Appendix - Forms Design Observations

*Forms Reconciliation Document (FRD):* When completing an FRD it was noticed that because the lines were narrow if completing a number of entries in sequential lines these had to be staggered to avoid creating what seemed to be a continuous line.

*Household Form:* The signature box seems to be not obvious enough or in the correct position as a number of people have signed and put the date in the space above the boxes.

*Household Form (Table 1) Household Members:* There is a check box for individuals to use if they have completed an Individual Form. Observations indicate that a significant number of individuals are checking this box when they have completed a person section in the form.

*Household Form (Page 2):* There are a considerable number of instances where people have written, usually 'Scotland', in the example at the top of page 2 of the Household form. This also occurs elsewhere, and in other form types, where example are provided to assist the respondent.

The drop out guide 'dd mm yyyy' in the dob field can make reading the written input on the physical form difficult.

A lot of respondents have checked the boxes for 'Scots' language in the language matrix question.

*Household Form:* In the form there is an instruction which is labelled Q.23, which is not a question but a routing instruction.

The Processing Contractor had identified that the use of a blue form may introduce problems where a respondent uses a blue pen since most, but not all, blue inks do contain a certain percentage of black ink. For this reason the Processor also had difficulty in sourcing the blue lamps required to scan these forms.

Leading on from the last point during testing there were a few instances where a respondent had used blue ink and these responses were not picked up by the scanning process.

Although there is no previous data to benchmark this claim against, the use of cross boxes (which were recommended by the Processing as best practice) appears to have resulted in less forms being rejected as there is less likelihood of the mark straying into other responses.

During processing of the forms the processors also commented that there was still space within the form which could have been utilised to separate out the questions further.

## 7. Field Staff Recruitment

### 7.1 Purpose

7.1.1 To recruit temporary field staff to carry out the Test Enumeration.

### 7.2 Description

7.2.1 The main means used to recruit the field staff was to enlist the SE call-off recruitment contractor tmp.worldwide to place the press adverts and to provide a web-based application facility. This was supplemented, at lower field levels, by advertising posters placed locally by field managers.

7.2.2 The actual recruitment was done in-house with FCI Branch being responsible for the recruitment of Regional Managers who in turn recruited District Managers. District Managers were responsible for the recruitment of Team Leaders and Enumerators.

7.2.3 The standard SE recruitment templates and procedures were used at all recruitment levels.

7.2.4 Test recruitment did not mirror a real Census situation in that Census HQ took on a lot of responsibility for fielding applications which would not be possible in a full Census. For this reason, there are few conclusions and recommendations in this area.

### 7.3 Conclusions

7.3.1 HQ staff as well as field staff concluded that the press advertising service provided by tmp.worldwide was not up to the mark. Generally, there was too much reliance on national rather than local press advertising which was inappropriate for most of the types of temporary part-time staff that were being sought.

7.3.2 Against that, online applications were popular with about 25% of all recruited staff applying in this way.

7.3.3 Most of the lower level field staff were recruited through adverts in local papers such as 'Lochaber Life' and the 'Lennox Herald' – publications not considered by tmp.worldwide because they had no audited circulation figures. Many of the Glasgow field staff were recruited via an email round Glasgow City Council by the Council's Census Liaison Officer (CLO).

7.3.4 The SE recruitment templates and procedures are not always suitable for a one-off application like a Census where temporary part-time staff are being sought. There is evidence for this in the fact that requests for application forms ran at 3 or 4 times the number of applications subsequently received suggesting that when the complexity of the application form was seen, possible applicants were put off. In addition, there was a view from some field staff that the recruitment process took too long.



7.3.5 There was a general view from field managers that retaining recruitment in-house, i.e. for it to be done by them, was essential. It is much better for field managers to get to select the people they will have to work with than to have an agency impose people.

7.3.6 In order to observe the letter of the SE procurement rules responsibility for securing interview accommodation was placed on CSD at fairly short notice. Constant changes of dates did not help this process which became quite stressful for the non-Census staff involved.

7.3.7 Whilst all field staff were recruited on time, some other issues were not handled well. Some recruitment documentation went out containing important errors as a result of the fairly haphazard document management and QA system, which has been noted elsewhere. Moreover, some staff were recruited who lived a long way away from their place of employment. This led to considerable sums being paid out needlessly in travelling expenses. With whole country coverage in a full Census, this problem should not arise again.

#### 7.4 Recommendations

7.4.1 In 2011 Field Staff recruitment should continue to be done in-house. Census Division staff, with FCI Branch taking the lead, should be directly responsible for the recruitment of Regional Managers. Responsibility should then be cascaded to Regional Managers to recruit District Managers and to District Managers to recruit Team Leaders and Enumerators.

7.4.2 Local Authorities have always provided a fruitful source for recruitment of field staff, including in this Test, and liaison with LAs for this purpose should feature strongly in future recruitment strategies.

7.4.3 Early liaison needs to be established between GROS Development Centre and SE HR to establish clear roles and responsibilities in relation to the formulation of:

- A recruitment strategy
- A recruitment scheme which uses the best and most appropriate of SE recruitment procedures but seeks derogation from those which seem 'over the top' for temporary part-time recruitment; and
- A Recruitment advertising policy

7.4.4 Similarly, early liaison is advised between FCI Branch, CM Branch and, if necessary, CSD procurement interest, to determine clear roles and responsibilities for the procurement of local interviewing accommodation for field staff (NB: this also applies to the procurement of local training accommodation – often the same location) If done centrally, this will be an onerous task in a countrywide Census and there should be a presumption that the task will be undertaken locally provided procurement rules are not breached.

## 8. Field Staff Pay

### 8.1 Purpose

8.1.1 To pay the fees and expenses of temporary field staff on time.

### 8.2 Test Issues

8.2.1 To Test that a simplified (from 2001) pay system could be based on off-the-shelf software and could be run in-house

### 8.3 Description - Background

8.3.1 The Census payroll is a unique operation given the complexity of paying a large number of remote field staff with varying payment dates, rates of pay, allowances and expenses, all within a relatively short time.

8.3.2 In 2001 the Census payroll was outsourced and this proved to be very problematic. The 2001 UK pay scheme itself was very complex, with many staged payments at all levels for differing amounts (based on the principle that you only pay for work completed rather than the principle, agreed with auditors for 2006, that fees could pay weekly/monthly in equal instalments irrespective of the amount of work done). In addition, the 2001 contractor (the only one who tendered) did not provide a bespoke system but assured the Census Offices that their house system (which, ironically, paid most Civil Service salaries) would cope with the requirements for paying field staff. It couldn't and the result was fairly disastrous in terms of failed payments, missed payment dates, missing documents etc. As a result, management of the contract became very complex (ONS, at one point had 50 people working on the pay contract – more than the contractor!). As a result of the evaluation and lessons learned from 2001, the Census Programme Board approved the testing of an in-house payroll system for the 2006 Census Test.

8.3.3 A requirement for the 2006 Census Test payroll was that the software should be capable of paying 130 employees both monthly and weekly and allow us to be able to pay expenses and generate relevant reports.

8.3.4 The system would also need to have the ability to be scaled up to support an estimated 7,000 field staff for the 2011 Census should the evaluation of the Test payroll be successful.

8.3.5 FCI branch carried out the identification and evaluation of the most suitable payroll software. Although use of Access was also considered we purchased SAGE V9 (later upgraded to V10), and it was our colleagues in CaSIT branch and BST who installed the software.

8.3.6 FCI branch, along with colleagues in CaSIT and SE Auditors, met to discuss audit requirements. CaSIT, with input from FCI, drew up strict access control and security storage arrangements.

#### 8.4 Description - Pay forms design and completion

8.4.1 The number of pay forms used in 2001 was reduced to a more manageable volume. These forms were re-designed in-house. Fee claim forms were done away with altogether as fees were automatically generated each month (for Managers and Team Leaders) or each week (for Enumerators) in weekly instalments.

8.4.2 We no longer had individual forms for the different grades. We merged these into standard forms for all grades. An attempt was also made to make the forms simpler to understand and complete. Only the Hours Worked Logs were designed individually for each grade, as they contained different task details for each grade and which had to be completed daily.

8.4.3 The Personnel Record & Expenses Claim Form were designed to follow the same wizard steps as in the SAGE system, in order to make keying the details easier.

8.4.4 HQ authorised Regional Managers' expenses claim forms, Regional Managers authorised the District Managers' claim forms, and District Managers authorised the Team Leaders' and Enumerators' claim forms.

8.4.5 Regional/District Manager & Team Leader expenses claim forms were to be submitted monthly (to HQ by 14<sup>th</sup> every month). Enumerator claim forms were to be submitted weekly (to HQ by the following Monday). All the forms were supposed to be completed daily by the field staff.

#### 8.5 Description - System set-up

8.5.1 SAGE version 10.8 was purchased and was installed onto 2 payroll PCs by CaSIT colleagues, in conjunction with BST, and onto the secure X/Drive server for security reasons.

8.5.2 The Sage software was also installed by BST on the workstations of the two members of CaSIT who would be supporting the system. Another copy of the software was installed on the network to allow CaSIT to also carry out testing of the software in parallel with FCI Branch. This included record locking to ensure that the same record could not be accessed or amended by more than one person at the same time. The outcome of this testing was successful with only one operator being able to have access to the person details record at a time.

8.5.3 Training sessions were run by SAGE covering set-up, processing and end-of-year reconciliation. All payroll staff had to attend these courses before using the system. We also carried out testing on a test version of the software to give us some experience before the real thing.

8.5.4 Discussions were held with HM Revenue and Customs (HMRC) to reinstate our 2001 PAYE number. We had to then register the company details, set up access rights, create the pay elements, set tax & fee rates, enter the employees details and allocate their pay elements, all before running any pay.

## 8.6 Description - Operating the system

8.6.1 FCI staff tested the system, attending SAGE training venues, testing the system functions, and setting up the relevant accounts / procedures. At the same time, FCI Branch also designed the pay forms, field & HQ instructions.

8.6.2 There were 3 payroll operators (one payroll manager & two admin operators) plus 2 payroll IT support staff from CaSIT Branch. The main entering of records and claim details was done by the admin operators whilst the checking of reports was done by the payroll manager. Any IT problems that occurred were dealt with by our IT support. End-of-Year reconciliation was carried out by the payroll manager.

8.6.3 A security system was devised so that all payroll hardware (2 PC's, 1 printer + 5 cabinets) were kept together. All field related documentation (Personnel Records, Claim Forms, Pay run reports, End-of-Year reports etc) were stored in locked cabinets, with restricted access, and access to other payroll material was also restricted to payroll personnel.

8.6.4 The Sage software had the functionality to pay staff through BACS direct to their bank accounts. However, we were advised by Scottish Executive Auditors that we were required to use the Scottish Executive Accounts System (SEAS) for payment.

8.6.5 Checking expenses claims was done by FCI Branch staff. All claims forms were date stamped upon receipt, checked and keyed. Initially, it was intended only to do a spot check on claims but it became clear that the managers weren't checking the claims properly, so all claims were checked to make sure they were completed correctly and amended where necessary. Despite repeated requests to managers to check claims carefully, errors continued to proliferate. It should be stressed that the problems did not relate to fraudulent claims. Rather these were errors due to carelessness. Claims were unsigned, dates did not match, arithmetical errors abounded.

8.6.6 FCI ran the pay runs generally two days before the field staff were to be paid. This gave us spare time in case of problems. For security and audit reasons, a pay run required both admin operators to be present.

8.6.7 Fee and expenses payments were entered using the payment wizard & expenses claim forms. Once all details were entered, reports were run, which the payroll manager checked to make sure all payment details (Gross pay, tax, NI etc) were correct. The payments were then authorised by the payroll manager. This had to be a visible authorisation to meet audit requirements. Payslips were then printed.

8.6.8 The BACS & SEAS files were then generated, and passed to the payroll manager for checking & authorisation, again to meet audit requirements.

8.6.9 A drawback of the software was that the Sage system was not capable of producing output files in the format required by SEAS. CaSIT support staff therefore wrote an MS Access program, which was used to reformat the output files created

by the software, to convert the output into the format required by the SEAS system. This was one of a number of programs written internally to enhance/complement the Sage system.

8.6.10 Back ups were taken in case a rollback was required at a later stage. Once the back up was taken the pay data was saved onto the system. A second back up was then taken.

8.6.11 Unfortunately the installation and live running of the payroll system coincided with the GROS migration to SCOTS. To compound this misfortune, the SCOTS contract was in the process of being changed from IBM to Logica. These factors resulted in a number of technical and communications difficulties which led to operational inefficiencies and delays.

## 8.7 Description - End-of-year

8.7.1 Pay years run from 6<sup>th</sup> April to 5<sup>th</sup> April. From 17<sup>th</sup> March, a tax update disc is sent from HMRC. This disc contains all the tax changes for the coming year and is loaded onto the system for the next tax year.

8.7.2 End-of-Year reconciliation must be run and all documents e-submitted to HMRC by 19<sup>th</sup> April. P60's have to be issued to employees by 31<sup>st</sup> May. These dates are legal requirements.

8.7.3 To e-submit the end-of-year information to HMRC we had to make sure that we had registered with the HMRC (Gateway). Also we had to make sure these details were entered into SAGE, so that our PC's met the IT submission requirements.

8.7.4 End-of-year reconciliation can only be run after you have completed the last pay period for that tax year. There is an end-of-year wizard icon on the system that you use.

8.7.5 The end-of-year tax disc had to be validated by the IT support team in CaSIT as, due to security requirements, admin staff can't upload files onto the SCOTS network. This tax disc has to be validated and installed before pay can be run for the new tax year. The same applies to the update submission module, the file that allows you to submit to HMRC on-line.

## 8.8 Conclusions - Pay forms

8.8.1 Despite the reduction in the number of pay forms over 2001, field staff still felt that there was too much paper to complete. In particular, claiming expenses was a tortuous process, partly because of the design of the form (lack of space in some key elements) and partly because of the completion requirements.

8.8.2 The expenses claim process was not successful. Forms were generally poorly completed and field managers' checking was not done well. This resulted in

all expenses claims (rather than a sample) having to be checked in-house – a burden which it would not be possible to bear in a real Census.

## 8.9 Conclusions - System set-up

8.9.1 The roles and responsibilities of the various stakeholders needs to be re-examined. A chain which links FCI, CaSIT, BST, the SAGE technical team, Auditors, SEAS and SCOTs is far too cumbersome and inefficient and needs to be greatly simplified.

## 8.10 Conclusions - Operating the system

8.10.1 The system succeeded in that the vast majority of claims were paid on time. Where claims were not paid on time, this was generally because of errors committed by the claimants.

8.10.2 Paying enumerator expenses weekly presented a difficult burden to both field managers and HQ staff and, because of limited staff resources, had a knock-on effect elsewhere. Enumerators, being at the lowest pay level, can probably afford to wait least long for reimbursement of expenses.

8.10.3 The Test experience seems to show, on the face of it however, that an in-house pay system in 2011 would be feasible. More work needs to be done to explore scalability and to identify the options which might exist for further simplification within the system, particularly, perhaps, with the payment of expenses.

8.10.4 The concept of Annual Leave for temporary part-time workers once again caused confusion, as it did in 2001 and needs to be looked at again. For example, enumerators were asked, in 2006, to work for 79 hours in a 6 week period. This works out at about 13 hours per week on average although the likelihood is that average hours would not be worked in any of these weeks. How is it possible to determine whether a day spent not working on Census duties is being taken as Annual Leave?

## 8.11 Recommendations - Pay forms

8.11.1 The design of expenses claim forms needs to be revisited. FCI Branch should seek to achieve further simplification of the expenses and payment claim system. By 2011, it is inconceivable that online claiming of expenses will not be possible and early discussion should be held with auditors to determine how best this might be done to achieve both system simplicity and a proper checking and authorisation regime. Consideration should be given to paying enumerator expenses fortnightly to reduce the authorisation and throughput burdens on field managers and HQ staff.

8.11.2 Instructions to field staff for the completion and checking of expenses claims are clearly inadequate and should be revisited with a view to making them comprehensive but simple to follow. Examples should be provided where possible and greater emphasis should be placed on this matter in field staff training.

## 8.12 Recommendations -The Pay System

8.12.1 FCI Branch should lead further research into options for an in-house operation in 2011, identifying the costs, benefits and risks involved with each option and, in particular, identifying the roles and responsibilities required of key stakeholders. This work should consider any further simplifications which might be possible within the system, for example, online, or less frequent, expenses claims.

8.12.2 Should an in-house operation be sanctioned for 2011, a field pay project team should be set up to take ownership of the project and tasked to commit the required resources at the required time to see the project through from systems design and installation to completion of field pay. The project should be led by a FCI Branch representative (the customer) but should contain representation, at a sufficiently senior level, from other stakeholders which might include CaSIT support, the software technical team, BST, Auditors, SEAS and SCOTS. A presumption guiding the project should be to recognise that the uniqueness of the census field pay project may require exceptional derogations from the normal corporate roles, responsibilities and procedures in order to work in the most operationally efficient way. For example, being on SCOTS was a substantial operational disadvantage in 2006. Should the research indicate that the system would be more streamlined if it was 'off-SCOTS' and on a separate internal network, then this should be done.

8.12.3 Further research should be carried out by FCI Branch into the concept of Annual Leave entitlement in the context of part-time and temporary posts. Discussions should be held with appropriate authorities to seek derogation from this requirement, perhaps by adding an additional pay element to fees in lieu of leave.

## 9. Field Logistics

### 9.1 Purpose

9.1.1 To supply the field with all the documents and materials necessary to carry out the Census Test Enumeration.

### 9.2 Description

9.2.1 In a Census many millions of documents and products have to be distributed to the field. These include public forms, envelopes, administrative documents, bags, pens, alarms, maps etc.

9.2.2 For the Test, FCI Branch was responsible for the creation and procurement of the Census material. FCI Branch staff also delivered and collected some of the supplies, but we also used the SE call off contract courier (ANC) to deliver and collect large supplies.

9.2.3 GROS also experimented with the idea of centrally holding onto spares and issuing as and when required. We also tried having the printer pick and pack the Enumerator paperwork supplies using collation charts, with the field still picking and packing the stationery.

9.2.4 We experimented with delivering the appropriate field supplies to District Managers' homes as required, and got them to deliver these on to the training venues where they were picked up. We also followed the same procedure in returning completed Census forms as we did in 2001.

### 9.3 Conclusions

9.3.1 The arrangements put in hand for the 2006 Test were uniquely done for the Test and the volumes concerned. Very little was learned which can be carried forward to 2011 but there are areas highlighted in the recommendations which will require further study and robust proposals produced.

9.3.2 In an exercise of the scale of the 2011 census, with many millions of documents and other materiel having to get to myriad locations throughout the country at different dates, the picking and packing of these supplies prior to despatch, and their subsequent distribution, is key. In 2006, HQ staff did it and in 2001, where much of the documentation was produced via a UK contract, ONS did it for us. The first of these is not repeatable for 2011 and there may be doubts about whether ONS would provide this service again, especially if Scottish requirements were met from a GROS-only contract.

9.3.3 Traditionally, material for District Managers, Team leaders and Enumerators has been delivered to the District Manager's home. He/she was then responsible for distributing amongst the enumeration team (often 40+ people). This has in the past, and there were echoes of this in the 2006 Test, caused difficulties for District Managers because the supplies are very bulky and extremely difficult to store



(imagine a District Manager in a flat in a multi-storey block). Moreover, they are difficult to transport in other than large vehicles.

#### 9.4 Recommendations

9.4.1 FCI Branch should conduct a research project into the feasibility of a network of field offices being set up throughout Scotland to which supplies can be delivered, stored and picked up from. The research should further consider whether, if such premises were available, they could also be used for other functions, for example, interviewing field staff, holding field training sessions, acting as a remote office etc. Local Authorities, as a prime customer for Census information, might be a useful first stop as potential suppliers of such premises but there would be others.

9.4.2 A small team within FCI Branch should be set-up to co-ordinate all the logistical aspects of the Census. In particular, the co-ordination between scannable documents being created internally, then printed by one contractor, admin documents and other field materials being created by a different internal source then probably being supplied by another contractor and IT equipment for field managers probably being required from a third contractor. All of these supplies have to be brought together and picked and packed (a fourth contractor?) and distributed (possibly a fifth contractor). CM Branch should note the number of procurements which might be required in this area and ensure they are resourced to cope.

## 10. Field/HQ Communication

### 10.1 Purpose

10.1.1 To facilitate communications between GROS and the Census field operation.

### 10.2 Test Issues

10.2.1 To test the setting up and equipping of a remote office to facilitate communication between Regional Managers and Census HQ.

### 10.3 Description

10.3.1 GROS was prepared to provide office accommodation should the Regional Managers (CRMs) require it. In the event, the 3 CRMs had the capacity within their homes and opted to use their own premises for this purpose. Their fees contained a 'home-as-office' tax free element for so doing.

10.3.2 Discussions were subsequently held between CaSIT and FCI Branches and a full list of equipment and service requirements was agreed.

10.3.3 GROS was required to establish a formal reporting structure within the Field Management Information System (FMIS) to communicate information between the different levels of field staff and Census HQ. The FMIS System, while referenced throughout this section, is evaluated in a separate section.

10.3.4 Four internet ready laptop PCs were purchased, with both MS Office and Norton Security Software installed. The Norton Security (anti-virus) Software was configured to restrict access to what was generally considered to be inappropriate non work related internet sites.

10.3.5 These laptops were also configured to require a password login, in order to provide an appropriate level of security. This was required because they would be used not only for submitting FMIS reports, but would be used on a regular basis by the CRM to conduct their daily administrative duties. It was therefore likely that these laptops would hold sensitive personal staff information, such as recruitment and payroll information.

10.3.6 Each CRM was provided with a lap-top PC, a printer, a fax machine, and a telephone answering machine, as well as any additional equipment (e.g. desks, chairs) required to meet with the Health and Safety regulations for home working. The fourth laptop PC was retained within CaSIT in order to provide support to the field, and also as a contingency should a replacement be required.

10.3.7 CaSIT staff carried out a workplace assessment at the premises of each CRM to ensure that the rooms and surrounding environment met Health and Safety standards.

10.3.8 A dedicated BT telephone line was installed in the CRMs' premises and they were also supplied with a Mobile PDA Device to aid communication and to enable them to provide assistance to their Census District Managers (CDMs) who were also being provided with a PDA.

10.3.9 District Managers (CDMs) were not provided with laptops. The Mobile PDA Device was therefore their primary means of communication. They used this mainly to facilitate the completion, via a browser interface, of the required FMIS reports. However, they were also provided with a fax machine for everyday use, which acted as a contingency for report submission should the web-based FMIS be unavailable.

10.3.10 Two additional mobile devices were also purchased in order to allow CaSIT support staff to provide training on the use of the device, to provide ongoing support for field staff, and again act as a contingency if required.

10.3.11 The Remote Office equipment was purchased with the assistance of colleagues in BST. The Mobile Devices and line rental were procured from Vodaphone under a 'call-off' contract, once it had been established that Vodaphone would give us the required coverage in the Census Test areas.

10.3.12 As there was a requirement for the CRMs to complete online reports via the FMIS system and because, for billing purposes, the field staff could not use their own phone line, a telephone line had to be installed in each of the three remote offices. Furthermore, the original proposal had been to install a standard BT line as the volume of data traffic would be minimal. However, during discussions with BST, it was recommended that Broadband be installed as the difference in cost between a conventional connection and Broadband was negligible.

10.3.13 An RD1 was therefore immediately completed, on 8 August 2005. Due to various delays, communications breakdowns and BT inefficiency, the 3 remote offices were not 'broadband ready' until 29 November 2005! To compound an almost comical catalogue of error and inefficiency, mostly by BT, two of the 3 CRMs were then disconnected because the account had not been paid! An incorrect account code had been used and the two CRMs were reconnected the same day.

#### 10.4 Conclusions

10.4.1 On the whole our dealings with BT, and the level of service provided, in relation to the installation of telephone lines and the ordering of Broadband, were both very unsatisfactory and fraught with problems. These difficulties seem to arise because BT is such a large organisation, made up with a number of different departments and services, where the staff are either discouraged from or are not allowed to interact with other departments within the organisation. It is therefore subsequently left for the customer to determine which is the correct department to deal with for this particular issue or requirement. This lack of flexibility was one of the main causes for the delay in installing both the dedicated telephone lines and the broadband packages.

10.4.2 In relation to the installation of the dedicated telephone line, if this is a requirement for 2011, it is essential to ensure that sufficient time is allowed for this installation process, as it can take up to 4 weeks to action a request.

10.4.3 The other difficulties encountered during the procurement of the telecommunication elements of the remote office were as a result of the requirement within GROS to route purchasing through CSD. As a consequence, sometimes complicated technical requirements were being fed to CSD who in turn passed these on to the contractor. This resulted in requirements being, on occasion, lost in translation and there was then an increased likelihood of errors occurring with the orders.

10.4.4 One area where the level of support was very good was the BST, who always made the necessary resources available, and provided the required services in a timely and effective manner.

10.4.5 However, based on the knowledge and experiences gained in 2006 and the very positive feedback, on the training and documentation provided, CaSIT staff would be able to organise and provide the training requirements in relation to the use of the equipment and services supplied.

10.4.6 Based on the level of support required through the period of the field operation, the equipment in the field proved to be reliable. Also, from CaSIT interaction with the field staff and based on the timely and informative data provided via the FMIS System, the laptops were viewed as valuable tools. Field staff reaction to the PDAs was mixed, however, with some complaining that they were cumbersome to carry about and use and, for these reason, they tended not to be used for inter-field communication. Personal mobile phones tended to be used instead. Fax machines were seldom if ever used.

## 10.5 Recommendations

10.5.1 If Remote Offices for field staff are to feature in the Census Rehearsal and the full Census, GROS should insist that a project manager within the telecommunication company be appointed to oversee all GROS requirements to ensure that the issues which arose during the 2006 Test, and the difficulties experienced in having to deal with various areas of the organisation, are not repeated.

10.5.2 As soon as the appointment of Regional Managers is confirmed, and their address known, arrangements should be made to have a Census dedicated telephone line installed.

10.5.3 In general, within GROS, the procedures for procurement of technical but non-IT equipment, such as telecoms equipment, need to be looked at and revised, with responsibility being delegated where appropriate to allow those personnel with the required technical knowledge to deal with the contractors directly. This 'delegated authority' should apply for the lifetime of the 2011 Census project.

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10.5.4 Consideration should be given to outsourcing the procurement and delivery of the equipment required for remote offices unless CaSIT Branch were to be staffed to supply, install and support the PCs and other equipment for the whole of Scotland. CaSIT Branch could, however, continue to be responsible for training in the use of the equipment. The SE SCOTS Team should also be considered as they currently supply remote offices for other SE Departments.

10.5.5 Field staff requirements for IT and other electronic or technical equipment should be re-visited in the light of a statement of requirements for inter-field and field/HQ communication which should be drawn up by FCI Branch (the customer). The passage of time between now and the 2009 Rehearsal, especially given the rapid advances in communications equipment generally, would probably mean that the 2006 equipment supplied will be out-of-date. A key point is that the final decision on the equipment to be supplied should rest with the customer (FCI Branch) after seeing the results of feasibility and usability testing organised by CaSIT Branch in response to the SOR.

## 11. Field Management Information System

### 11.1 Purpose

11.1.1 To enable management information to flow from the field to Test HQ to indicate to field managers and HQ staff whether objectives were being met and ,if not, to allow decisions on whether central or local management action was needed in the face of threatened objectives.

### 11.2 Test Issues

11.2.1 CaSIT wanted to prove the concept of a web-based FMIS despite the fact that a less sophisticated system would have sufficed for the Test.

### 11.3 Description

11.3.1 In line with the agreed strategy for a 2006 Census Test FMIS, a mechanism was required to allow management information to pass, within a pre-defined timetable, up through the field hierarchy to the Census field managers and GROS HQ staff. Although there was not a specific requirement to provide a web-based FMIS, it was decided that developing such a system would provide a useful proof of concept and would also allow the testing of the use of mobile devices to submit data.

11.3.2 The FMIS reports, defined by FCI Branch and developed by CaSIT support staff, provided the medium for the submission of this data. The reports were completed by both the Census Regional Managers (CRMs) and Census District Managers (CDMs), with the data contained in the reports taking the form of non-sensitive numeric or Yes/No responses. By non-sensitive we mean purely statistical information. No personal data or census data was transmitted or captured, although there were free-format text boxes included to allow the user to add narrative and anecdotal comments. Once these reports were submitted to the FMIS, the supplied information was assessed against the pre-defined performance targets built into the system and, where required, corrective action was taken.

11.3.3 The secondary purpose of the FMIS was to retain a record of all data collected for post-test evaluation, allowing the evaluation of both the information obtained (substance and timing etc) and the field operation itself.

11.3.4 The development of the FMIS was carried out with the assistance of an external consultant, and was built using Java, XML and HTML. The CaSIT support staff worked closely with the consultant to ensure that all requirements were addressed, and that the system was fully tested.

11.3.5 The developed FMIS provided both the CRM's and CDM's with a simple, yet powerful method of completing and submitting reports through a web. All information exchanged was handled and stored using XML which removed the overhead of licensing a database product. This made any further processing of the data more cumbersome, however, as it was not held in a relational manner.

11.3.6 The solution allowed report templates to be designed and modified using a browser-based editing tool, thereby making the process of developing reports an administrative task rather than a software development task. Adopting this process allowed the required templates to be developed and tested by GROS staff. It also allowed the support staff to quickly develop new or modify existing reports as additional requirements came to light; even during live running.

11.3.7 The pre-defined reports were produced in advance, and were based on word documents provided by FCI Branch. The reports were short & concise and requested varying details on subjects from recruitment to the numbers of forms delivered, as well as other more general information.

11.3.8 The FMIS was also capable of providing aggregated information, based on the CRM and CDM data submitted, at a Census District (CD) level. This was invaluable because an important element of the FMIS was the ability to set targets within the system. Subsequently, reports submitted with figures that fell below a particular threshold were displayed in red to alert CRM's and HQ staff to potential problems.

11.3.9 Another important aspect of the FMIS was the ability to manage when reports were submitted to field staff and thus when they had to be completed. This allowed HQ to intervene if a problem did occur in the field. This was achieved by providing the field staff with a timetable of when each report was required, and what was required to be submitted. The reports were then only visible on the system for a period of 48 hours, after which time the field staff would need to contact HQ staff to have the report reactivated. This allowed us also to introduce a competitive element to the process, the hope being that this would encourage the timely completion of reports. This was possible because the CRMs were able to view reports of other CRMs and CDMs.

11.3.10 The FMIS was also designed to support the provision of value added information such as a list of useful addresses and contacts, the intention being to use this help facility to provide a Frequently Asked Question section. However, FCI Branch did not provide the required input to fully develop this aspect of the system.

11.3.11 Nevertheless, the FMIS was adapted to allow the creation of reports for completion by the Processing contractor. These reports requested, among other things, details of the numbers and condition of the boxes delivered to the Contractor by the logistics contractor.

11.3.12 The FMIS was extremely flexible in so far as existing reports could be amended to include additional questions, even during the period when the report was active. Changes could therefore be made and Field staff were then able to resubmit the report after completing the additional elements added.

11.3.13 In order to ensure the specification and building of a fit for purpose system and service there were two distinct areas where CaSIT staff required to have a good level of understanding. The first was the actual field procedures produced and provided to the field staff, and this level of understanding was achieved through regular close contact with FCI branch to discuss, refine and agree the specified

requirements. The second was to acquire a working knowledge of the system being built by the consultant involved as well as the underlying software being used for this purpose. This was achieved by building into the contract for the work, a number of training days where the consultant would detail and explain to CaSIT staff how the system was constructed and operated.

11.3.14 CaSIT staff were given comprehensive training in the use of the FMIS by the external consultant who assisted with the design of the system. This training was then cascaded to other staff in FCI Branch in order for them to fully understand the full functionality and capabilities of the system. Training of the CRMs in the use of both the FMIS and the handheld devices had already been carried out as part of the Remote Office set up and training sessions.

11.3.15 There were 30 FMIS for completion during the period of employment of the field staff, with CDMs required to complete the reports using the PDA mobile devices and the CRM's using the laptops provided. Appendix B provides details of the actual reports used, as well as the level response achieved.

11.3.16 Within each report there was an additional Information field to capture general comments or added value information. In the early reports these comments were very brief, which may have been as a result of the field staff having difficulty using the devices. However, with later reports it was evident that the field staff were becoming more proficient in the use of the device as their comments became more substantial and detailed.

11.3.17 The use of FMIS was further adapted later in the project to allow the data processing contractor to complete and submit time critical reports relating to the boxes and forms delivered to the site, as well as progress in respect of scanning.

#### 11.4 Conclusions

11.4.1 The requirement to use the Scottish Executive Mobile Telephone call off contract limited the choice of mobile devices available and potentially could have caused problems in relation to coverage.

11.4.2 A decision on the deployment solution was delayed, mainly due to the migration to SCOTS. This delay had an important bearing on the eventual solution, as the time factor heavily influenced the final decision on the hosting option.

11.4.3 There was no specific requirement to provide a web based solution, and FCI Branch were content to receive FMIS information over the telephone and by fax. Nevertheless, feedback from FCI Branch during both the development phase and live running was very positive and in particular they found the field's ability to add value added information in the free text fields both useful and informative.

11.4.4 It would certainly be easier for the CDMs to submit their reports via email. Nevertheless, we elected to give CDMs mobile devices as opposed to laptops for reasons of cost and in order to test the technology. The batteries, however, frequently went flat when managers were out in the field and there was no means of recharging them.



11.4.5 The full functionality of the FMIS was not fully utilised or exploited, with only one or two staff in FCI Branch accessing the system. It would have been a very simple process for CaSIT staff to add content, including attachments, to the web-based FMIS. In particular the help and contacts areas of the site could have been expanded to include more detail, such as FAQs and to provide more reference material which could have been utilised by field staff, FCI and CaSIT staff alike.

11.4.6 A relaxed approach was taken by FCI Branch to field managers occasionally not completing the required reports using the PDA and choosing to submit by email. When this occurred CaSIT staff transcribed the emailed information into the required format. This task was not onerous. With so few managers involved, and given the constant level of email and telephone contact, HQ tended to be well aware of events in the field without reference to the formal completion of FMIS reports. Field Managers, generally, did not feel positive about the FMIS. They claimed that there were constant changes to submission dates and deadlines (one Regional Manager claimed to have 300 emails concerning changes to FMIS reports or submission dates!). This frequency is denied by HQ staff but, nonetheless, led to a negative view of the FMIS from the Field Managers who saw it as a HQ imposition rather than as a means of helping them manage the field operation.

11.4.7 Another criticism made by Field Managers is that there was no two-way flow of information. They were never informed of targets or tolerances. Whilst it could be conceded that targets and tolerances should be shared with Regional Managers, this was partly due to the fact that targets were always reached. Had they not, communication from HQ would have been triggered and Field Managers would have known from that process.

11.4.8 There were periods of downtime of the FMIS caused by firewall issues which arose after SCOTS had been introduced and hampered the ability to remotely connect to the servers in Scolocate. The short term solution to these outages was to periodically reboot the systems and firewall, and CaSIT support staff provided BST with details of all the report dates to ensure that none of these reboots outages coincided with the periods when the field staff were required to submit reports.

11.4.9 The 2006 experience shows that, properly used, the FMIS is a generic tool which could also be adapted to fulfil any number of GROS information collation requirements, such as a medium for issuing internal questionnaires in relation to training evaluation for example. Its usefulness in the 2006 Test, for all of the reasons given above was, however, questionable.

## 11.5 Recommendations

11.5.1 If mobile devices are to be used to a greater extent in the 2011 Census, a separate contract should be negotiated for the provision of the devices. Furthermore, based on feedback from the field, these devices should be purchased with car re-charger cables.

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11.5.2 For 2011 FCI and CaSIT Branches will need to ensure that everything is done to try and anticipate corporate issues, such as the migration to SCOTS, which could cause problems, and that sufficient time is built into the Project Plans to ensure the most cost effective and practical solution for the deployment of the FMIS is achieved. The GROS Senior Management Team will also have an important role to play to ensure that any wider corporate issues are taken into account.

11.5.3 For 2011, submission of FMIS reports will need to be more tightly controlled by FCI Branch given the volumes of reports and reporters concerned.

11.5.4 The solution for 2011, which could be based on the foundation of the 2006 FMIS, should allow for a two way transference of data and more effective and efficient use should be made of the help and informational elements of the solution. It will also need to dovetail with the proposed Operational Intelligence solution to capture the elements of central data required to inform the Scottish field operation.

## 12. Publicity

### 12.1 Purpose

12.1.1 To encourage participation in the Test generally and, in particular, to test more effective ways of encouraging greater participation from people in under-enumerated groups.

### 12.2 Description

12.2.1 Barkers, the SE call-off contractor for PR matters, was engaged to implement a PR campaign in support of the Test.

12.2.2 The specific objectives of the campaign were to raise awareness of the Test in the 4 selected areas and, in particular, to target:

- Young males aged 18-30 in West Dunbartonshire;
- People of Asian and African descent in South Glasgow;
- People of East Asian descent, asylum seekers and refugees in North Glasgow; and
- Holiday home owners in the West Highlands.

12.2.3 Census Regional Managers were also involved in the publicity campaign and were expected to generate local publicity, primarily by using local radio and press outlets. Barkers ran a publicity workshop for them and provided them with a practical media toolkit.

12.2.4 In addition, FCI branch engaged Royal Mail to deliver an Advance Round leaflet announcing the Test within the Test postcodes only. The Branch also produced posters for general distribution within the Test areas and beer mats, specifically to back-up the attempt to appeal to young males in West Dunbartonshire. Translation leaflets in several languages were also produced to be used if and when an enumerator encountered a household without an English speaker.

### 12.3 Conclusions

12.3.1 It is difficult, if not impossible, to gauge accurately the effect of particular PR initiatives. Certainly, this cannot be done without a properly planned follow-up survey, which did not happen in the Test. We cannot say, for example, whether the beer mats in West Dunbartonshire led to more young males completing a Test form than would otherwise have been the case. By the same token, there is no evidence that any of the PR initiatives were counter-productive.

12.3.2 Whilst it must be true that an Advance leaflet would raise awareness amongst those who read it, there is anecdotal evidence that delivery of the leaflet was patchy. For example, about half of the enumerators in West Dunbartonshire received the leaflet after the Census form had arrived and there were reports of whole streets in Glasgow where the leaflet had not been delivered. This particular issue has been

brought to Royal Mail's attention and any future decision to use Advance Leaflets will be considered as part of the future negotiations with the postal service provider.

12.3.3 What was clear from the Test experience is that there was a deal of confusion between the parties involved (Barkers, FCI Branch and Regional Managers) as to roles and responsibilities. This led to some frustration and tension in the management of the operation and some potentially useful local PR initiatives could have been jeopardised. For example, Regional Managers did not see why they had to get clearance from Barkers to get slots for interviews on local radio.

12.3.4 The Media Workshop for Regional Managers was held too late to be as effective as it might have been. It was held at the start of the enumeration period but Regional Managers had been in post and had been attempting to generate local publicity some months in advance of this.

#### 12.4 Recommendations

12.4.1 Before Regional Managers are in post for the Rehearsal, FCI Branch need to initiate discussions with any SE call-off contractor being used for Rehearsal PR to clearly delineate the boundaries in the responsibilities for the various PR initiatives. In particular there is a need to be clear about where responsibility lies for implementing local publicity initiatives, particularly in local newspapers and local radio.

12.4.1 Media Awareness training for Field Managers needs to be done shortly after their recruitment for the skills learned to best be deployed in their local publicity campaigns.

## 13. Community Liaison

### 13.1 Purpose

13.1.1 To foster a feeling of inclusiveness within the communities in the Test areas who might be apprehensive about completing Test forms, or who are in traditionally hard-to-count groups, in the hope that this might encourage participation in the Test.

### 13.2 Test Issues

13.2.1 To encourage participation in the Test of sub-groups who might otherwise consider themselves as marginalised.

### 13.3 Description

13.3.1 As has been noted in the Introduction, the areas selected for the 2006 Test were deliberately selected for the enumeration challenges they presented.

13.3.2 A well-developed Community Liaison network was put in place which engaged the appropriate Scottish Executive Agencies, the Local Authorities, ethnic communities and organisations representing groups such as asylum seekers who were known to be housed in the North Glasgow Census District. Frequent contact with the gypsy//traveller community, particularly in Lochaber/Breadalbane, area was a strong feature of this network.

13.3.3 In addition, ethnic communities were targeted in recruitment publicity and young males in West Dunbartonshire were targeted by the production of beer mats advertising the Test which were distributed to public houses within that Test Area.

### 13.4 Conclusions

13.4.1 It is impossible to measure the effectiveness of these efforts with any confidence, particularly in a Test where participation is voluntary. Moreover, there was no follow-up survey amongst the targeted communities which might have shed some light on the issue.

13.4.2 There was no questions on the Test form which would indicated whether or not a person was an asylum seeker. There may well be indications from write-in answers to the language question or from the ethnicity question but these data have not been analysed at the time of writing.

13.4.3 Response generally from the Glasgow CDs was poor (31% in Glasgow North and 40% in Glasgow South). It might reasonably be concluded from these figures that efforts to engage local communities did not succeed.

13.4.4 In West Dumbarton, we certainly got responses from young males but it is not possible to reach any conclusion about whether the beer mats played any part in this. Indeed, focus group work in this area after the Test conducted by TNS System 3 did not indicate that the beer mats had seeped into the consciousness of the young males of West Dumbarton sufficiently for them to have been remembered.

13.4.5 On the other hand, there is some evidence of success with the Gypsy/Traveller community. 24 Test respondents described themselves as Gypsy/Travellers. Of course, we cannot say with certainty that these 24 would not have completed the Census Test form without the development work which was done with their community but given that the estimated number of Gypsy/Travellers in the Highland Council area was 22 households at July 2006<sup>1</sup>, this seems a very good response.

### 13.5 Recommendations

13.5.1 The programme of Community Liaison should be continued and should be widened and deepened in the run-up to 2011. Although no hard evidence from the Test can be brought forward to prove the success of the programme, it must be right that the Census is seen as inclusive and positive in the eyes of those we seek to reach if we are to secure maximum response.