**2012**

مـركـز الإحـصـاء ـ أبـوظبي
**STATISTICS CENTRE - ABU DHABI**

# ABU DHABI CENSUS 2011 FINAL EVALUATION

Lessons Learnt and Recommendations from the AD Census 2011
Process, Analyse, and Dissemination Phases

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# 1.0 Executive Overview

## 1.1 Project and Phase Description

**Project Name:** Abu Dhabi Census 2011

**Phase Names:** Process, Analyse, and Disseminate

**Overview:** This evaluation documents the Process, Analyse and Disseminate phases of the Abu Dhabi Census 2011. It follows on from the Data Collection Evaluation completed in January 2012. This document evaluates activities and progress from January to August 2012 when SCAD provided a hard copy of the AD Census 2011 Report to the Executive Council. Therefore evidence and comment are limited to the timeframe of January to August.

The Strategy & Policy Sector received the mandate from the Director-General to write this report. It is a joint effort between the Project Management Office and Policy teams. Project management analysis was used to asses risk, change, resources, communication, and knowledge and document management.  Highlights, recommendations, and lessons learnt are also documented. Evidence for this report is based on the monthly Continuous Improvement (CI) reports and the Lessons Learnt worksheets that Census teams completed with the evaluation team.

This evaluation also includes a review of the goal and objectives stated in the *FUP3 Roadmap v5*. The AD Census 2011 goal is to provide data about the population and housing characteristics of individuals and families at the Emirate and regional level. Objectives were established to contribute toward achieving the goal. They are listed below and assessed in Section 2.1 (page 5). SCAD has achieved most of the objectives. Those that remain are on their way to being achieved in December 2012 pending the release of the census products and services. The objectives for the Abu Dhabi Population Census 2011 were to:

1. Provide Census Night (de facto) and Usual Residence (de jure) counts of the population of the Emirate of Abu Dhabi, across the different regions

2. Provide information (including metadata) in suitable formats on the size and distribution of the population of the Emirate of Abu Dhabi, together with associated demographic, household, social and economic characteristics.

3. Provide a limited range of housing information, derived from information collected in the enumeration of Housing Units

4. Provide a dataset that can be used to develop frames appropriate for the future conduct of social and household surveys

5. Produce a series of indicators, consistent with the SCAD list of  statistical indicators

6. Complete the listing of business establishments and their key characteristics for remote areas and island areas not covered in FUP2

7. Increase awareness of the role of SCAD in the collection and provision of statistical information

8. Develop the capability and capacity of SCAD in the preparation, collection and production of statistics

As mentioned in the previous Data Collection Evaluation, SCAD is a young government entity and this was the first census. Much was done within an incredibly tight timeframe. The highlights from the Process, Analyse, and Disseminate phases were numerous:

- The GIS team won the ESRI Presidential Award in GIS Strategy for the use of GIS in the AD Census 2011. The award is for GIS teams that add value to data accuracy.
- Policy and PMO worked well together on the Continuous Improvement monthly reports and Evaluations. There was good teamwork and flexibility throughout the year.
- The output tools are functional.
- Individual teams faced daily challenges but persevered and sought solutions to maintain progress.
- There was good communication and coordination between SIS, Methodology and Population & Social. Whenever there were data issues, there were discussions and resolutions and a quick turnaround.
- The administrative data collection in the labour camps saved money and time for the collection.
- The coding system was flexible based on the on-going needs and changes of the project.
- CANCEIS worked well for the imputation and SAS worked well for the micro-editing.
- Population & Social staff skill and knowledge increased and they now have a comprehensive understanding of what happens in the Process, Analyse, and Disseminate phases.
- As a result of the census, SCAD has a proper data dictionary. The template can be repeated for other surveys and of course, the next census.

The islands and VIP field collections were still ongoing when the Data Collection Evaluation was written. Lessons Learnt workshops were held with the Team Leaders to capture their information. There were several highlights worth mentioning:

- The islands field collection was completed ahead of schedule.
- There was good cooperation with the AD Municipality Office, the offices of HH. Sheikh Khalifa and HH. Sheikh Mohamed, and the Critical National Infrastructure Authority (CNIA), in order to get access to the islands.
- The Team Leader of the VIP collection worked directly with the VIPs' households and established good relations which will help for the next census.

More highlights are available in Section 3.1 (page 11).

As with any large-scale project there were shortfalls. All the AD Census 2011 teams identified them in the Lessons Learnt exercise. Their comments are documented in Appendix A (page 20) and provided as evidence throughout this report.

More importantly, the teams provided recommendations for improvement – what they think must change in order to improve the next census. Some of the recommendations were similar to those in the Data Collection Evaluation: start planning for the next census 2-3 years earlier and apply a stronger commitment to project management. Specific recommendations for the Process, Analyse, and Disseminate phases include ensuring the Metadata team has a stronger role from the beginning; creating an organised data entry system; establishing a data processing management team to coordinate the different data streams; and having a Post-Enumeration

Survey to understand coverage and validate the results. These are important recommendations to be seriously considered by management (Section 5.0, page 17).

SCAD now has five evaluations of the AD Census 2011 – a Pilot Evaluation, a Data Collection Evaluation, the UN Review, the Technical Review, and this Final Evaluation covering Process, Analyse, and Disseminate. Each evaluation and review has recommendations to improve the next census. The challenge now is to consider the recommendations, learn from the AD Census 2011 experience, and build a better survey/census system for the future.

## 1.2 Project Closure Summary

The Final Evaluation has been written because the collected data were processed, analysed, and disseminated and a report was submitted to the Executive Council. According to the Output Plan, the census products and services will start to be released in December 2012 and throughout 2013.

# 2.0 Project Requirements and Performance

## 2.1 Goals and Objectives

This section compares the actual phase performance to the project goal and objectives that relate to the Process, Analyse, and Disseminate phases. Several objectives were written with vague language. For example, in the Goal and Objectives 1, 2, 3, and 7 it is not clear who the target audience is. Who is SCAD providing the information for -- the public, the government entities, and/or Executive Council? At other international official statistics agencies such as Statistics NZ, the intent is to disseminate data to the public and government. In the future, all census objectives should follow the SMART rule – they should be written to be Specific, Measurable, Accurate, Relevant, and Timely.

| Project Goal | Actual Goal Performance |
|---|---|
| Goal 1: To provide data about the population and housing characteristics of individuals and families at the Emirate and regional level. | It is anticipated that the goal will be met in December pending the release of the census products and services. A report was submitted to the Executive Council in August with this information but as it is not clear who the audience is (who is SCAD providing the data to?) it is difficult to comment on performance. |

| Project Objective | Actual Project Performance |
|---|---|
| Objective 1: Provide Census Night (de-facto) and Usual Residence (de jure) counts of the population of the Emirate of Abu Dhabi, and across the different regions. | This objective will be met in December pending the release of the census products and services. This objective has changed since it was created. SCAD has not released any data on a de facto basis and currently has no plans to do so. De jure data have been provided to the Executive Council. This objective should have been changed to reflect the new direction. Objectives can be changed using a formal Change Management process. It is not clear who the target is of this particular objective – the public, government entities, and/or the Executive Council. |
| Objective 2: Provide information (including metadata) in suitable formats on the size and distribution of the | A hard-copy report with demographic, household, social and economic characteristics has been submitted to the Executive Council. |

| population of the Emirate of Abu Dhabi, together with associated demographic, household, social and economic characteristics. | Output tools (Thematic Maps, Table Builder, and Community Tables) have been created and tested with the data. They are to be available on-line once the Executive Council has approved the release of data.<br><br>It is not clear who the target is of this particular objective – the public, government entities, and/or the Executive Council. |
|---|---|
| Objective 3: Provide a limited range of housing information, derived from information collected in the enumeration of Housing Units. | A hard-copy report with housing information has been submitted to the Executive Council.<br><br>It is not clear who the target is of this particular objective – the public, government entities, and/or the Executive Council. |
| Objective 4: Provide a dataset that can be used to develop frames appropriate for the future conduct of social and household surveys. | There is a dataset (Production dataset 5) that is final and can be used to develop frames within SCAD. |
| Objective 5: Produce a series of indicators, consistent with the SCAD list of statistical indicators. | SCAD have used the Census data to produce estimates of population and labour force that will soon be released in the Statistical Yearbook. Economics and Agriculture & Environment have used the preliminary population estimates for per capita calculations. |
| Objective 6: Complete the listing of business establishments and their key characteristics for remote areas and island areas not covered in FUP2. | The collection of business establishments in remote areas and islands has been done. |
| Objective 7: Increase awareness of the role of SCAD in the collection and provision of statistical information. | As stated in the Data Collection Evaluation: The visibility of SCAD has increased as a result of the collection. The communications plan was effective.<br><br>It is more difficult to determine if awareness has increased regarding SCAD's role in the provision of statistical information as the census data have not yet been released at the writing of this evaluation. A report based on the data has been provided to the Executive Council but it is not clear who the target is of this particular objective – the public, the government and/or the Executive Council. |
| Objective 8: Develop the capability and capacity of SCAD in the preparation, collection and production of statistics. | This is the first time SCAD has conducted a census and with experience comes knowledge. At the Lessons Learnt meetings, Team Leaders mentioned the increased knowledge and skill of themselves and staff. |

## 2.2 Outstanding Tasks and Issues

At the time this evaluation was written, the Goal and Objectives 1 – 3 and 7 remain incomplete. The main problem as discussed in 2.1 is knowing who the target audience is that SCAD is providing data and information to. What can be pointed out in this evaluation and already has been is the importance of writing SMART goals and objectives.

The Executive Council approved the release of census data in October and requested SCAD to provide them with an outline of what will be released to the government and public. The table below was translated into Arabic and provided to them in October.

The current output plan is to release the census products and tools throughout December and 2013. It was designed to increase the range, customization, and depth of census data available to the public, government, and internal SCAD users.

| Census 2011 Outputs | Public | Government | SCAD | Release Date |
|---|:---:|:---:|:---:|:---:|
| **Publications** | | | | |
| Census 2011 Report | ✔ | ✔ | ✔ | Dec-12 |
| Abu Dhabi Census 2011: Success Story | ✔ | ✔ | ✔ | Dec-12 |
| Statistical Atlas | ✔ | ✔ | ✔ | Dec-12 |
| Emirati women | ✔ | ✔ | ✔ | 2013 |
| Population trends | ✔ | ✔ | ✔ | 2013 |
| Development and urban change study | ✔ | ✔ | ✔ | 2013 |
| Household characteristics and structure study | ✔ | ✔ | ✔ | 2013 |
| Education | ✔ | ✔ | ✔ | 2013 |
| Labour force | ✔ | ✔ | ✔ | 2013 |
| Education and labour force study | ✔ | ✔ | ✔ | 2013 |
| Migration | ✔ | ✔ | ✔ | 2013 |
| Life tables | ✔ | ✔ | ✔ | 2013 |
| **Tools** | | | | |
| On-line Thematic Maps | ✔ | ✔ | ✔ | Dec-12 |
| On-line Community Tables | ✔ | ✔ | ✔ | Dec-12 |
| On-line Table Builder | ✔ | ✔ | ✔ | Dec-12 |
| On-line Statistical Atlas | ✔ | ✔ | ✔ | 2013 |
| **Metadata** | | | | |
| Data Variable Dictionary | ✔ | ✔ | ✔ | Dec-12 |
| Metadata Report | ✔ | ✔ | ✔ | Dec-12 |
| Data Quality Report | ✔ | ✔ | ✔ | Dec-12 |
| Questionnaires | ✔ | ✔ | ✔ | Dec-12 |
| ✔ = selected variables and selected geographies have been defined for public and Government users. Variables and geography available for each have been provided in attachment. | | | | |

## 2.3 Phase Performance

### Milestone and Deliverable Performance

As they did during the Build and Collect phases, the Project Management Support (PMS) team monitored the milestones and deliverables throughout most of the Process, Analyse, and Disseminate phases. However due to a lack of resources and increasing work demands of other projects, a decision was made to discontinue the formal monitoring. Updates were documented in the monthly PMO reports and in the weekly Data Sector reports provided to the Executive Director.

The PMO and Policy teams continued to write the Continuous Improvement reports tracking the monthly highlights and risks. These reports were disseminated to the senior management.

As with the Collect phase, milestone deadlines were tight in the Process, Analyse, and Disseminate phases. This meant a lot of work within a limited amount of time which impacted on the teams as they strived for the end of May deadline. For example, Population & Social had to

reduce the amount of small area analysis in their original plan. Methodology had to put other work aside and spend much valuable time sorting out the labour camp data and coding issues.

Across all the teams there were issues which caused delays and that combined with a tight deadline (which may have been unrealistic to begin with) and the large amount of work to be done, resulted in the end of May deadline pushed to the more realistic date of 2 August. This major deadline was met – the report on census data was provided to the Executive Director of Statistics Sector who then forwarded it on to the Director-General's Office.
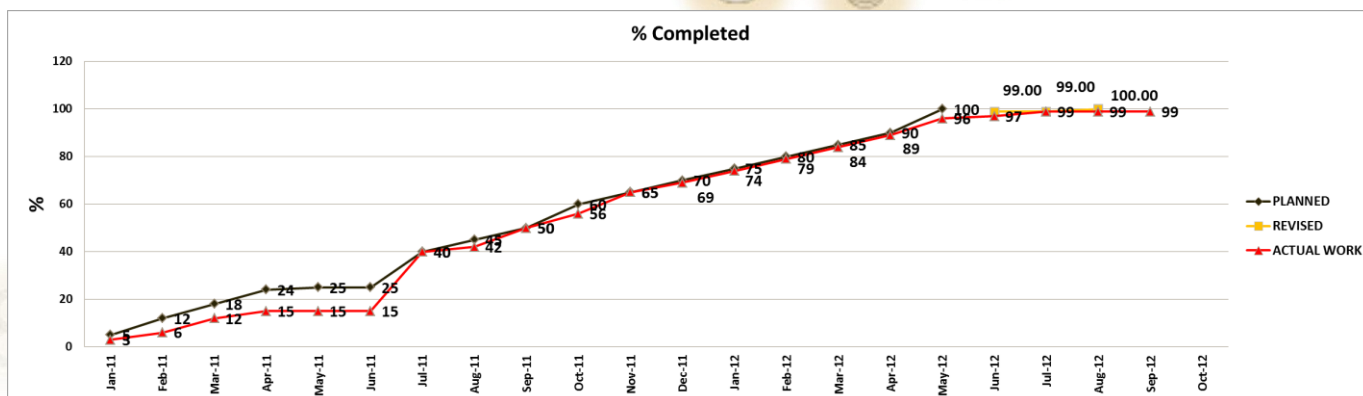
The table below summarises the milestones and deliverables within the Process, Analyse, and Disseminate phases.

| Milestones & Deliverables | Evaluation Comments |
| --- | --- |
| Milestone: Preliminary Release | The deadline was end of December 2011 but was not met. The documentation was prepared but the decision was made not to release the data because more comparisons with administrative data were required to ensure accuracy and therefore confidence. |
| Deliverable: Confidentiality Rules | The deadline was February 2012 and it was met. Rules to protect respondents' identities in the tables were designed and approved. |
| Deliverable: Final dataset (from the Methodology team to Social & Population) | The deadline was end of February but was not ready until June. The dataset was revised again after the handover because of Dr. Ibrahaim's external review which required a re-think regarding missing data. |
| Milestone: End of May Release | This deadline was extended to 2 August due the tight timing, data with complex issues, and inexperienced staff. |
| Deliverable: Data Dictionary | Originally the only metadata planned was the Data Dictionary. After the collection, the Metadata team was created which resulted in establishing extra requirements for census. Whilst sensible, they were never formally built in to the plan. The Data Dictionary was due in May 2012 but was not completed until September. |
| Deliverable: AD Census Success Story | The June 2012 deadline was missed and the project never had the proper resources. As of November the Success Story was translated and with Communications for design. |
| Deliverable: AD Census 2011 report | The 2 August 2012 deadline was met. The document was provided to Executive Director of Statistics Sector and eventually submitted to the Executive Council. |
| Deliverable: UN Review | The UN Review was a good idea not in the original plan – it was conceived in the later planning stages. SCAD invited Srdjan Mrkic to come in May 2012 and he submitted his report in July. The UN Review was positive but identified some key lessons.<br><br>Mr. Mrkic wrote that it was a "well designed census that introduced several innovations, such as the use of iPads and delivering the questionnaires personally to households ahead of the enumeration. It was also supported by well-developed |

| | planning and quality assurance mechanisms." |
|---|---|
| | And he wrote the census was also exposed to a certain domino effect – with a very short timeframe, tight deadlines that resulted in increased pressure on staff, causing quick recruitment and training, increased and extended workload in cleaning the input files and certain inconsistencies in statistics that require additional editing and correcting. |
| | More in-depth assessment is needed of his recommendations. |
| Deliverable: Dr. Ibrahim's technical review | Like the UN Review this was a good idea not in the original plan but conceived in the later planning stages. SCAD invited Dr Ibrahim Khodair Taha, former Social & Population Manager, to come in June 2012 and he submitted his report the same month. He reviewed the consistency of the data and discovered:<ul><li>High levels of item non-response (Unstated),</li><li>Need to separate out Not Stated from Not Applicable</li><li>Decline in numbers of Shared Households in Al Ain region compared with 2005</li><li>Decline of citizen households in Al Gharbia compared with 2005</li></ul>The Social & Population department addressed the issues. |
| Milestone: 2 August Release | This milestone was met. The AD Census 2011 report was submitted to the Executive Director of the Statistics Sector. |
| Deliverable: Census output tools (Thematic Maps, Community Tables, Table Builder, Statistical Atlas) | The tools are to be ready when the release occurs. It would appear that the release will occur in December 2012. However Population & Social Statistics has not yet signed off as of November 2012. They requested small changes which SIS were addressing to as this evaluation was being written. The tools are functional and pending the sign-off will be ready for release in December. |
| Deliverable: Themed Reports | The reports have owners, plans, and deadlines. They will be released throughout the remainder of 2012 and into 2013. Originally the plan was to outsource the work however due to budgetary constraints that decision has been reversed and the work will be done within SCAD. The lack of time and expertise within the Social & Population team is a concern as is the already heavy workload demands. Four reports are planned for release in December 2012. It is not known at this time if the documents will be ready particularly given the time it takes for translation and design. If the evaluation of AD Census 2011 were to continue, the Themed Reports would be a risk. |

The graph below provides information on the estimated and actual percentage of deadlines completed on time.



Based on the graph results one can see that census progress was behind schedule in June 2012. This was because the deadline of the AD Census 2011 report was extended to 2 August due the tight timing, data with complex issues, and inexperienced staff. The report was submitted on time to the Executive Director of the Statistics Sector and eventually forwarded to the Executive Council for approval. The final release has been set for December 2012.

## 3.0 Highlights, Best Practices & Lessons Learnt

The AD Census 2011 is a huge project. From the experience there are highlights, best practices, and lessons learnt that are documented in this report as well in the Pilot and Data Collection Evaluations. It is important to capture what went well, and to analyse what did not go well and why in order to improve planning, processes, and execution not just for the next census but for SCAD's entire survey programme.

Like with the Pilot and Data Collection Evaluations, workshops were held with each team that played a role in the Process, Analyse, and Disseminate phases to determine what went well and what did not. Because the VIP and island collections were on-going when the Data Collection Evaluation was finalised, their Lessons Learnt have been added to this evaluation. The following teams discussed their highlights, best practices, and lessons learnt:

- IT
- Metadata
- Methodology
- Dissemination (including SIS)
- Communications
- Project Management Support
- Population & Social
- Project Manager
- Executive Director of Statistics Sector
- VIP Collection
- Islands Collection

All teams provided informative answers to the following questions:
1. What went well during the Process, Analyse, and Disseminate phases?
2. What went wrong and why?
3. What are the most important lessons for your team?
4. What will your team do differently in the 2016 Census?

Please refer to Appendix A (page 20) for the complete Lessons Learnt tables.

## 3.1 Highlights

Highlights are the positive aspects of AD Census 2011 – the activities, planning, development, and partnerships that went well. There were many examples within the Process, Analyse, and Disseminate phases.

- There were excellent communications between PMS, Dissemination, Continuous Improvement, and Social & Population throughout the three phases.

- Continuous Improvement reports were written and emailed every month in English and Arabic.

- SIS managed the loading and testing of the tools without assistance from SAS.

- SCAD identified a total number of 109 islands and 52 of them were in the AD Census 2011 scope. Now SCAD has the information of 52 islands and will retain it for the next census.

- IT support was provided to all the teams throughout the micro-and macro-analysis

  - Access to datasets

  - Back-ups

  - Storage expansion

  - Implemented changes to the databases

  - Performance issues

  - Prepared server to run output tools

- Metadata became a recognised part of the census process and the team has greatly improved their knowledge and the scoping and building of SCAD's metadata system.

- The coding system was flexible based on the ongoing needs and changes of the project.

- Methodology was adaptable as required as the processing strategies changed.

- The Pop & Soc team gained invaluable skills as a result (e.g. running SAS programs, conducting analysis, etc.). Participation in census was also a team-building exercise.

- In spite of uncertain deadlines, most people kept working hard which is a credit to the professionalism of staff.

- The PMS team was very useful throughout the census. They did a lot of coordination behind the scenes.

- SCAD's employees (management & staff) supported the VIP collection.

## 3.2 Best Practices

This section discusses the best practices – an effective and efficient way of doing something that produces good results. AD Census 2011 teams displayed best practices in their work.

- It is well documented that people learn by doing. SCAD staff improved their capability by executing the Process, Analyse, and Disseminate phases. Because they did the work they are now in a good position to work on any survey because they understand what is required. Staff developed a deeper understanding and appreciation of the survey cycle and statistical operations.

- The dissemination tools that were created (e.g. Table Builder) are commonly created and used by other official statistics entities as well. SCAD's initiative and commitment to building these outputs will enhance the value of the data and create wider interest in the use of the data.

- Two reviews were conducted assessing the quality of the census data after collection and processing. One was an internal review conducted by the Agriculture and Environment department and the Economics department. The second review was external and therefore independent of SCAD. Both reviews identified issues within the data which helped SCAD to improve them. Reviews are a sound evaluative process routinely used by other international official statistics agencies.

## 3.3 Lessons Learnt

This section details the more important tasks/activities that did not go well and the lessons learnt from the experience. The information below is a result of discussions with the AD Census 2011 teams who worked in the Process, Analyse, and Disseminate phases. To review all comments, please go to Appendix A (page 20).

| What did not go well | Lesson Learnt |
|---|---|
| No definitive date provided for end of May release which was a major deadline. Vague deadlines made it difficult to determine resource allocation and plan for other work because there was no solid deadline. | A definite date to work toward means there is a set deadline. Staff should know specifically what they working toward because it maintains momentum and motivation. It affects planning and progress to have a vague idea of a major deadline. |
| Sometimes staff working on the census such as Methodology and Population & Social were pulled on to other projects. As a result momentum and concentration were lost, work stopped or an activity was not completed or was inappropriately rushed. All of this impacted on progress. | Process, Analyse, and Dissemination phases are just as important as the Collection phase. Decisions such as the level of detail to make public and what should be provided to the government are important and require attention. The role of an official statistics entity is to disseminate quality data therefore planning and diligence is required throughout the cycle. |
| During the Process phase, there were problems stemming from the Collection phase (disorganised labour camp spreadsheets, lack of understanding the meaning of marital status in the labour camp context, poor enumerator training, and the misunderstanding of the validation rules, etc.). Errors were found during the micro and macro analyses that could have been controlled at the collection level through consistent validation rules | More effort in the Collection phase would have saved a lot of time in the Process and Analyse phase. Being organized and having clear instructions and processes in place before collection means that processing will have fewer problems, be quicker, and the data will be of higher quality. Better communication between Methodology and Field would have made a difference. Administration data should be passed on to Methodology as it is |

| | |
|---|---|
| across all the streams (iPads, labour admin data, hotel forms, online forms, etc.). This resulted in a lot more work in the coding, validation and macro-analysis than anticipated. | collected so that quality checks can take place and feedback can be provided to Field staff. |
| The overall tracking of data records and all the different data streams did not work well. Data came from too many streams and it made consistent validation rules difficult. There was no responsibility and accountability for the various data collection streams. No one seemed to be in charge or fully know what was going on. It was very difficult to align streams and records. This has an impact on completeness and quality of data. | A data processing management team is required – a team where everyone working in data and processing come together. This will mitigate the problems suffered in 2011. |
| Like in the Data Collection phase, the lack of appropriate planning, and building and testing of systems and processes affected the Process and Analyse phases. It is not good practice to implement a system at the same time it is being built. For example, the data entry was disorganized because there had not been enough thought put into the design of the data entry system. As a result, there were a large number of problems with these data in proportion to the number of records. The coding system was also affected and the labour camp data collection was not properly tested. | More planning time is essential in the Build phase to test all systems, analyse and adjust them and implement the changes. Proper UATs and pilots are important to get everything sorted and tested before needing it. |
| Governance changed but there was never a clear announcement and this resulted in ambiguity about who was actually accountable in the last months.<br><br>The Census Committee meetings stopped as did reporting to senior management except for the monthly Continuous Improvement reports. This made making decisions and then disseminating those decisions to staff difficult. | Because SCAD is a small organization, ways were found to deal with the change in governance and informing senior management of progress and risk. Such ways included private meetings with individuals and the use of informal channels. However, this is not best practice and for such a large-scale project with important deliverables and milestones, in the next census, governance should be clear and committee meetings should continue until the data are released. |

# 4.0 Project Management Analysis

## 4.1 Resource Management

Resource management plays a major role in the successful completion of any project. It is the strategic function of project management methodology that organises, develops, and enables the resources required to achieve the desired goals of the project.

### Human Resources (outsourced and internal)

Outsourced
SAS was hired to build the output tools. The budget was known in advance and therefore planning and contract negotiations were able to happen early. The developers were managed by Dissemination. The contracts for the out-sourcing should have included hours of manpower requested and a clause that came into effect if the milestones were not met. However overall, the partnership between SCAD and SAS has been positive and the output tools will add value to the data.

Internal

There continued to be a shortage of staff across the AD Census 2011 teams working in the Process and Analyse phases. During the Collect phase the shortage meant that all SCAD staff were pulled into census work. When the collection was complete, staff moved back to their original roles. However there was still a shortage for the Process and Analyse phases. Extra staff were not provided though and this was due to the specific technical skills required to work within the Process and Analyse phases. SAS skills, prior census/survey knowledge, and analysis skills were necessary.

There were staff in Economics that could have been useful however the survey cycle within that department ramped up after the census.

Investment in recruitment and building capability in Population & Social and Methodology are required for a future census.

## 4.2 Change Management

Throughout the Process, Analyse, and Disseminate phases there was sometimes a lack of change control. Examples include:

- There were last minute changes to the coding system which caused downtime for staff and stress to meet deadlines.
- Deadlines were changed without clear communications and an understanding of what the deliverable would be and for what/whom.
- Governance changed but there was never a clear announcement and this resulted in ambiguity about who was actually accountable in the last months.

The Project Management Office (PMO) created a Change Management process but it was not properly utilised. It may have not been widely distributed to the AD Census 2011 teams. All future census management, committees, and teams should understand and follow the Change Management process.

Changes in decisions, deadlines, processes, and systems happen in any project. And some of it is necessary even if it is last minute and will impact on a group.  Any future SCAD census or survey should include a Change Management process. It requires any potential change to run through not only the proper chain of command but to question if it needs to occur at all. The process also considers the impacts and has a communication component built in to ensure all staff know about the change. A Change Management process reduces stress and provides clear instruction. It is a necessity for any future SCAD project.

## 4.3 Risk Management

Risk management is the systematic process of identifying, analyzing, and responding to problems within the project before they occur and/or get too unmanageable and affect progress.

The Process, Analyse, and Disseminate phases had a risk management aspect. For most of the 3 phases, the PMS team monitored milestone progress which led to determining which ones were at risk of either quality and/or missing a deadline. The Continuous Improvement team provided monthly reports that assessed progress as well. Their reporting was based on interviews with active census teams.

Below are examples of risks which were identified and then mitigated during the Process, Analyse, and Disseminate phases.

### 4.3.1 Project Risks Mitigated

| Risks | Mitigation actions |
|---|---|
| There was uncertainty on the understanding and agreement of outputs. | Dissemination communicated the range of final outputs, what is for the public and what is for the government, and what level of detail will be provided within each output. |
| AD Census focus decreased throughout the end but there was still work to do and approval required for the final release. | This risk was raised by both PMS and the Continuous Improvement teams and raised with the Project Manager. |
| There was a risk that the SAS programs creating the confidentiality rules would not function correctly therefore requiring re-writes. | The rules were approved by the Census Project Steering Committee. The SAS team successfully demonstrated that the routines being written were in line with the specification. Testing and QA were done successfully. |
| Data access was finally granted for the team working on the Building Reconciliation project however it was a limited to a dataset without all the variables. A copy of the dataset with the complete set of variables would have made identification of duplicate buildings easier. Progress was therefore slower than originally planned. | The incomplete dataset did not deter the team. Extensive work had to be done to make-up for the lack of a complete dataset. The team was still able to finish and identified a ranged of detailed issues and solutions. For example the work determined what buildings were statistical and non-statistical. This has improved the quality of the data. |
| The Intro to the AD Census 2011: Success Story wasn't ready by the 2 August deadline due to late planning and the fact that staff had moved on to other projects and there was a possibility of forgetting what was done during the census and not having the time to document it. | The archiving done for the overall census was helpful to mitigate the risk that people had forgotten some of what they had done or were did not have the time. Staff used the archive as a resource.<br><br>The Intro was made a priority in August and was translated and now ready for the December 2012 release. |
| There is potential that a high number of users could crash the output system when it is publicly available on the SCAD website. | Senior management and Dissemination have been working with SAS through the phases to discuss mitigation strategies. A total of three were discussed and it was determined to ensure the production environment was set up to efficiently handle as many requests as possible. This is called load balancing – i.e. multiple servers sharing the workload. This work was completed by SIS/SAS early November. |
| What was the quality of data? There is always the risk that any data may not be of an acceptable level of quality. | There were 2 reviews specifically looking at the quality of the data collected and processed. There was an internal review conducted by the Economics and Agriculture and Environment departments. They confirmed a number of challenges that the Census team was aware of and identified new issues as well. This review demonstrated that the Process, |

| | Analyse and Disseminate phases are just as challenging as Collect. The external review was conducted by Dr. Ibrahaim. He identified a number of issues with missing data that were resolved by Methodology and Social & Population teams. |
|---|---|
| There was the risk that the Social & Population team had too much work to do within a tight timeframe. | The Manager and Heads revisited the work programme and reduced the number of small area analysis work in order to do more urgent tasks and meet the 2 August deadline. |
| The end of May deadline was not going to be met due to a combination of data with complex issues, a tight timeline, and inexperienced staff. | The deadline was extended to 2 August. |

## 4.4 Quality Management (Continuous Improvement)

The Continuous Improvement team was comprised of staff from Policy and PMO. They were responsible for:

1.  Seeking and documenting evidence to be captured for the AD Census 2011 Final Evaluation

2.  Reporting monthly on progress (highlights and risks) to the Director-General and the Project Manager, the Census Project Steering Committee and the active teams

Similarly to the comments in the Data Collection Evaluation, it is difficult to determine how effective or influential the reports were. There is no direct evidence that the reports were being read and therefore affecting any change. It is unknown if the reports were forwarded to staff.

## 4.5 Communication Management

As mentioned in the Data Collection Evaluation, there was no evidence of a Communications Management Plan for the overall project, or the individual teams. In the future, it is advised to consider an agreed and visible plan. Effective communication – internal and external -- is an important aspect of any project. It is challenging in a large-scale project particularly in a survey/census because of the multitude of dependent activities going on simultaneously. But in such an example this is exactly why a Communications Management Plan is so important.

In the Lessons Learnt meetings, all teams provided examples of when communication worked and when it did not. It should be noted that some teams did not admit their own communications could have been better.

Examples of good communication:
*   PMS, Dissemination, Methodology, Continuous Improvement, and Social & Population all commented on the good communication between the teams.

Examples where communications requires improvement:
*   When the end of May release was delayed, there was a lack of communications with the staff, the data users (i.e. government) and the media. This is where a Communications Management Plan would have been useful in order to clear confusion. More information could have been provided to ensure there was a consistent message about the delays.

- There was uncertainty around the 2 August deadline. Teams noted during the Lessons Learnt workshops that no one was sure of the objectives or deliverables for that deadline. What deliverable was required? And for whom? For example Communications was unsure of the type of release (hard or soft) and what the expectations were from senior management. Social & Population were unclear what was due and if it was for the DG, Executive Council, or the Executive Director of Statistics Sector.
- There was a periodic breakdown in communication between teams and villas particularly when key leaders were on holiday. Work and/or communication stopped. Staff should be empowered to consult with others outside their team when key leaders are busy or away.
- A number of decisions were made at the very end of the project and not all active teams were a part of the decisions. Communications about the decisions was limited.

## 4.6    Knowledge and Document Management

SCAD is in the process of building a knowledge and management culture in order to collect, organize, transfer and distribute information among current and future staff. The Data Collection Evaluation recommended the formal documentation of processes.

The PMS team is managing the AD Census 2011 archiving process and ensuring that the work is done. They developed a system to integrate the information once it is all received. Majority of the AD Census 2011 teams were following the instructions and by the end of August 2012, almost all the relevant documentation had been collected in the shared folder. Some of the burden has fallen on PMS to sort through the files and determine what is relevant and if they are documents or data file but overall the process is working and SCAD has an archive of the AD Census 2011.

# 5.0 Recommendations for Change

The recommendations included in this report are directly from the AD Census 2011 teams. Team Leaders and staff had the opportunity to discuss what went well for their team and what didn't during the Process, Analyse, and Disseminate phases. More importantly however was what they would change for the next census. The answers could apply to the entire SCAD statistical work programme.

This section contains the most important changes for consideration. The top 10 recommendations are in the table directly below and were determined as the priorities by the Strategy & Policy Sector based on the evidence within this report. To see the remaining recommendations, please refer to Appendix A.

| Top Recommendations | Key Responsibility |
|---|---|
| 1.  Ensure a new census manager and team for 2016 are in place by 2013. | SCAD Senior Management |
| 2.  Create a comprehensive project plan that covers the end-to-end survey life cycle of the census with a known and sufficient budget | Project Manager |
| 3.  More planning should be built into the beginning phases of census – i.e. the Develop and Build phases – in order to properly design, test and fix systems, collection modes, processes, etc. because this means that the final three phases will go more smoothly. | Project Manager and Senior Management |

| 4. | Agreement on definitions and classifications before collecting data which will positively impact on the Process phase. | Metadata, Social & Population, Methodology |
|---|---|---|
| 5. | Invest into building the capability of the people who will analyse the data. | Social & Population |
| 6. | Determine all modes of collection and work through the integration in advance well before the Collect phase as this will positively impact on the Process phase. | Social & Population, Field, IT, and Methodology |
| 7. | Have a clear dissemination strategy that includes agreement with key stakeholders, and agreement on the output geography (description and rules) as well as the approval process before the Collect phase. Set release dates that can be achieved, including the approval process. | Dissemination, IT, Project Manager, Senior Management and Social & Population |
| 8. | Have a comprehensive internal and external Communications plan that covers the Collect and Disseminate phases. | Communications, Project Manager and Senior SCAD Management |
| 9. | Organise and facilitate a government users' consultation group during the Need phase of the next census. What are the users' requirements – what questions should be asked? What data do they require for their work? | Social & Population and Project Manager |
| 10. | A Post-Enumeration Survey (PES) is required for the next census. Coverage analysis is important and validates the results. SCAD should know and understand the undercount. | Project Manager, Senior SCAD Management, Methodology & Social & Population |

## 6.0  Conclusion

This was SCAD's first census and for a young government entity it is an achievement to have completed the exercise with quality data and tools. As previously mentioned it is anticipated that SCAD will release the online tools plus some reports by December 2012 with the remaining themed reports disseminated in 2013. It is the provision of quality and timely data which builds an official statistics entity's reputation so it is important for this to occur. There is every assurance that SCAD will release the data and tools which ensure the information is used.

As with any project there were shortfalls – things that did not as well as they could have. There are always improvements to be made and lessons to be learnt. It is best practice to learn from them, and use the knowledge and experience to create improvements and change in SCAD's statistical work programme. The most important and documented deficits from the Process, Analyse, and Disseminate phases are:

- More planning and time is required in the 3 phases. This includes developing and agreeing on Dissemination and Communication strategies and approval processes, establishing collection modes, and testing data entry and coding systems.
- Improve the capability and expertise of staff particularly for the Analyse phase.
- Ensure enough staff continue to work on census after the Collect phase and are focused solely on the activities

One positive step that will ensure that improvements and change do occur is the Statistical and Standard Business Processes (SSOP) project. The Process, Analyse, and Disseminate phases

(as well as all the other phases of the Generic Statistical Business Process Model) have been reviewed and the activities, inputs, outputs, and responsibilities have been mapped. Manuals of the processes will be created for all staff. SCAD statistical operations will improve, data quality will improve, and releases will be more timely.

## 7.0 Project Phase Acceptance and Closure

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## Appendix A

Appendix A consists of the Lessons Learnt worksheets from each AD Census 2011 team. They are in alphabetical order.

| Communications Lessons Learnt | |
|---|---|
| *What went well (the good things) for Communications during the Process, Analyse and Disseminate phases?* | • SCAD has recognised the importance of communications as a result of the census. |
| *What did not go well (the bad things) for Communications during the Process, Analyse and Disseminate phases?* | • Waiting for everyone else to do their jobs so therefore it makes it difficult to know what is going on and when to expect things<br>• No timelines given so difficult to plan<br>• No media press release for results – too political<br>• No ceremony for the release – too political<br>• No senior management objectives for dissemination of results |
| *What are the most important lessons for Communications?* | • Need a continuous Comms plan throughout the census |
| *What will Communications do differently for the next Census (2016)?* | • More visibility through all census phases if applicable<br>• Comms plan that is comprehensive around Collection phase and Dissemination phase |

| Continuous Improvement (CI) Lessons Learnt | |
|---|---|
| *What went well (the good things) for CI during the Process, Analyse and Disseminate phases?* | • Policy and PMO worked well together. Good teamwork and flexibility throughout the year working through issues such as annual leave.<br>• Excellent communications with PMS, Dissemination and Social & Population<br>• The team consulted, wrote, and translated a progress report every month. |
| *What did not go well (the bad things) for CI during the Process, Analyse and Disseminate phases?* | • It is unknown how influential as the monthly report were. There were no senior management meetings to discuss the findings. It was difficult to know if the reports were being read. |
| *What are the most important lessons for CI?* | • Visibility is essential to ensuring quality assurance/continuous improvement makes an impact. |
| *What will CI do differently for the next Census (2016)?* | • Encourage continuation of senior management meetings and that the CI team has a presence there. |

| Dissemination Lessons Learnt | |
|---|---|
| *What went well (the good things) for Dissemination during the Process, Analyse and Disseminate phases?* | • Tools built, the functionality worked well and finalized<br>• Teams delivered on the dates<br>• SIS were able to manage the loading and testing of the tools without assistance from SAS<br>• Good communication and coordination between SIS, Methodology and Population & Social. Whenever there were data issues, there were discussions and resolutions and a quick turnaround.<br>   o E.g. Sometimes the table comparisons were different -- what Pop & Soc tables looked like compared to the tables designed by the tools. Therefore the teams would get together and investigate and find the solution. |
| *What did not go well (the bad things) for Dissemination during* | • There have been several versions of the final data. This has consequences for the Dissemination teams both in as a resource |

| | |
|---|---|
| *the Process, Analyse and Disseminate phases?* | issue (staff had to be pulled off other projects) and from a workload issue. Every time the data structure changed GIS would have to review their minimum geography thresholds. This was a manual procedure that took lots of time and effort.<br>• Output specifications from Social & Pop were unclear or unfinished and Dissemination had to re-do their work as a result. It was a learning process for the Social & Pop team.<br>• Vague deadlines were a problem for resourcing. It was difficult to determine resource allocation and plan for other work because there appeared to be no solid deadline. |
| *What are the most important lessons for Dissemination?* | • There should be one master of classifications and codes document (one single repository) that everyone has agreed on and uses (Methodology, IT, Dissemination, etc.). Not using the same codes and classifications from the beginning caused many more problems than there should have been.<br>• Metadata should have a stronger role from beginning of the Census planning. Metadata is responsible for the single repository/document and manages it through the survey cycle. They should have the authority to ensure all teams recognize and use it.<br>• Contractors need to provide dedicated project management from their end throughout the life of the project. |
| *What will Dissemination differently for the next Census (2016)?* | • Metadata involved from beginning to end.<br>• Determine all modes of collection and work through the integration in advance well before the collection phase.<br>• There should be a dedicated tools development team for census with a longer timeframe. |

| Executive Director, Statistics Sector | |
|---|---|
| *What went well (the good things) during the Process, Analyse and Disseminate phases?* | • Good communication between teams (example: Dissemination, Social & Population, and Methodology)<br>• Clear roles for Social & Population and Methodology |
| *What did not go well (the bad things) during the Process, Analyse, and Disseminate phases?* | • Lack of knowledge transfer from experts to employees (example: SAS, Edit, analysis and data reviewing)<br>• Lost track of Census data versions. No clear process for final versions.<br>• No clear process for editing and reviewing data between Social & Population and Methodology<br>• Some work was duplicated due to lack of experience (frequent reviews and edits were done).<br>• A long time was taken to review and edit the data due to not following the validation rules during the collection.<br>• No clear plan has been developed yet for the themed reports because the content is not clear yet. Also it's not known if the content will be prepared in-house or by an expert.<br>• Administrative mapping (divisions) are not yet implemented.<br>• There was no clear process around the writing, editing, and approving of the final report submitted to the Executive Council. Controlling the versions was difficult.<br>• The original deadline to submit data was missed. |
| *What are the most important lessons for SCAD?* | • It's important to have a  visible data management control procedure tested, in place, and followed. |
| *What should SCAD do differently* | • Early planning, ensure enough there are enough resources, define |

| *for the next Census (2016)?* | the requirements, prepare the questionnaires and validation rules, and request the needed data from external data in advance which may be used in the project. |
|---|---|
| | • Prepare the detailed plan of the project and stick to the planned time line. Have clear processes in all phases of the project. All responsibilities and roles should be clear. |
| | • Allow enough time for each phase in order to have space for emergencies which may occur during the project implementation. |
| | • Define the required mechanism and technology to ensure the availability of logistics support (including the expenditure within the planned budget). Also it's important to give all team leaders access to the budget. |
| | • Be up to speed with the latest technologies (PDA, GIS mapping, etc.) |
| | • Begin recruitment of field staff earlier. Set clear conditions for recruitment to ensure all candidates are familiar with PDAS and computers. |
| | • Increase the duration of both theoretical and practical training for all employees in all phases. This will enhance their capabilities and skills to perform the job to the best of their ability. |
| | • Ensure that all employees (project team) understand the statistical concepts related to the project. |
| | • Early Selection for the general controllers and controllers and to be assigned to their working areas earlier. |
| | • Assign enough time for the pilot and ensure all areas are represented from the emirate for the test. Ensure all the programs and systems are tested before use and adjust them according to test results. |
| | • Communication campaign should be aligned with the implementation of field work to encourage the public to cooperate. |
| | • It's important to establish the related government and private entities to support the project. |
| | • It's important to improve and increase the communication with data users and let them participate in the project to avoid any misunderstandings. |
| | • Cooperate with Identity Authority to access their data and decrease the amount of collection time. |

| **Field – Island Collections Lessons Learnt** |
|---|
| *What went well (the good things) for Field – Island Collection during the collection phase?* | • SCAD identified a total number of 109 islands and 52 of them were in the AD Census 2011 scope. Now SCAD has the information of 52 islands and will retain it for the next census. |
| | • 24 Islands in Abu Dhabi and 12 in the Western Region (military and non-residential islands were excluded thus taking the number from 52 to 36) have been visited and completed in 6 days. The collection was completed ahead of schedule. |
| | • Good cooperation with the AD Municipality Office, the offices of HH. Sheikh Khalifa and HH. Sheikh Mohamed, and the Critical National Infrastructure Authority (CNIA). These entities facilitated the communication with island offices, and provided resources to collect the data and help people to complete the questionnaires. Their assistance was helpful and excellent relationships were established that will be useful for the next census. |
| | • The right people on the islands were contacted as a result of using |

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|---|---|
| | the AD Municipality Office and CNIA. They knew who to contact on the islands – the people who knew the islands, the people, the ways things work – in order to get the forms distributed and filled out. |
| *What did not go well (the bad things) for Field – Island Collection during the collection phase?* | • Lack of experience on reporting (Western Region). More time was needed and the process was too manual.<br>• Lack of overall planning for the islands collection<br>• Some companies/ contractors didn't respond on time<br>• Bad weather delayed the work by 2 days but they made the lost time up as indicated by completing the collection ahead of schedule |
| *What are the most important lessons for Field – Island Collection?* | • Relationships with CNIA and the Municipality are important to collect the required data<br>• The budget should be known before planning for the islands collection and more money should be provided in the next census<br>• To be careful about disseminating the information of islands due to political reasons. |
| *What will Field – Island Collection do differently for the next Census (2016)?* | • Create a project plan beforehand with a known and sufficient budget<br>• Conduct the islands' collection in parallel with the mainland collection<br>• Continue building and enhancing the relationships with islands' representatives, CNIA, the Municipality office and the offices of HH. Sheikh Khalifa and HH. Sheikh Mohamed. This may include thank you letters, meetings, etc.<br>• Standardize the reporting and use Oracle to simplify the process of preparing the reports |

| IT Lessons Learnt | |
|---|---|
| *What went well (the good things) for IT during the Process, Analyse and Disseminate phases?* | • Provided IT support to all the teams throughout the micro-and macro-analysis<br>  o Security<br>    ▪ Access to datasets<br>  o SAS support<br>  o Back-ups<br>  o Storage expansion<br>  o Implemented changes to the databases<br>  o Performance issues<br>  o Prepared server to run SIS tools<br>• Provided the infrastructure and demonstration for GIS team when they went to the San Diego conference<br>• Helped with servers and tools to enable the GIS map layers<br>• Smooth database management |
| *What did not go well (the bad things) for IT during the Process, Analyse and Disseminate phases?* | • Lack of communication. There was uncertainty around the 2 Aug deadline. IT was not informed when the final data (data production 5) was sent to Executive Council for approval. Accordingly the snapshot of final data were taken late.<br>• Currently, IT is uncertain when the final approval of data will be so that the data can be moved to the warehouse.<br>• There is no communication about who will be responsible for the census data.<br>• Most requests that came through IT were labeled urgent. |
| *What are the most important lessons for IT?* | • In order to determine who gets access to what, it is helpful to know the staff hierarchy of the project<br>• IT should attend all project progress meetings in order to be up to |

| | date on progress. |
|---|---|
| | • Maintenance and performance within database management is the responsibility of IT. |
| | • Workflows are needed. |
| | • More budget is required for software licenses. |
| *What will IT do differently for the next Census (2016)?* | • More planning and time required. |
| | • Build a clear workflow system for the phases after Collect. |
| | • Implement SDLC (framework for software development) which will help with requirements, versioning, and documentation issues. Will remove the grey area between SCAD and developers. |

| **Metadata Lessons Learnt** | |
|---|---|
| *What went well (the good things) for Metadata during the Process, Analyse and Disseminate phases?* | • The data lifecycle was defined and it was a good use of time |
| | • Metadata became a recognised part of the census process |
| | • A data access matrix was created detailing who can access data |
| | • The output variables were defined early |
| | • Important documents are now with metadata |
| | • Metadata designed a standard operating procedure |
| | • The team is responsible for building a census dictionary for the user |
| |    ○ A good system was built and can be used for all projects |
| |    ○ It lists the variable definitions and classifications |
| |    ○ By capturing the data, SCAD can now generate variable reports |
| | • The outputs tools are using the metadata intelligently (e.g. pop-ups for the user when accessing variables, and tables) |
| | • The team has come a long way in knowledge and scoping and building SCAD's metadata system |
| | • The elements of a census have been identified |
| *What did not go well (the bad things) for Metadata during the Process, Analyse and Disseminate phases?* | • When census began there was no metadata system or process – no way of capturing definitions and classifications properly |
| |    ○ Right from the beginning there should have been an established metadata system and process |
| |    ○ As a result nothing was documented properly |
| | • There was a lack of change control as a result of no early established processes |
| | • It was difficult and took a long time get access to census documents such as the training manual and the questionnaire |
| | • It was difficult and took a long time to get information and forms in the right format |
| *What are the most important lessons for Metadata?* | • A metadata system should be in place with a census dictionary with open access. This makes communication and planning easier and reduces confusion. |
| | • Agreement on definitions is required. |
| | • Metadata standards are required – e.g.  formatting of documents |
| | • All census staff need an increased understanding of metadata – enhanced awareness. |
| *What will Metadata do differently for the next Census (2016)?* | • Same as above |

| **Methodology Lessons Learnt** | |
|---|---|
| *What went well (the good things)* | • Methodology got a huge amount of work done in a very short time. |

| | |
|---|---|
| *for Methodology during the Process, Analyse, and Disseminate phases?* | They were a small team and pulled together. The task objective was clear and the team spirit and commitment was high. |
| | • The administrative data collection in the labour camps saved money and time for the collection. |
| | • The coding system was flexible based on the ongoing needs and changes of the project. |
| | • Methodology was adaptable as required as the collection and processing strategies changed. |
| | • The autonomy of the coding team was good. They were physically removed from the office and therefore able to focus entirely on the job. Being in the same villa made communications and sharing knowledge easier. |
| | • SAS worked well for the micro-editing. |
| | • CANCEIS worked well for the imputation. Results were accurate and reliable. It was easy to compare runs and change parameters. Amendments were made to the system on an as needed basis which suited the team. |
| | • The micro-editing team had a fair bit of independence and had good technical support from Population & Social. The 5 month timeframe worked well for them. |
| *What did not go well (the bad things) for Methodology during the Process, Analyse, and Disseminate phases?* | • Data storage was a problem. |
| | • The coding system wasn't used as efficiently as it could have been. Also there were many last minute changes. |
| | • Staff frequently lost access to data throughout the coding process. No one was informed that they were about to lose access. |
| | • IT changes to the coding system cause downtime for staff (checking to ensure data flow and to spot data corruption). They were idle for periods of time – there was nothing to do. |
| | • Power outages in Villa 9 and inconsistent, slow connectivity were problems during the coding process. |
| | • There were issues with the ID numbers not being unique and static which resulted in issues merging the data. |
| | • There was a lack of proper management throughout the coding process. |
| | • The coding training was not effective resulting in staff requiring a lot of assistance when doing the work. |
| | • Consistency was a problem for the collection of labour camp administrative data. Field staff did not consistently follow a file name protocol, or the agreed collection method. As a result the data were of poor quality and a lot of time and effort was put into sorting out the issues after collection, but before any processing could start. |
| | • Methodology did not know how much labour camp admin data were coming in so therefore they were unable to plan or resource properly. |
| | • The labour camp admin data were kept by Field until the last minute, rather than passed on to Methodology. This meant no quality checks could occur until the collection period was over and it was too late to properly fix any errors. |
| | • Data entry implementation was very messy. There was no proper management, the system for entering was of poor quality, and some forms were entered more than once in an ad hoc manner. |
| | • Overall there was a lack of clear thinking about what needed to be done and the amount time that would take to get activities done. For |

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|---|---|
| | example, the idea of double-entry (entering data from the forms twice) needed more thought and planning. It was immediately adopted without consideration for other ways of double-checking the data that were entered. There were many problems resulting.<br>• In the Process phase, Methodology had to work out problems that stemmed from Collection (labour camp spreadsheets, the understanding of marital status in the labour camps, proper enumerator training and understanding of the validation rules, etc.).<br>• The overall tracking of data records and all the different data streams did not work well. It was very difficult to align streams and records. |
| *What are the most important lessons for Methodology?* | • More careful and consistent administrative data collection is required.<br>• More planning time is essential to get everything sorted and tested before needing it (e.g. coding). It is not good practice to implement a system at the same time it is being built.<br>• Better communications with IT during coding is required.<br>• Better communication between Methodology and Field is required. Instructions and processes should be understood (all the way down to the enumerators) and agreed to before being put into place.<br>• Administration data should be passed on to Methodology as it is collected so that quality checks can take place and feedback can be provided to Field staff.<br>• Being organized and having clear instructions and processes in place before collection means that processing will have fewer problems, be quicker, and the data will be of higher quality.<br>• Labour camp data collection should have been tested first. |
| *What will Methodology do differently for the next Census (2016)?* | • A systematic method is needed for data entry:<br>  o Data should never be stored on C-drives<br>  o All data entered by data entry staff should go to a dedicated database – this may mean removing all validation rules from data entry forms<br>  o Each spreadsheet should be entered one data entry staff and not split into sections and entered by several staff<br>  o Care is needed to ensure all metadata that identifies the origin of data is also captured by data entry staff<br>  o No double entry should occur unless it is implemented systematically.<br>• There should be more electronic tracking of records in the next census, and not bits of paper everywhere, being exchanged several times, getting tatty and ineligible and lost.<br>• More time is required in the Build phase to test all systems, analyse and adjust them and implement the changes. Proper UATs and pilots are important.<br>• Effective training for coders, data entry clerks and enumerators. They need to understand what they are doing and feel comfortable with their equipment and not deviate from the instructions.<br>• For labour camp collections, the spreadsheet template should contain the following :<br>  o File name protocol is essential, e.g. camp name, employer name, area name<br>  o All company names must be written out in full (no abbreviations) using the name registered to the Government for trading |

<table>
<tr><td></td><td>licenses<br>
o  All company names must be checked by supervisors against the Government database of license numbers and names, before the data are approved as completed<br>
o  A frame of camps (and employers at each camp), is needed before starting the collection. This means check enumeration is essential.<br>
o  A dedicated clerical team is needed as part of Field for coordinating the return of spreadsheets and ensuring they match the frame, returning those not consistently following the instructions for revision, etc.</td></tr>
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| Project Management Support (PMS) Lessons Learnt |
| --- |

| *What went well (the good things) for PMS during the Process, Analyse and Disseminate phases?* | Archive<br>• By the end of August, almost all the documentation had been collected in the shared folder<br>• For the most part the teams were following the instructions<br><br>PMS<br>• Got data read for 2 August deadline<br>• Scheduled the last-minute addition of Dr. Ibrahim's report. PMS did now know what he would find so had rearrange time and resources and quickly adjust.<br>• When PMS chased people up to meet critical milestones the teams were supportive<br>• PMS used various ways to get different things done. For example, teams were experiencing fatigue in the last few months of census and were tired of being chased up so PMS used different tactics to capture progress.<br>• In spite of uncertain deadlines, most people kept working hard which is a credit to the professionalism of staff. It has been done without recognition from senior managers.<br>• AD Success Stories went reasonably well. PMS shared joint responsibility with Methodology. Most teams delivered to the timeframe and not much editing was required.<br>• Overall, Social & Pop, Methodology, PMS, and Dissemination have worked well together.<br>• The UN Review was good – it gave SCAD some things to think about.<br>• The PMS team was a very useful team throughout the census. They did much behind the scenes coordination. |
| *What did not go well (the bad things) for PMS leading up to the collection phase (after the pilot) and during the collection phase?* | Archive<br>• Some of the burden has fallen on PMS to sort through the files and determine if they are documents or data files.<br>• Reminders have had to been sent more than once<br><br>PMS<br>• Governance changed but there was never a clear announcement and this resulted in ambiguity about who was actually accountable in the last months. However because SCAD is such a small organization, ways were found to deal with this.<br>• Reporting to the DG stopped except for the monthly Continuous Improvement reports.<br>• The Census Committee meetings stopped but there were other mechanisms for dealing with issues.<br>• Due to decreasing team numbers, PMS was unable to report as regularly throughout August<br>• Some SCAD staff haven't always understood and accepted |

| | decisions made re: content and collection and keep wanting to revisit the decisions. Staff need to understand that when a decision is made, it is final and they need to accept it despite their reservations.<br>• Staff didn't know if and when the data will be released. This causes huge uncertainty and it is difficult to both plan and keep staff motivated<br>• Some of the risks of not releasing the data could have been managed in a different way. More information could have been provided to staff to ensure there was a consistent message about the delays.<br>• The time needed for translation of the AD Success Story was underestimated.<br>• Leadership has been working behind the scenes but needed more visibility.<br>• There was a periodic breakdown in communication between teams and villas particularly when key leaders were on holiday. Work stopped and/or communication stopped. Staff should be empowered to feel confident to make decisions, continue their work, and consult with others even outside their team. |
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| *What are the most important lessons for PMS?* | Archive<br>• If SCAD proceeds to have a proper document management system, this will help the Archive phase<br><br>PMS<br>• Never underestimate the importance of planning.<br>• PMS should do more work at the beginning to talk through the Dissemination strategy and getting support and approval with key stakeholders<br>• A clear dissemination plan is just as important as a collection plan. |
| *What will PMS do differently for the next Census (2016)?* | Archive<br>• Archive all important census documents from the beginning<br><br>PMS<br>• Have a clear dissemination strategy that includes agreement with key stakeholders and agreement on the approval process.<br>• Need more investment into building the capability the people who will analyse the data.<br>• Need someone overall to manage the census all the way through.<br>• There should be a new census manager for 2016 in place by 2013. |

| **Project Manager Lessons Learnt** ||
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| *What went well (the good things) for the Project Manager during the Process, Analyse and Disseminate phases?* | • There was good cooperation between all the teams and they worked extensively in order to meet the target within a tight timeline.<br>• The collection, editing, and dissemination tools used in AD census 2011 have become as a model for other projects.<br>• GIS in in AD Census 2011 will be presented an award at the 2012 ESRI Middle East and Africa User Conference.<br>• The quality of 2011 census data met the expected standards and was much better than 2005 census data. |
| *What did not go well (the bad things) for the Project Manager during the Process, Analyse and Disseminate phases?* | • SCAD had to wait for over 2 months to get the final approval on Census data before releasing anything.<br>• There was an inconsistent data management procedure. Editing on the final version was not reflected directly on the database.<br>• Focus on the census stopped after the Collect phase. This was due to multiple projects are running at the same time. |
| *What are the most important lessons for the Project Manager?* | • It's important to include the worst case scenarios (risks) and the mitigation actions in preparing the plan. |
| *What will the Project Manager do* | • Use administrative records when implementing the next census via |

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| *differently for the next Census (2016)?* | the cooperation with Identity Authority. This will shorten the needed work. |
| | • Use the address system which will be launched by Abu Dhabi Municipality. |
| | • Get optimal benefit from linking both of administrative records of the Identity Authority with the new addressing system. |
| | • Use the opportunity of communicating with the main stakeholders who are members in SCAD external steering committee in order to accelerate the usage of administrative records in next census. |
| | • Start planning in 2013 and ensure the Project Manager will be one of the Executive Directors. |
| | • Use an augmented reality tool to increase accuracy, and save time and effort. Be the first statistical centre to experiment with this technology. |
| | • Form a technology team to innovate new tools in data collecting, editing, processing and dissemination. |
| | • Increase the salaries of enumerators in order to attract qualified employees. |
| | • Plan and implement two scenarios to decide the best way of conducting the future census. <br>    o  Collecting data via administrative records <br>    o  Collecting data via fieldwork |
| | • Conduct a Post Enumeration survey after the census to measure the quality. |
| | • Conduct mini censuses for new important areas such as Al Falah, MBZ.etc to meet the requirements of data users and to ensure the availability of vital facilities in those areas. |

| **Population & Social Lessons Learnt** | |
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| *What went well (the good things) for Population & Social during the Process, Analyse and Dissemination phases?* | • Good relationship with Methodology. One person in Methodology was assigned to control all the changes in micro-editing which helped to control the issues and avoid a lot of problems. |
| | • The Pop & Soc team gained invaluable skills as a result (e.g. running SAS programs, conducting analysis, etc.). Participation in census was also a team-building exercise. |
| | • One of Pop & Soc's main tasks was to check the Census results therefore they had to develop a plan – a macro-analysis checklist which consisted of 50 tests. This was a good idea and having a plan helped |
| | • Pop & Soc wrote an Expectations Report – it is a report that considers before the data are available what they will look like. Pop & Soc made statements based on international standards and time series of Abu Dhabi Emirate data (e.g. sex-ratios, age-heaping measures, average household sizes, etc.) that they expected to find in the data. This type of report helps determine the quality. Once the data are ready to be analysed, a response is written to provide reasons of any major discrepancies |
| | • Overall SCAD learned a lot about project management. |
| | • Overall SCAD sectors built stronger relationships – barriers between the sectors broke down. |
| | • SCAD now has a proper data dictionary. The template can be repeated for other surveys and of course, the next census. |
| | • The external reviews (UN and technical) were good to have. |
| *What did not go well (the bad things) for Population & Social during the Process, Analyse and* | • There was no logical structure of the classification of the buildings and units. Land Type, Land Usage, Building Type, and Building Usage were collapsed into one which was difficult to break out later. |

| *Disseminate phases?* | <ul><li>There was the expectation that by using the iPads and validation rules, maps (all the pre-programmed applications built specifically for the collection), there would be less coding and classification problems than there were. Reconciliation was required and this took immense time and effort.</li><li>The Pop & Soc team was mostly junior. The quantitative checking task was enormous and experience was required. Staff did not know what they were looking for.</li><li>There was a lack of SAS skills amongst the Pop & Soc team that would have made analysis more efficient. They were reliant on one staff person to generate the outputs and run tests.</li><li>Data came from too many streams and it made consistent validation rules difficult. A lot of errors were found during the micro and macro analyses that could have been controlled at the collection level through consistent validation rules across all the streams (iPads, labour admin data, hotel forms, online forms, etc.). This resulted in a lot more work in the coding, validation and macro-analysis than anticipated.</li><li>There was not enough time to do everything that Pop & Soc needed to do so they had to drastically reduce the scope of the small area analysis.</li><li>The data entry was disorganized because there had not been enough thought put into the design of the data entry system. More planning was required to put systems in place. As a result, there were a large number of problems with these data in proportion to the number of records.</li><li>There was no responsibility and accountability for the various data collection streams. No one seemed to be in charge or fully know what was going on. Pop & Soc took responsibility because they were aware of the likely impact on them regarding completeness and quality of data.</li><li>Because SCAD have been unable to meet the promoted release dates, they continue to be asked by government clients "when will the data be available". They are also responding to media requests which ask why the data re late. This uses up valuable time.</li><li>Pop & Soc were unable to any work outside of the Census for a long time.</li></ul> |
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| *What are the most important lessons for Population & Social?* | <ul><li>Planning pays off – it saves time later on.</li><li>More effort in the Collect phase would have saved a lot of time in the Analyse phase.</li><li>The output geography (description and rules) must be decided earlier.</li></ul> |
| *What will Population & Social do differently for the next Census (2016)?* | <ul><li>A data processing management team is required – a team where everyone working in data and processing come together.</li><li>A Post-Enumeration Survey (PES) is required for next time. Coverage analysis is important and validates the results. Now SCAD is being asked what the undercount is and the ability to answer it is insufficient.</li><li>Establish a 2016 Census team immediately.</li><li>Organise and facilitate a users' consultation group. There has been hardly any engagement with the government clients who use the census data. They should be trained on how to use the SIS tools as well as have input into the topics.</li></ul> |

| | • Set release dates that can be achieved, including the approval process. |
| | • Work with other NSOs – understand what techniques they are using and decisions they are making re: Census |
| | • Have the questionnaire on-line for everyone |

| **Statistical Information Systems (SIS) Lessons Learnt** | |
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| *What went well (the good things) for SIS during the Process, Analyse, and Dissemination phases.* | • Delivered the census tools<br>• Provided support for SAS users<br>• Outsourced the development of the tools and cubes<br>   o Got experts in both fields<br>• Because the developers were outsourced they worked solely on the job and weren't pulled to work in other areas<br>• There was enough time because the team started early enough – they had the time to plan<br>• There was a high-level project plan from the beginning to the end<br>• SIS knew their budget and as a result were able to hire the developers a year in advance<br>• SIS purposefully created a thematic map for DED and a TableBuilder for Foreign Trade in order to prepare for the Census<br>   o As a result of the experience they were prepared for the Census<br>   o Real project for real clients is a good model for preparation<br>• SIS had a training plan and followed through<br>• SIS has the knowledge to maintaining the census tools<br>• Good teamwork<br>• More administrative workers were brought on to do the administrative jobs that were taking a lot of time and reducing the availability of the SIS team to do the jobs they were supposed to do<br>• SIS knew their budget and as a result were able to hire the developers a year in advance<br>• The UATs when coordinated by PMS went well |
| *What did not go well (the bad things) for SIS during the Process, Analyse and Dissemination phases?* | • SIS needed to do more low-level planning<br>• The contracts for the out-sourcing should have included hours of manpower requested and a clause that came into effect if the milestones were not met<br>• During the collection, SIS staff were pulled away for other projects. For roughly 2 months there were no SIS resources. The developers were already on SCAD premises full-time working on the told. There was no one in SIS to provide guidance. Senior management had to step in.<br>• Data access rights were finalized very late and was a manual process<br>• The Oracle database should have an automated function to add fields and to enable changes.<br>• It is not SIS's role to determine who has data access rights nor push the paperwork -- they had to do this for the Census because their work was dependent on other's getting data access rights<br>• At times SIS staff were not utilized appropriately for their roles nor skills<br>• There was some trouble finding the correct resources (the right person for the job) because the timeline was tight and all the work was new. Therefore there was no time nor the absolute |

| | understanding of the work entailed to assess a contractor's ability<br>• When a UAT was coordinated by SIS it did not work as well as when PMS did it. This is because UATs are not SIS's function and these things function better when coordinated by a party with no vested interest in the results. |
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| *What are the most important lessons for SIS?* | • Need to have a dedicated person to oversee the contract staff<br> o This person needs to have the authority to remove people who aren't performing<br> o The contract needs to be clear about performance expectations<br>• More staff are required across all census teams<br> o There were not enough SIS resources and many other teams also suffered from lack of resources<br>• Planning is essential in order to reduce the fire-fighting<br> o SIS did lot of "fire-fighting" for tasks that weren't their responsibility because of their reputation for being the "go-to" people<br>• There needs to be another team to do internal support that is not dissemination related<br> o SIS can handle the dissemination systems (all the output tools) but they are getting sidetracked by other non-dissemination issues and systems |
| *What will SIS do differently for the next Census (2016)?* | • Dedicate resources to the SIS function and nothing else<br>• Automate as much as possible<br>• Have a stronger contract with a vendor<br>• Have regular low-level meetings between technical staff in different departments |

| **VIP Collection Lessons Learnt** | |
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| *What went well (the good things) for the VIP collection?* | • The Team Leader was extremely active and proactive from the beginning and had to create processes/systems from scratch<br>• The Team Leader worked directly with the VIPs' households and established good relations which will help for the next census<br>• The Team Leader utilized available resources such as the PMS team who were very helpful<br>• SCAD's employees (management & staff) supported the VIP collection<br>• The Team Leader was creative in her approach to involving the VIP representatives – she created a social network using contacts<br>• The Team Leader engaged the representatives in the material – she created awareness about the census and educated them on the importance of the census, the confidentiality of their data, etc.<br>• The Team Leader used the audit methodology in collecting the VIP data<br> o Engagement letter sent to all VIPs<br> o Communicated through messages, telephone conversation, meetings, etc.<br> o Kept all data secure<br>• The VIPs themselves were supportive, co-operative, and kind |
| *What did not go well (the bad things) for the VIP collection?* | • Sometimes the VIP representatives changed, therefore Naeima had start from scratch and build relationships and understanding with the new rep<br>• The Team Leader worked primarily alone – she did not have a team |

| | which proved difficult and timely for her |
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| *What are the most important lessons for the VIP collection?* | • Be patient – building their trust and establishing a relationship takes time<br>• Be clever<br>• Be brave<br>• Tell them the truth |
| *What will VIP collection do differently for the next Census (2016)?* | • Establish a team with more than one person |