

## Quality Assurance of Official Statistics in Hong Kong

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### Abstract

A Quality Assurance (QA) Review Programme has started in Census and Statistics Department (C&SD) since 2002. The key features of the Programme involve (i) promoting self-assessment and enhancement of individual statistical systems and (ii) conduct of in-depth third party review by an independent QA team. To facilitate sharing of knowledge and experiences among the subject professionals as well as identifying areas for further improvements, a central database on good practices in respect of documentation has been developed for use within C&SD. This paper depicts the development of the data quality assessment framework and QA Review Programme in C&SD. The framework focuses on six dimensions of the statistical products, viz. Relevance, Accuracy, Timeliness, Accessibility, Comparability and Coherence.

Key Words: statistical quality assurance, data quality assessment framework, quality assurance review programme

### 1. Introduction

The statistical quality assurance system adopted in Census and Statistics Department (C&SD) is developed with reference to established quality assurance frameworks and methods, including the Data Quality Assessment Framework of the International Monetary Fund, the Quality Framework and Guidelines for Statistical Activities promoted by the Organisation for Economic Co-operation and Development, Eurostat's Handbook on Data Quality Assessment Methods and Self Assessment Checklist for Survey Managers, Statistics Canada's Quality Assurance Framework, the Guidelines for Measuring Statistical Quality and Code of Practice – Protocol on Professional Competence used in the United Kingdom, and the Data Quality Framework of the Australian Bureau of Statistics.

### 2. Statistical Quality Assurance (QA) System

The QA System in C&SD adopts a two-prong approach, comprising a scheme of on-going assessment by subject statisticians using a data quality assessment questionnaire and a third party QA review programme conducted by an independent QA team.

The data assessment questionnaire used for self assessment is developed by the department in accordance with the principles of data quality assurance framework recommended by international statistical authorities. A brief description of the framework is given below.

### 3. Data Quality Assurance Framework

The framework embraces a total quality approach, focussing on six dimensions of

statistical products, covering

- (i) Relevance, the degree to which the data meets user needs;
- (ii) Accuracy, the degree to which the data correctly estimates or describes the phenomena it was designed to measure;
- (iii) Timeliness, the length of time between the availability of data and the event or phenomenon they describe;
- (iv) Accessibility, the ease with which the data can be located and obtained;
- (v) Comparability, comparability of the data between units, over time and with other international statistics; and
- (vi) Coherence, the degree to which the data produced for different primary purposes but in the same socio-economic domain are logically connected and mutually consistent.

#### 4. Data Quality Assessment Questionnaire

Addressing each of the above six quality dimensions, the data quality assessment questionnaire covers 19 assessment items for subject statisticians to conduct self assessment of their statistical products. The questions are designed on the basis of international references, in particular with reference to the checklist used in the Development of Self Assessment Programme promulgated by Eurostat. A list of these questions is shown below.

##### Dimension 1 - Relevance

1. Which of the following means do you use to identify user groups of the statistical product under assessment? What is the frequency?
2. How do you appraise the information available on users of the statistical product under assessment (e.g. size, demographic characteristics, economic sectors, etc.)?
3. Which of the following means do you use to collect information on user satisfaction? What is the frequency?
4. How do you appraise the information available on user satisfaction on the statistical product under assessment?
5. Which of the following means do you use to identify users' needs of information on the area related to the statistical product under assessment? What is the frequency?
6. How do you appraise the information available on users' needs of information on the area related to the statistical product under assessment?

##### Dimension 2 - Accuracy

7. How do you appraise the extent of unit non-response of the survey for producing the statistical product under assessment?
8. In the process of adjusting for the unit non-response, is there any breakdown of the non-responses into sub-categories (like refusal, non-contact, moved, etc.)?
9. What is the imputation rate of the key statistical variable (i.e. that for compiling the statistical product under assessment)?
10. How do you appraise the coefficient of variation (CV) of the statistics of the statistical product under assessment?
11. How do you appraise the extent of revisions between the provisional and final key statistics of the statistical product?

##### Dimension 3 - Timeliness

12. How do you appraise the time lag between the reference period and the release of the preliminary results for the statistical product?
13. How do you appraise the time lag between the reference period and the release

of the report for the statistical product?

#### Dimension 4 - Accessibility

14. What is the percentage of enquiries related to the statistical product under assessment meeting the performance standards and targets of the department on the waiting time for service provision in the past year?
15. How do you appraise the ease of getting metadata of the statistical product under assessment by the users, including definitions, concepts, classifications, data sources, statistical methods/techniques, etc.?

#### Dimension 5 - Comparability

16. How do you appraise the comparability of the statistical product over time (relating to preceding reference periods)?
17. How do you appraise the comparability of your statistical product across different domains (both geographical and non-geographical)?

#### Dimension 6 - Coherence

18. Concerning the results for different frequencies, how do you appraise the coherence of the statistical product, i.e. can the results of different frequencies for the same reference period be reliably combined?
19. How do you appraise the coherence of the statistics of the statistical product with others within the same socio-economic area, i.e. can results be reliably combined with statistics of other statistical products originating from other official sources?

The assessment results can be displayed in a cobweb diagram providing a quality profile for each statistical product under assessment.

### **5. Third-party Quality Assurance (QA) Review Programme**

The third-party QA Review Programme has started since 2002 to supplement the self assessment of individual statistical products by the subject professionals. The review is conducted by a separate statistical team led by a senior professional in C&SD.

The review team examines two areas. First, it evaluates the quality of documentations maintained in individual statistical systems on key statistical processes including frame compilation, sample selection, data collection, data input, coding, editing and validation, statistical imputation, estimation, macro editing, professional review and statistical adjustments, report compilation and data dissemination. In conducting the evaluation, the review team makes reference to the "General Guidelines on Preparation of Proper Documentation of Statistical System" as modelled on those used in Eurostat.

Second, the review team performs independent assessment of the quality of the statistical products by applying the data quality assessment questionnaire used for self assessment by subject professionals.

To consolidate the results of the review, observations and findings are documented to produce a central database on good practices of statistical management for knowledge sharing within the department.

### **6. Fieldwork management audit**

Other than the third-party review system on statistical quality introduced since 2002, a number of fieldwork management audits have been conducted to establish the sound

operation of data collection mechanisms implemented in major survey systems.

The objectives of the management audit are:

- (i) to ascertain the presence and adequacy of built-in control mechanisms to achieve integrity and quality assurance; and
- (ii) to ascertain whether supervisors have followed the laid-down control procedures in discharging supervisory duties.

The audit focused on five areas of fieldwork management control including allocation of field assignments, approval of fieldwork itineraries, verification of time-logs, spot check and quality check. Audit reports were produced for supervisors to make rectifications and further enhancement as required.

## **7. Conclusion**

The QA framework provides an objective means whereby subject professionals can fully appreciate the strengths and weaknesses of the statistical systems under their purview from the QA perspective and initiate further improvement as appropriate. The framework will be enhanced on a regular basis, having regard to the latest developments in quality assessment standards and practices. Staff training and communication programme will be reviewed regularly to ensure all staff fully understand their job requirements and procedures, and to maintain a high standard of professional ethics and competency in job performance.

It is the established goal of C&SD on quality assurance to sustain a culture of drive and aspiration at all levels of staff to achieve excellence.

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