Forwarding Armenian Statistics Through Twinning

AM09/ENP-PCA/TP/04

MISSION REPORT

on

Quality Management

A1 Identification of issues

Mission carried out by
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Version: Final

National Statistical Service
Republic of Armenia

Statistics Denmark

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Other materials produced or collected for the report
Annex A1.5. European Statistics Code of Practice (Power Point presentation)

List of Abbreviations

CPI	Consumer Price Index
NSSRA	National Statistical Service of the Republic of Armenia
SDDS	IMF's Special Data Dissemination Standard

Executive Summary

As this is a short report, no executive summary is deemed to be necessary.

1. General comments

This report was prepared as the result of the mission to the National Statistical Service of the Republic of Armenia. It was the first activity to be devoted to fact finding regarding the present situation in the area of Quality and Quality Management.

The purposes of the activity involve:
o   An assessment of the present situation regarding the quality management in NSSRA
- o   Quality Declaration of the European Statistics Code of Practice (EU)
- o   Data Quality Assessment Framework (IMF);
- o   Other international quality initiatives;
o   An assessment of the organisational structure and the management structure and their relevance to the responsibility for data quality issues;
o   An assessment of the present data documentation principles and the organisation of data on micro and macro level;
o   Possible consultations with external stakeholders in order to understand the environment and the stakeholders' expectations to NSSRA.

The MS Experts would like to express their thanks to all officials and individuals met for the kind support and valuable information which we received during the stay in Armenia, and which highly facilitated the work.

The views and observations stated in this report are those of the MS Experts and do not necessarily correspond to the views of Statistics Denmark, Statistics Finland or the State Statistical Office Berlin-Brandenburg.
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2. Assessment and results

The following results were achieved:
o   A presentation of the European Statistics Code of Practice by the MS Experts was given in a workshop on 17 March;
o   A workshop with external users (users and data providers) was conducted on 18 March;
o   The priorities and actual needs of NSSRA were assessed in a series of meetings with key staff, see later
o   Input to a strategy of how to strengthen the quality of statistics in a broad sense was given;
o   Input to a strategy of how to strengthen the broad perception of NSSRA as the primary and unquestioned source of official statistics in Armenia was provided;
o   A lining up of work programme before the next activity (A2) was provided, see chapter 4 below;
o   A decision of the preferred timing of the next activity (A2) was provided, see chapter 4 below;
o   The successful opening event of the Twinning Project was carried out on 16 March with approx. 100 participants

o   In connection with the mission, a meeting was conducted with the RA Deputy Prime Minister, Minister of Territorial Administration, Mr. Armen Gevorgyan. In this meeting also the Director General of Statistics Denmark, Mr. Jan Plovsing, participated.

2.1. Quality assurance and quality organisation

The quality of the Armenian statistics has been assessed a couple of times by external bodies during the last years. A staff team of the International Monetary Fund prepared the Report on the Observance of Standards and Codes (ROSC) on Data Module for the Republic of Armenia. The report is based on the information received from the NSSRA and from the mission conducted in April 2008. The ROSC report states that the NSSRA has relevant institutional prerequisites of quality like proper statistical legislation, statistical programme, active communication with major users of statistics etc. Additionally, the data in areas of particular concern (the National Accounts, Consumer Price Index, Producer Price Index, Government Finance Statistics, Monetary Statistics and Balance of Payments Statistics) meet or even exceed well quality requirements as regards the international standards and the dimensions of the IMF Data Quality Assurance Framework.

The other assessment was conducted in conjunction with the Global Assessment of the Armenian statistical system by the consultants of the European Commission, the Economic Commission for Europe (ECE) and the EFTA in January 2009. The main conclusions included a few statements about the quality and the quality assurance of statistics. The professional independence of the NSSRA was highly noted; the NSSRA has a clear commitment to ensure consistently high data quality, although the data collection methods need to be developed. Lack of a quality management and training system were found to be areas for improvement. Classification systems used are broadly consistent with international standards. The Armenian National Accounts were considered in many areas compliant with ESA95; still some non-compliant areas remain, in particular regarding exhaustiveness. Some improvements were suggested also for the CPI and other indexes.

According to the statistical capacity indicator compiled by the World Bank, the NSSRA stands very well regarding the internally recommended methodological requirements. The good score is the result of the fact that the staff is eager to adopt new tools and methods. The policy of the office has been to find the shortest way for improvement by adopting the best practices of the European NSIs.

The strong basis of the statistical system is the legal framework, which gives rather large powers for the NSSRA to work. Stipulated by the Law on State Statistics of the Republic of Armenia (given on 26 April 2000), the highest body determining of the statistical regulations is the State Council on Statistics which is nominated for six years and which includes the top management of the NSSRA. The major regulations given by the Council have legal power. The Council adopts the annual statistical programme after receiving the budget granted by the Government; the three years' statistical programme has to be adopted by the Armenian Parliament on the proposal of the Council. The legal basis for statistical operations and quality aspects is quite strong.

The Law on State Statistics stipulates not only the activities of the NSSRA but also administrative registers and statistics produced by administrative authorities. This fact might cause some confusion, particularly concerning concepts of official statistics and administrative statistics. The administrative statistics follow from the clauses, which relate to the contents of administrative registers that are included in the statistics law. Regardless of the fact from where the data come to the statistics production, the national statistical office is responsible for checking the quality of the data.

According to the information received during the mission, the major quality concern relates to the use of administrative data. The data from various administrations are not always in good shape, there are also serious coverage problems e.g. relating to the population register, which includes only those who are more than 16 years old (the age when the Armenians receive their personal ID number). In addition, the household addresses are not always correct since people do not necessarily register their moves; an extra problem relates to the fact that the names of addresses change often and so on. The Taxation database has severe problems about the identification numbers of the enterprises; they may have two or more codes. This situation results also from the fact that the enterprises often change their activities, their names and addresses.

Other concerns relate to the IT systems of the administrations and the one of the NSSRA. In case there were better co-ordination and government-wide rules concerning the systems, the

NSSRA might have much better possibilities to use the data and avoid overlapping data collections from businesses.

The NSSRA has a regular *data quality monitoring committee*. It is headed by the Adviser of the President and it mainly focuses on the assessment of data quality needed for the purposes of the National Accounts. The task is important to ensure the coherence of the National Accounts. It is not, however, sufficient for guiding the general quality work in the organisation.

The informal group on quality issues headed by the President of the NSSRA is more focusing on general quality matters in the organisation and pays attention to deficiencies in the processes. It also initiates new developments in the organisation.

From the point of quality in statistics, there is sufficient capacity in methodological matters. The key methodological experts are familiar with international guidelines and participate in various meetings and conferences. The NSSRA has a lot of internal guidelines and regulations about how the statistical work should be done. How well the knowledge is spread in the organisation, it is difficult to assess. The MS Experts did not have a chance to discuss the matter with the representatives of regional offices, which are important particularly in collecting information from respondents (businesses and households). Neither did they discuss the training of data collectors (interviewers).

The complete statistical process should include certain check points/steps, which guarantee the quality of statistics. The questionnaires (before being taken into use) should be tested in order to make them understandable for respondents; the data input process should include checking routines; processing of data should include proper tools for validating of data and finally there should be possibilities for analysing of results. Although the quality checks points are probably to certain extent available, there might be need for documenting the steps and standardising the process for the purposes of the whole organisation.

2.2 Micro data handling

Micro data are the basis for high-quality statistics. The NSSRA receives micro data from (a) respondents or (b) other administrations (register copies).

(a) **The respondents** send their data to a regional office or the central office using the paper form or via email attachment. In the case the respondents send the data to the regional offices, these are processed locally using several kinds of offline databases[1].

The processing includes also the handling of outliers, missing data, estimation of missing data, classification procedures, plausibility checks taking the previous reporting into account, etc.

(It should be clarified if detailed working instructions are available (name of document))

The central office receives a copy of the local database sent via modem-based file transfer, CD/DVD or mail-attachment.

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[1] Excel-Sheets, Access-database, the data input seems to take place without any technical support e.g. by automated questionnaire scanning or by computer-based routines.

(It should be clarified if the secure transportation is guaranteed by using encryption mechanisms, ftps connections, etc. (name of document))

The central office combines all delivered micro data from the regional offices with the data they received in one database.

The database is evaluated in the central office. Noticeable problems are solved in co-operation with responsible regional office.

(It should be clarified if detailed working instructions are available (name of document). Due to redundant data keeping, an instruction that describes how the updating of the local databases is guaranteed if the central office makes changes and vice versa (name of document) should be in place)

The evaluated database is then used for all further analysis. The quality indicators concerning these data should be a part of the quality report, e.g. sampling error, non-response rate, used imputations methods, measurement errors (see Handbook on Data Quality Assessment Methods and Tools, Eurostat, ANNEX B: Examples for Chapter 2.1 Quality reports and indicators, pp. 73f, attached to this report as Annex 4).

(b) **The administrations** deliver a copy of the register micro data needed for statistical purposes using different tools, e.g. excel-sheets.
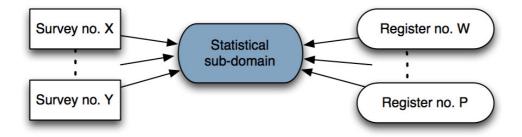
The delivered data are quality-checked by the central office.

(It should be clarified if detailed working instructions are available (name of document). Additionally there should be a coordinated agreement between the ministries and the NSSRA about quality procedures – that might be a task solved by the proposed inter-institutional committee)

Clearly, the procedure of handling the survey data is uncomfortable and error-prone. This underlines the necessity of building up a secure internal IT-infrastructure that links all locations of the NSSRA via VPN-tunnel or equivalent concepts. This is a precondition for distributed work on one central database and would avoid also some double work done. Furthermore, it enables all regional offices to have an easy access to the data of the whole country, e.g. for tracking companies that moved etc.

2.3 Statistical domains

For several purposes the definition of statistical domains makes sense. To make quality reporting easier the uppermost hierarchical level of the statistical domains used in the yearbook (population, employment, living conditions, education and culture, etc.) should be broken down into further sub-domains. To visualize dependencies the used registers and surveys should be allocated.

2.4 Usage of micro data and confidentiality

The micro data are used by the NSSRA to produce all standard publications consisting out of tables with simple aggregated data or complex indicators. Besides that, the micro data are used for answering special user requirements. This means that in the beginning of the publication process the entire scope of published data is not known.

> (It should be clarified if detailed working instructions for the confidentiality-check of "special user"-tables taking all already published tables into account are available)

Additionally, the anonymous micro data are given to researchers if the legal preconditions are fulfilled. In this case, the generated results are out of the sphere of influence of the NSSRA. Therefore, the micro data given to the researches must be modified in a way that guarantees that all possible calculations don't cause confidentiality problems.

> (It should be clarified if detailed instructions are available that describe how to modify the databases, to document the modifications, their impact on the usable methods and results (name of the document) and the usage of special software like tau-argus or comparable)

2.5 IT-Infrastructure

Efficiency of official statistics all over the world is always extremely dependent on an efficient IT-infrastructure. It helps to speed up the data input, processing, analysis and dissemination; it helps to avoid mistakes and saves time in the statistical units. The first impression is that compared with other countries the technical equipment and the software of the NSSRA is rather old and heterogeneous and may hinder optimization processes.

Besides that, the operating and support of IT-systems is depended on human resources. In view of the upcoming IT-challenges, the staffing level seems very low.

2.6 Metadata

As Armenia subscribes to the IMF's SDDS, the statistical indicators comprised in SDDS are described in the SDDS metadata. However, there is no general metadata system in place in NSSRA. Important pieces of metadata are incorporated as footnotes and explanations in the publications. The need for a classification database is not seen as a priority at this stage, whereas a system like the one described in the Eurostat publication ESS Handbook for Quality Reports (http://epp.eurostat.ec.europa.eu/portal/page/portal/ver-1/quality/documents/ESQR_FINAL.pdf and http://epp.eurostat.ec.europa.eu/portal/page/portal/ver-1/quality/documents/ESQR_FINAL.pdf) would be an important goal.

NSSRA also wishes to engage in the building of a statistical output database keeping all (publishable) statistics.

2.7 Cooperation with stakeholders

Key users participating in the stakeholders workshop use NSSRA outputs quite intensively. They access statistics both on web and in publications. There are a certain number of unfulfilled user needs, e.g. social accounts and financial accounts, but users acknowledge that NSSRA listens to them and is fully aware of these needs; and that the shortcomings are due to resource constraints.

Users are generally satisfied with the quality of statistical outputs and discuss quality problems with NSSRA. However, documentation is sometimes deficient, and there is a pronounced need for more methodology descriptions.

Cooperation with main providers of administrative data to NSSRA seems generally to be working well. They provide detailed micro data in most cases.

Stakeholders recognised that there were many cases of duplication or overlapping data collection, so that several public organisations were asking for the same or very similar data from enterprises. Thus, there is scope for better coordination of public administrative registers.

3. Conclusions and recommendations

3.1 Summary conclusions

The statistical system and capacity of Armenia are regarded as strong, as compared to those of many other transition countries.

The MS Experts have observed that resources are extremely tight in most if not all of the areas of quality improvement work. All recommendations must take this constraint into account.
The MS Experts have noted that the budgeting system used when providing a budget for NSSRA is very inflexible, as it doesn't allow for NSSRA diverting resources towards types of inputs needed in order to obtain quality or efficiency gains. This is part of the government budgeting system. But quality and efficiency gains could be obtained if it were possible to divert resources, e.g. to necessary IT investments. There are no possibilities to use funds from one budget line for expenses in another budget line. This hinders efficient use of resources. There should be the possibility for a long-term planning for major strategic projects like human resources development, implementation IT-projects like datawarehouse, etc.
The legal framework is generally good and in line with best current practice.

There is a considerable part of resources spent on the regional organisation, which is at present necessary for data collection. As ICT gets increasingly used for these processes, there is a need for consideration of the role of regional offices in the longer run.

No coherent system of metadata (documentation) is in place. However, Armenia subscribes to the SDDS of IMF, and there are important pieces of metadata incorporated as footnotes and explanations in the publications. The need for a classification database is not seen as a priority at this stage.

3.2 Recommendations

Initiatives towards the government:
- Change in budgeting and planning practices; government agencies should have a overall budgets in order to able to allocate and use funds from one budget line to another one
- 5 year planning instead of 3 years

– Set up inter-institutional committee to formulate and implement data management and register policy of the country (including institutions like Ministry of Justice, State Revenue Authority, NSSRA etc.)

Legal framework:
– Further clarify the distinction of administrative and statistical registers
– Access to administrative registers at individual level should be granted for NSSRA
– NSSRA should also have right to influence on the contents of the administrative registers whenever some new ones are established or major changes take place

Improve and increase use of administrative registers in statistics production:
• NSSRA should carry out an analysis of the actual and potential administrative sources for statistics in Armenia in order to set up a strategy for (a) improving registers and (b) making more use of the registers that are actually suitable.
The analysis could be based on an overview matrix like the following:

Administrative source (potential)	Responsible authority	Content and description of present situation and quality issues	Possible improvements	Used in the following branches of statistics									
				[population and vital statistics]	etc								

More detailed information on each of the registers could be analysed in a table like this :

	A	B	C	D	E	F	G	H
General information			**Explanation**					
A.	Name of register							
B.	Responsible authority							
C.	Way of delivery		offline: DVD/CD/USB-Stick, online: ftp, ftps, mail attachment					
D.	Type of data		microdata, aggregated data					
E.	Data used for		unique name of statistical domain					
F. Variables								
Number	Name*		Variable also used in statistiscal domain no.**					
1								
2								
3								
4								
5								
6								
7								
8								

Metadata systems:

- Grouping of statistical domains is needed. NSSRA should set up a system of a manageable set of statistics domains, around 200 items. These should be the basis for the next recommendation.
- Development of coherent metadata and quality reporting system including some quality indicators (e.g. non-response rates), based on the EU Quality Reports schema.
- Training on quality indicators for staff should be carried out

Organisational matters:
- Formulate the mandate and tasks of quality monitoring committee
- Nominate a responsible person for quality issues
- Legal matters now in methodological unit: are they in the right place?
- Regional offices – in a longer run

Co-operation with stakeholders:
- Enhanced cooperation with external researchers could be an asset. They could give regular feedback on ways to improve statistics and point out needs for social and research etc.
- Better use could be made of the Statistical Society as a forum for exchange of information between statistics producers and users
- Respondent relations should be intensified (e.g. with Industrial lobby organisations)

Confidentiality matters:
- The existing law on Guidelines and policy should be reviewed to ensure clear rules both for micro data and aggregated data

4. Actions before next activity (A2)

Next activity in the component on quality (A2) should take place during the week 13-17 June 2011.

Before this activity, NSSRA should prepare the following draft material:
1. A template for quality declarations, based on the EU quality declarations
2. A list of statistical domains that would be suitable for being described in quality declarations; the list should exhaust all statistical activities and group them in 100-250 domains.
3. An inventory of actually used and potentially useful administrative sources, and their relations to branches of statistics

Annex 1. Terms of Reference

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EU Twinning Project

Forwarding Armenian Statistics Through Twinning
AM09/ENP-PCA/TP/04

Terms of Reference (A1); 14-18 March 2011

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Component A   *Quality Management*
Component B   Business Register, Structural Business Survey, and Respondent Burden
Component C   Improvement of the Exhaustiveness of GDP
Component D   Agricultural Census
Component E   Harmonized Consumer Price Index
Component F   IT Society

Activity A1   *Identification of issues related to increased quality of statistics*

1. Purpose of activity
The purposes of the activity involve:
o An assessment of the present situation regarding the quality management in NSSRA
 - o Quality Declaration of the European Statistics Code of Practice (EU)
 - o Data Quality Assessment Framework (IMF);
 - o Other international quality initiatives;
o An assessment of the organisational structure and the management structure and their relevance to the responsibility for data quality issues;
o An assessment of the present data documentation principles and the organisation of data on micro and macro level;
o Possible consultations with external stakeholders in order to understand the environment and the stakeholders' expectations to NSSRA.

2. Expected output of the activity
The expected outputs of the activity are:
o An MS Experts' presentation of the European Statistics Code of Practice;
o An assessment of the priorities and actual needs of NSSRA;
o Input to a strategy of how to strengthen the quality of statistics in a broad sense;
o Input to a strategy of how to strengthen the broad perception of NSSRA as the primary and unquestioned source of official statistics in Armenia;
o A lining up of work programme before the next activity (A2);
o A decision of the preferred timing of the next activity (A2);

3. Project Participants
Mr. Stepan Mnatsakanyan, President of NSSRA (*BC Component Leader*)
Mr. Artashes Shaboyan, Head of Methodological Unit, Member of State Council of Statistics
Ms. Anahit Safyan, Head of International Statistical Cooperation Division

Mr. Lars Thygesen, Director, Statistics Denmark (*MS Component Leader*)

Ms. Hilkka Vihavainen, Deputy Director General, Statistics Finland
Ms. Ulrike Rockmann, President SO Berlin-Brandenburg, Destatis

Other BC Experts participating in the activity

Mr. Gagik Ananyan, Responsible for Business Statistics and Business Register, Member of State Council on Statistics
Mr. Vanush Davtyan, Responsible for IT, Member of State Council on Statistics
Ms. Lilit Petrosyan, Head of Methodological Division
Ms. Narine Musheghyan, Head of Dissemination Division
Ms. Natalia Poghosyan, Head of IT Department

External Stakeholders taking part in the activity
The State Revenue Committee
The State Register of Enterprises of the Ministry of Justice
Ministry of Economy of RA
Ministry of Finance of RA
The Central Bank of RA

Annex 2. Programme for the mission

14 March (Monday) – 18 March (Friday)

Time	Place	Event	Purpose / Detail of event
Monday, morning	Congress Hotel	Meeting with RTA and interpreter	Discussion of the programme of the week
Monday, afternoon	NSSRA	Meeting with the BC Component Leader and BC Experts	To obtain an overview of the actual content of the component. To obtain an updated status of NSSRA's present quality management system and the organizational and IT-related set-up
Tuesday	NSSRA	Bilateral meetings with BC Experts	Perspectives and aspects of Quality Management: methodological, disseminative, and IT related issues
Wednesday, morning	NSSRA	Bilateral meetings with BC Experts	Perspectives and aspects of Quality Management: methodological, disseminative, and IT related issues
Wednesday, afternoon	Congress Hotel	Opening Ceremony	Official Opening Ceremony of the Twinning Project
Thursday	NSSRA	Workshop with BC Experts	Presentation and discussion of European Statistics Code of Practice
Friday, morning	NSSRA	Workshop with stakeholders	To obtain internal/external input for the NSSRA strategy on quality management
Friday, afternoon	NSSRA	Meeting with BC Project Leader and Experts	Presentation of results, agreements of analysis and recommendations and of the implied work programme for NSSRA
	NSSRA	Debriefing with RTA	Agreement on report. Implications for the next activity (mission) as well as the work programme in between.

Annex 3. Persons met

Mr. Stepan Mnatsakanyan, President of NSSRA (BC Component Leader)
Mr. Artashes Shaboyan, Head of Methodological Unit, Member of State Council on Statistics
Ms. Anahit Safyan, Head of International Statistical Cooperation Division
Mr. Gagik Ananyan, Business Statistics and Business Register, Member of State Council
Mr. Vanush Davtyan, Responsible for IT, Member of State Council on Statistics
Ms. Natalia Poghosyan, Head of IT Department
Ms. Lilit Petrosyan, Head of Methodological Division
Ms. Narine Musheghyan, Head of Dissemination Division
Ms. Julliet Mirzoyan, Advisor of NSS RA President

Workshop with stakeholders on Quality Management
Date 18 March, 2011
Representatives from:

Central Bank of Armenia
State Revenue Committee
Ministry of Finance
Ministry of Economy
Ministry of Justice, State Register of Legal Entities
Also representatives from NSSRA
Total number of participants 29

Workshop: European Code of Practice
Date: 17 March, 2011

Total number of Participants from NSSRA 38 people
(including the heads of Regional Statistical Offices)

Annex 4. Excerpt from Handbook on Data Quality Assessment Methods and Tools, Eurostat, ANNEX B

Examples for Chapter 2.1: Quality Reports and Indicators
1 Examples for different quality report structures

Detailed quality report for producers and expert users – Recommendations:

• Administrative information
  ► The name, the reference period and the periodicity of the survey.

• General Description

− The design and methods used for the survey
  ► A description of the methods used during the survey process (classification, sampling design, data collection process, etc.)

• Relevance
  ► A description and the classification of the users.
  ► A description of the variety of the users' needs.
  ► Main results regarding the satisfaction of users.

• Accuracy

− Sampling errors
  ► Order or magnitude (or at least sign) of the bias of the main variables.
  ► Estimated coefficients of variation (CV) for the statistics.
  ► Methodologies applied for variance estimation.

− Coverage errors
  ► Type and size of coverage errors.
  ► Information about the frame: reference period, updating actions, quality review actions.

− Measurement errors
  ► The measurement errors identified and their extent.
  ► Indications about the causes of measurement errors.

− Processing errors
  ► A summary of the processing the data are subjected between collection and production statistics.
  ► Processing errors identified and their extent.

− Non-response errors
  ► Non-response; unit and item non-response rates for the main variables, both unweighted and weighted.
  ► Imputation methods used (if any).
  ► Indications about the causes of non-response.

• Timeliness and Punctuality

− The average timeliness of data

− The data frequency and average data freshness

− The reasons for late delivery

• Accessibility and Clarity

− A summary description of the conditions of access to data: media, support, marketing conditions, existing service-level agreement, etc.

− A summary description of the information accompanying the statistics

(documentation, explanation, etc.)

• Comparability

   − Comparability over time

      ▶ The reference period of the survey where the break occurred.

      ▶ The differences in concepts and methods of measurement before and after the break

• Coherence

   − Coherence of statistics in same domain

      ▶ Summaries of the mirror statistics.

   − Coherence with National Accounts

      ▶ A summary of the comparison.

• Cost and Burden

      ▶ Cost supported by National Statistical Institute (NSI).

      ▶ Response burden.

(*Based on*: How to make a quality report, Standard quality report for Labour Force Survey, Eurostat)

User oriented quality report for non-expert users – Recommendations:

• Introduction

      ▶ Brief summary on the quality reporting programme of the NSI.

• Summary of quality

      ▶ Information for the output around the six European Statistical System (ESS) dimensions of quality.

      ▶ Brief textual summary on each quality dimensions.

      ▶ Links to quality indicators or detailed descriptions.

   − Relevance

   − Accuracy

   − Timeliness and Punctuality

   − Accessibility and Clarity

   − Comparability

   − Coherence

Summary of methods used to compile the output

      ▶ A high level summary with a number of links to more detailed information for the more expert user.

(*Based on*: Summary quality report for Internal Migration; Office for National Statistics (ONS))