
**Self-assessment Report
on the Implementation of
the OECD Council Recommendations
on Good Statistical Practice**

April 2018



**<Recommendation 1> Adherents put in place a clear legal and institutional framework
for official statistics.**

**1-1: Existence of a comprehensive and coherent statistical legislation periodically revised
and amended**

< Matters Governed by the Statistics Act >

Many statutes other than the Statistics Act, e.g. Building Act, State Public Officials Act, National Health Promotion Act, Cancer Control Act, and Bank of Korea Act have provisions to regulate statistical activities including the production of official statistics, dissemination of statistical results, and release of statistical publications. However, statistical activities are generally governed by the Statistics Act (Statistics Act, Article 5) which establishes the foundations and sets the requirements for statistical productions, disseminations, and usages (Statistics Act, Article 1). The purpose of this act is to put together and coordinate statistical agenda and statistical production systems and to ensure the reliability of statistics and the efficiency of the operation of statistical systems. The Statistics Act determines the attributes of official statistics as in the basic principles (Statistics Act, Article 2), and provides legal framework of data collections, productions, and disseminations of official statistics (Statistics Act, Article 18~31). It also defines the roles and functions of statistical agencies, relationships among the agencies, and their rights and duties within the national statistical system. The obligation to respond to the data collection requests for statistical purposes is stated in the act (Statistics Act, Article 25) as well. The neutrality of statistics is mandated in Article 2 of the act for which Article 27-2 prohibits any advanced revealing of statistics before their official announcements. There are provisions governing an access to administrative data and the statistical use of administrative data (Article 24, Article 24-2), the announcement of statistics (Article 27), the scope of confidentiality (Article 33), and the penalties and fines related to the breach of the act (Article 39 and 41). Also included in the act are matters concerning the international cooperation for the purpose of development of statistics (Article 14) and the

coordination of statistical activities of domestic statistics production agencies (Article 18).

< Revisions of the Statistics Act and the Frequency Thereof >

The Statistics Act was revised in 1962 followed by revisions in 1975, 1995, and in 2007. Since 2007, the act has been amended almost every year to swiftly reflect changes in the statistical production environment. Likewise, there is not a pre-determined frequency for the revision of the act, and revisions take place as needed, quickly and carefully, to resonate with changes in the statistical environment (see Annex 1 for the overview of revisions of the Statistics Act).

1-2: Laws and regulations governing the collection, compilation and production of official statistics are consistent with the Fundamental Principles of Official Statistics of the United Nations.

The Fundamental Principles of Official Statistics in Korea was established and announced in 2011, which was based on the Fundamental Principles of Official Statistics of the UN. It is organized by 8 basic principles: 1. ensuring impartiality; principle 2. enhancing reliability; principle 3. improving efficiency; principle 4. ensuring comparability; principle 5. protecting confidentiality; principle 6. strengthening infrastructure; principle 7. engaging users; and 8. improving services. Every statistical production agency is recommended to comply with these basic principles. Likewise, the legislation governing the collection, aggregation and compilation of official statistics is organized in ways to fulfill the Korean Fundamental Principles of Official Statistics (see Annex 2).

1-3: Statistical authorities have a clear mandate for data collection and the authority to compel respondents to comply with data requests (e.g. the Population and Housing Census, Agricultural Census, surveys, administrative sources, etc.). In the case of the Population and Housing Census, the obligation for citizens to participate and to respond to the questionnaires is legally binding and established by law.)

The Statistics Act clearly mandates that statistical agencies have authorities to collect data and to compel respondents for responses and delineates the obligation of citizens to respond to the questionnaires for Population and Housing Census. The mandate to collect data is prescribed in Article 24 (Provision of Administrative Data), Article 24-2 (Provision of Data by Judicial Agencies, etc.), Article 25 (Orders to Submit Data) and Article 26 (On-sight Investigation).

1-4: Statistical authorities are required by law to conduct a Census of Population and Housing at least once every ten years.

Statistical authorities are required by law to conduct a Census of Population and Housing, such that Article 5-3 of the Statistics Act mandates the commissioner of Statistics Korea shall conduct a Census of Population and Housing, whose scope and methods are defined in Article 2-2 of the Enforcement Decree of the same act, and that the details of the implementation of the Population and Housing Census are delineated by the Ordinance of the Ministry of Strategy and Finance on a Population and Housing Census. The frequency of a Population and Housing Census is prescribed as one year for a register-based census, and as five years for a field enumeration survey (e.g. face-to-face interview, internet survey, self-administered survey)

1-5: Statistical laws and regulations are publicly available.

Statistical laws and regulations are publicly available. A person intending to use new statistics can make a request for a compilation of new statistics to the head of a statistics collection agency (Article 21-2), and a person intending to use any statistical data can request the head of a statistics collection agency for the provision of statistical data (Article 31). Article 27 of the Statistics Act prescribes statistical results shall be released without delay, unless a release date is scheduled otherwise, attesting people's right to access to data. It also mandates the head of a statistics collection agency shall announce statistical results along with necessary matters, such as the object and methodology of a survey so that users of such statistics may use the statistics accurately. Article 28 of the act inscribes the head of a statistics collection agency shall take necessary measures, such as the construction of a statistics database allowing for

people to use them promptly and conveniently. And for the purpose of promoting the dissemination of statistics, Article 29 mandates the head of a statistics collection agency to issue or sell statistics publications.

<Recommendation 2> Adherents ensure professional independence of National Statistical Authorities. (Statistics Policy Division)

2-1: The professional independence of the Statistical Authorities from other policy, regulatory or administrative departments and bodies, as well as from private sector operators in compiling and disseminating official statistics is explicitly guaranteed by law, and ensured in practice by all entities of the NSS.

The Statistics Act stipulates the prohibition against exercising influences, revealing statistics with regard to collecting and announcing statistics, and against using statistics for a purpose other than the original purpose, in order to guarantee the professional independence of the Statistical Authorities from other policy, regulatory or administrative departments and bodies, and from private sector operators in compiling and disseminating official statistics (Article 27-2). It further specifies no one shall exercise influence over persons engaged in the collection of statistics that are in the process of collection or are already collected for the purpose of changing the statistics before an official announcement, or adjusting the date scheduled for official announcement without justifiable grounds. Neither shall anyone provide or reveal statistics nor use statistics for a purpose other than the original purpose. A breach of the above mentioned shall be punished by imprisonment with labor for not more than three years or by a fine not exceeding 30 million Korean won (Article 39).

2-2: The Head of the NSO and the heads of other National Statistical Authorities have a responsibility for ensuring that statistics are developed, produced and disseminated in an independent manner.

The mandated prohibition against providing or revealing statistics before the official announcement of statistics (Article 27-2) also implies the responsibility of the head of the NSO and other national statistical agencies to ensure that statistics are developed, produced and disseminated in an independent manner.

2-3: The head of the NSO, and the heads of other national statistical authorities, have the sole responsibility for deciding on statistical methods, standards and procedures, and on the content and timing of statistical releases.

The commissioner of Statistics Korea and, where appropriate, the head of other national statistical authorities is given the authority of deciding on statistical methods, standards and procedures, and on the content and timing of the releases of relevant statistics, and are responsible for the concerned statistics (Articles 18, 22, and 27). The system in which the commissioner of Statistics Korea grants approvals for collecting statistics (Article 18) imposes on him or her the responsibility for any designated national statistics.

2-4: The Head of the NSO, and where appropriate, the heads of other National Statistical Authorities, have sufficiently high hierarchical standing to ensure senior level access to policy authorities and administrative public bodies.

According to the Government Organization Act, the head of the national statistical office, namely the Commissioner, shall be a public official in political service corresponding to a Vice Minister. The heads of national statistical authorities, if one is a central administrative agency, shall be a public official belonging to the Senior Civil Service Corps or a person with a corresponding standing thereto; the heads of national statistical authorities under local governments shall have the standing of the Chief of an Office or the Director General of the Head Office of Statistics Korea; and the heads of designated statistics collection agencies shall be an executive officer or a person with a corresponding standing thereto (Article 6 of the Statistics Act and Article 3 of the Enforcement Decree of the same act). Likewise, the

hierarchical standing of the heads of national statistical authorities is prescribed to be high enough for an efficient performance of their jobs.

2-5: The appointment of the Head of the NSO and, where appropriate, the heads of other National Statistical Authorities, is based on professional competence only. The reasons on the basis of which the incumbency can be terminated are specified in the legal framework. These cannot include reasons compromising professional or scientific independence.

Matters concerning the appointment and dismissal of the commissioner of Statistics Korea, including its tenure, reasons for terminating its incumbency, and the procedures thereof are prescribed in the State Public Officials Act and the Decree on the Appointment of Public Officials Government Organization Act. The professional statistical capacity is considered in appointing the head of Statistics Korea. The professional capacity is the sole criteria for selecting the head of regional statistics organizations for which the post shall be open to professionals from both public and private sectors.

2-6: National legislation provides a clear and detailed description of the procedure for appointment and dismissal of the Head of the NSO. A list of conditions under which the Head of the NSO can be dismissed is provided for by law.

Article 27-10 of the Government Organization Act stipulates the Commissioner of Statistics Korea as being a public official in political service whose appointment and dismissal is subject to the appointment and dismissal procedures of public officials as prescribed in the State Public Officials Act and the Decree on the Appointment of Public Officials.

2-7: A clear reporting system for the head of the NSO is provided by law in order to ensure and reinforce its professional independence.

Institutional tools provided by law for ensuring and reinforcing the professional independence of the head of the NSO include the following:

.Based on the Master Plan for National Statistics established by the Commissioner of Statistics Korea, the heads of relevant central administrative agencies and Mayors/Governors shall formulate annual promotion plans thereof (Article 5-5).

.Statistics collection agencies shall notify the Commissioner of Statistics Korea without delay when they have designated or changed the staff that are in charge of general supervision of relevant statistics (Article 6).

.The head of a statistics collection agency may provide international organizations with statistics, monitor the status thereof, and submit the monitoring results to the Commissioner of Statistics Korea.

.Where the head of a statistics collection agency intends to collect new statistics, he/she shall obtain prior approval of the Commissioner of Statistics Korea (Article 18).

.When the head of a statistics collection agency officially announces statistics, he/she shall submit the result to the Commissioner of Statistics Korea without delay (Article 27).

2-8: The statistical work programs are published and periodic reports describe progress made.

The statistical work programs published in KOSIS, the national statistics portal, and the Handbook of National Statistics are made available in KOSTAT's website(www.kostat.go.kr) and are updated annually.

2-9: Statistical releases are clearly distinguished and issued separately from political/policy statements.

Statistical releases are clearly distinguished and issued separately from political/policy statements. A statistical collection agency shall disseminate statistical results without delay unless they have scheduled and announced an official release date (Article 27). Article 27-2 further specifies no one shall exercise influence over persons engaged in the collection of statistics that are in the process of collection or are already collected for the purpose of changing

the statistics before an official announcement or adjusting the date scheduled for an official announcement without justifiable grounds. Neither shall anyone provide or reveal statistics nor use statistics for purpose other than the original purpose. A breach of the above mentioned shall be punished by imprisonment with labor for not more than three years or by a fine not exceeding 30 million won (Article 39).

2-10: The head of the NSO and of other statistical authorities may comment publicly on statistical issues, including criticisms and misuses of statistics as far as considered suitable.

The Commissioner of Statistics Korea and the heads of other statistical authorities make public comments as necessary on statistical issues including criticisms and misuses of statistics. In the case of misuses of statistics by public media, statistical authorities shall publish press releases for elucidation through their websites. In August 2016, a task force for correcting statistical errors was established, which monitors statistical errors inherent in statistical activities and overseas statistical misuses. Article 14-2 of the Statistics Act mandates statistics collection agencies monitor the status and errors of statistics submitted to international organizations, and submit the monitoring results to the Commissioner of Statistics Korea. Statistics Korea not only provides training programs targeted to the professional users of statistics including journalists to prevent misuse of statistics but also conducts public campaigns such as the ‘Competition on How Best to Use Statistics’ to collect and publicize the cases of statistical uses.

2-11: Data collection, data production, and release of information are ensured without formal approval from third parties.

The collection and production of statistical data and the release of statistical information can be performed without the approval of third parties. Regarding the release of statistical results, the Statistics Act (Article 27) enacted in 1962 mandated Statistics Korea consult with its governing body, or the Ministry of Strategy and Finance, which was repealed in 1995 upon a revision of the act. The revised act stipulates statistics collection agencies shall officially announce statistical results without delay, ensuring the provision of statistical information

without formal approval from a third party.

2-12: The Statistical Council in which external experts participate shall provide advice on important statistical issues for the heads of national statistical authorities. The nature of the Statistical Council and the reporting arrangements thereof to the central government are provided for by law.

Statistics Korea has a National Statistics Committee in which members from external institutions and private sector entities participate (Article 5-2). The Committee shall deliberate on and decide matters concerning the production, dissemination and use of statistics including matters concerning the mid- and long-term policy goals for the development of national statistics and the direction for the promotion thereof; the adjustment and consolidation of similar and overlapping statistics and the coordination of statistical agencies, ; the quality control, ; the standard classifications of statistics; the utilization of administrative data; and the utilization of statistical information systems. Having specialized sub-committees by area of statistics, the National Statistics Committee provides advice to the Commissioner of Statistics Korea on important statistical issues. Matters necessary for the organization, management, etc. of the Committee are delineated by the Presidential Decree on the National Statistics Committee.

<Recommendation 3> Adherents ensure adequacy of human, financial and technical resources available for the production and dissemination of official statistics.

3-1: The national statistics system has sufficient funding for statistical production and dissemination including to support staff training, to develop computing resources, and to implement innovation. Resources are adequate in magnitude and in quality to meet statistical needs.

As the general coordinator of the overall national statistics system, Statistics Korea provides

training for professional statisticians through the Statistics Training Institute, develops necessary computing resources (e.g. micro-data systems, National Statistics Portal: KOSIS, SGIS, Integrated Management Systems for Administrative Data), and mobilizes budgetary resources for implementing innovations. To ensure sufficient funding for statistical production and dissemination, the National Statistics Committee voted for the statistics budget review system in 2009 and introduced the system to the central government departments in 2010. Accordingly, Statistics Korea has been reviewing the applications for statistical budgets made by central government departments to examine the adequacy of budgeting, and has been submitting the evaluation reports to a relevant budgeting authority as references to the final budgetary deliberations and reviews. In addition, Statistics Korea has been mobilizing the statistical development budget of 1 billion won (around 890,000 USD) each year to support the statistical development and improvement of private statistics collection agencies. The program covered the following statistics in 2016:

- The Performance of Statistical Development Support Program in 2016: ①Statistics on Legal Systems, ②Approved transactions for domestic credit cards, ③ The Trade Statistics of Raw Materials for Rare Earth Metal, ④Statistics on Culture, Sports, and Tourism Industries, ⑤Statistics on Cultural and Artistic Activities, ⑥Statistics on the Incoming and Outgoing International Tourists

3-2: The adequacy of resources is regularly monitored.

Statistics Korea has been conducting the Statistical Manpower and Budget Survey, an approved statistic under the Article 18 of the Statistics Act, for taking stocks of statistical manpower and statistical budgets of the statistics collection agencies. The items of the survey include the level of education, attainment of statistics degree or professional training in statistics, professional experience in statistical work, and the allocation of budgets by the type of statistics i.e. survey statistics, reporting statistics and derived statistics. Since the first survey was conducted in 1972, there has been 32 rounds of the survey until 2016. The survey adopted a biennial cycle since

1992.

3-3: The scale, level of aggregation and production costs of statistics are commensurate with needs.

Since 2012, Statistics Korea has been publishing itemized cost for statistical production and the criteria thereof in *The Manual of Preparing Budget Proposals* issued by the Ministry of Strategy and Finance to help government departments prepare their statistical budgets in such a manner as to reflect the statistical needs prescribed in the Master Plan for Development of National Statistics. To this end, each department prepares its statistical budget proposal and submits it to Statistics Korea for a review. Based on the Master Plan for Development of National Statistics of Korea, Statistics Korea evaluates whether the budget proposal has properly considered the needs to develop new statistics, or to improve the quality of statistics. The evaluation results of Statistics Korea shall be presented to the Ministry of Strategy and Finance.

3-4: Procedures exist to assess and justify demands for new statistics against their cost.

Statistics Korea performs the quarterly demand survey on the improvement and development of statistics in which statistics collection agencies, government agencies and associated committees, municipalities, research institutes, members of the National Statistics Committee, and civilians participate. The Statistical Demand Evaluation Committee shall review the survey results to identify and coordinate statistical needs while taking into account manpower, budget and other circumstances. It is by this means that newly identified statistical demands are addressed in statistical production.

In addition, Article 18 of the Statistics Act prescribes conditions to be considered for granting an approval for producing new statistics, which include the prohibition of duplications or similarities with already approved statistics, the adequacy of sample size, and the public nature of the purpose of statistics, to ensure the reduction of the response burden of people and to eliminate the waste of manpower and budget. Once approved, the approved statistics are subject to the Regular · Occasional · Self-administered Examinations of the Quality of Statistics. These examinations are designed to assess the quality of statistics in terms of the

responsiveness to the requirements and needs of statistics users; the efficacy of organization, staff and budget; the adequacy and sustainability of methodology; the accuracy and timeliness of statistics; the convenience and usability of statistical usage; the compliance with statistical classification; etc. (Statistics Act, Article 9~11).

3-5: Procedures exist to assess the continuing need for all statistics, to see if any can be discontinued or curtailed to free up resources.

Where it is recognized necessary to secure the reliability of statistics and the efficiency of the operation of the statistics system, such as to reflect the output of Regular · Occasional · Self-administered Examinations of the Quality of Statistics, to coordinate similar or overlapping statistics, etc., the Commissioner of Statistics Korea may request the heads of statistics collection agencies to suspend the collection of statistics or to change statistics, or to improve the business concerning the collection and dissemination of statistics (Article 12) for the purpose of preventing the waste of statistical resources. In addition, *the Manual of Preparing Budget Proposals* stipulates a higher priority shall be given to the statistical productions that use administrative data over the survey statistics in allocating statistical budget. Since 2010, the statistics budget review system for central government departments has mandated Statistics Korea examine the existing or planned statistics generated by government departments for identifying opportunities to substitute surveys by using administrative data, consolidating duplicated statistics, or reducing cost. The examination results are to be reported to the Ministry of Strategy and Finance, the authorizing department for making final budgetary determinations. As a side note, Statistics Korea tries to convey the message of reinvesting the savings of budget into the development of new statistics ensuring requisite statistical resources.

3-6: National Statistical Authorities implement a policy of continuous vocational training for their staff.

Statistics Korea implements its own policy to provide continuous and sufficient vocational training to its staff through the Statistics Training Institute, an affiliate organization of Statistics Korea. It also encourages staffs to take training from privately owned professional training institutions if necessary. Vocational training during the course of performing a job is actively

encouraged as well. It promotes the formation of job-related study groups and their activities by funding operational costs, offering incentives to groups with good performances, etc. Statistics Korea tries to ensure the effectiveness of vocational training such that each staff member is required to participate in training for at least 100 hours each year and the participation to training shall contribute to promotions at work.

<Recommendation 4> Adherents protect the privacy of data providers (including individuals, households, enterprises, administrations and all levels of government) and guarantee by law the confidentiality of the individual information provided and its use for statistical purposes.

4-1: Statistical confidentiality is guaranteed by law.

Article 4-3 and Article 33 of the Statistics Act prescribes that the protection of confidentiality as the responsibility of the nation and that the collected data shall not be used for any purpose other than that of collecting statistics.

4-2: Specific measures are in place to ensure the full protection of individual data from any potential disclosure without consent, with the aim to ensure the confidence of data providers in participating in statistical surveys.

Article 30 (Provision of Statistical Data) and 31 (Use of Statistical Data) of the Statistics Act mandates statistical agencies shall use statistical data after editing the statistical data in a form in which specific individuals, corporations, organizations, etc. are de-identifiable.

Article 34 (Duty of Statistics Staff, etc.) prescribes information that has become known in the course of conducting a duty shall not be used for any purpose other than the relevant duty, nor shall be provided to other people. The breach of such clauses shall be subject to a punishment of imprisonment with labor for not more than three years or a fine not exceeding 30 million won (Article 39 and 41).

4-3: The confidentiality policy is made known to the public.

In every surveys, including the nation-wide censuses involving complete enumeration, the respondents are notified that the collected data shall be used only for statistical purposes. Article 33 of the Statistics Act stipulates the protection of confidentiality such that the confidential data of individuals, corporations, and other entities shall be used only for statistical purposes and strictly protected. The principle of the protection of confidentiality and the practices thereof are publicly available on the website of Statistics Korea and, for those who use micro-data services delivered by Statistics Korea on the Integrated micro-data Services website.

4-4: Physical, administrative and organizational provisions are in place to protect the security and integrity of statistical databases.

Statistics Korea has established and has been implementing organizational regulations concerning security which include the Principles of Information Security, the Operation Manual for the Security of Administrative Data, etc. It holds check-up sessions for information security for all of the staff and strengthens training programs to administer the operation of various security provisions. From a technology point of view, Statistics Korea employs a number of security measures such as a DB Access Control System and the encryption of sensitive information e.g. personal information for protecting the security and integrity of statistical DBs. The DB Access Control System records and manages any incident of DB access, and allows the access to authorized users only. Regular systems monitoring and data back-up takes place as well. Physically, the operating servers for information systems are safely located for preventing invasion and damage. Internet and Intranet systems and the operations thereof are separated. And provisions are in place to prevent the leakage of data which include the issuance of a certificate namely a security sticker, and the restrictions applied to portable storage media.

The related regulations and provisions are listed below:

.The Principle of Information Security of Statistics Korea

.The Operation Manual for the Security of Administrative Data

.The Rules for Managing and Using Preserved Digital Data

.The Operational Management Guide for the Integrated Database of Official Statistics

.The Operational Management Guide for NARA Statistics System

.The Guidance of Protecting Personal Information of Statistics Korea

4-5: Provisions are in place and internal guidelines are available to allow external users access to micro-data for statistical research purposes under strict protocols and only after anonymization of the data.

The Deliberation Committee for Statistical Data Provision is established in compliance to Article 4 of the Rules for the National Statistical Data Provision to deal with matters concerning the preservation, management, provision, and restriction of data that has not been disseminated, fees for data provisions, institutional improvement of data services, and statistics based on administrative data, etc. the Rules for the National Statistical Data Provision also has a provision (Article 10) that prescribes personal information shall be made de-identified to users of micro-data and other un-published aggregate data. Strict procedures shall apply when external users apply to use micro-data that are allowed for public use which is referred to as 'licensed' micro-data. Followings restrictions apply to the use of 'Licensed micro-data'.

.Shall not be used for any purpose other than statistical purpose

.Shall not reveal any information that is based on individual records

.Shall not be used by any person other than those who have signed the confidentiality agreement

.Shall be used only for the original purpose(s) that have been approved

4-6: Privacy issues as regards the use of new data sources (e.g. social network data) are

identified and procedures are implemented to guarantee statistical confidentiality.

Statistics Korea undertook the restructuring of its organization to prepare for a paradigm shift in statistical production in which new data sources such as administrative data and big data shall be used for producing statistics (according to the revised The Guideline for the Organizational Restructuring of KOSTAT in Oct. 2015). This was followed by the establishment of the guideline for the un-identification of personal information articulating the criteria of implementing the un-identification measures and the scope of using un-identified data which aimed to promote the secure use of big data within the scope of a legal protection of personal information (Sep. 2016). At the same time, the procedures were put in place to allow any kind of analysis of sensitive data be limited within a pre-authorized secure station and to have approval from the Deliberation Committee for Statistical Data Provision for a waiver to such a restriction (Sep. 2016). The Deliberation Committee should consider potential data leakage, credibility of data, etc. in their review. Currently, we are preparing a guideline for the controlled statistical exposures to allow for the external transmissions of analytical data that involves data linkages with administrative data and big data.

<Recommendation 5> Adherents ensure the right to access administrative sources to produce official statistics.

5-1: The Statistical Authorities are authorized by law to use administrative records for the regular production of official statistics.

Statistics Korea is authorized to use administrative records for producing official statistics under the statistics Act, The Framework Act on National Taxes, and the Personal Information Protection Act. Article 24 and 24-2 of the Statistics Act mandates the heads of statistics collection agencies or the commissioner of Statistics Korea may request the head of a public institution to provide administrative data that is necessary for the production of statistics. According to Article 81-3 of the Framework Act on National Taxes and Article 114 of the Framework Act on Local Taxes, the Commissioner of Statistics Korea may be provided with

taxation information insofar as it is appropriate for the purpose of compiling national statistics. Article 58 of the Personal Information Protection Act stipulates partial exemption of the application of some of its restrictive provisions to such personal information as being collected pursuant to the Statistics Act.

5-2: Administrative sources are used whenever possible and cost-effective to avoid duplicating request for information and reduce reliance on direct surveys.

Currently, 197 sets of administrative data are used in producing statistics of which 140 data sets are to replace survey data and 57 data sets are to verify or supplement statistical data. In 2016, a register-based census was first adopted to the Population and Housing Census of Korea for which a pilot was conducted a year ago by using 24 sets of administrative data to replace complete enumeration items of the census and the result of the pilot was published in 2015. It was recognized that the use of administrative data reduced the burden of respondents and saved the budget by 114.5 billion won.

5-3: National Statistical Authorities are involved in the design of administrative data in order to make administrative data more suitable for statistical purposes.

Until the end of 2016, Statistics Korea has independently performed the coding of national taxation information obtained from the National Tax Service (NTS) pursuant to the industry classification. In the meantime, Statistics Korea and the NTS collaborated to develop a data importing system that suits statistical purpose and launched the system in 2017. For this, Statistics Korea developed a mapping table between the NTS's Classification of Business and Statistics Korea's Industry Classification based on which NTS shall assign a code to taxation records prior to exporting the records to Statistics Korea (source: the Mid-term Strategy for Using Administrative Data for 2016~2020).

5-4: National Statistical Authorities co-operate with owners of administrative data in assuring data quality.

Statistics Korea cooperates with owners of administrative data through the Council of Integrated Management of Administrative Data which convenes meetings at least two times each year to have discussions on the quality improvement of administrative data, etc. Having 50 or so members, the Council is comprised of three sub-committees in the areas of a cooperation mechanism for obtaining administrative data, infrastructure and use of administrative data, and the establishment of a consolidated register for statistics. To further ensure the quality of administrative data, Statistics Korea implements the following procedures: the basic review of missing or duplicated data, data errors, etc; the logical review for ensuring coherence among items, the status review based on representative values and sectional values; and the time-series review performed by item (source: the Job Descriptions of Administrative Data Management Division).

5-5: Agreements are made with owners of administrative records which set out their shared commitment to the use of these data for statistical purposes.

The Statistics Act, the Framework Act on National Taxation and the Framework Act on Local Taxes set out the scope of the use of administrative data within statistical purpose. Pursuant to the relevant legislations, Statistics Korea acquires administrative data insofar as it is appropriate for the intended use.

5-6: Recommended practices are available for the reporting and presentation of administrative data.

The Standard Manual for the Usage of Administrative Data prepared by Statistics Korea in November 2011 contains recommended practices for the reporting and presentation of administrative data. In addition, the cautions on the use of statistical data, overview of statistics surveys, terminologies, etc. are published in forms including press release, online/offline publications and metadata (KOSIS) to assist the users of statistics.

5-7: Linking administrative data with survey data is encouraged by National Statistical

Authorities with the aim of reducing the burden on respondents, reducing the costs in producing official statistics, and increasing the analytical value of official statistics.

Statistics Korea first developed the Mid-term Strategy of Using Administrative Data for the Advancement of National Statistics for the period between 2011 to 2015 with the aim of establishing a system for linking administrative data and survey data. Currently, the execution of the second phase of the Mid-term Strategy of Using Administrative Data for the Advancement of National Statistics for the period between 2016 to 2020 is underway. As a result, 37 kinds of statistics including the Economic Census and the Survey on Business Establishments in Korea use administrative data to replace their survey items which contributes to the reduction of survey costs and of the burden of respondents.

<Recommendation 6> Adherents ensure the impartiality, objectivity and transparency of official statistics, through the development, production and dissemination by the National Statistical Authorities of statistics respecting scientific independence put in place in an objective, professional and transparent manner in which all users are treated equitably. Equitable treatment implies in particular equal access to data by all users.

6-1: Official statistics are collected, compiled and disseminated on an impartial and objective basis and determined by statistical considerations only.

The collection, aggregation, and dissemination of official statistics are conducted according to criteria that are impartial and objective and the decisions pertaining to official statistics are strictly based on statistical matters. In 2009, Statistics Korea developed the Recommended Practice for National Statistics, articulating guiding principles of the overall statistical production process ranging from survey planning and questionnaire design to data collection, data processing, and data provision. The Recommended Practice of National Statistics was published in the form of an e-book so that it could be readily available to anyone including statistics collection agencies at anytime.

6-2: Equal access to official statistics for all users at the same time is guaranteed by law. If a public or private body has access to official statistics prior to their public release, this fact and subsequent arrangements are publicized and controlled. In the event that a leak occurs, pre-release arrangements are revised to as to ensure impartiality.)

The Statistics Act mandates all users shall have equal access to official statistics (Article 27). It further stipulates that the relevant information concerning the disclosure and the actions thereafter shall be published in case a statistic has been disclosed to others before its official announcement (Article 27-2). Where a statistics collection agency provides statistics pursuant to the Act, it shall disclose to the public the result of comparison between, and examination of, the statistics provided to external entities before their official announcements and the officially announced statistics, and submit such results to the Commissioner of Statistics Korea (Article 27-2, Paragraph 5). Such results refer to the details of statistics, whether the date scheduled for the official announcement is to be changed and reasons for the change if any change is made.

6-3: Choices of data sources and statistical methods as well as decisions about the dissemination of statistics are informed by statistical considerations.

Choices of data sources, statistical methods, and decisions about the dissemination of statistics are informed by statistical considerations. For the purpose of avoiding others, including political or policy considerations affecting these choices, statistical results shall be announced without delay once their compilations are completed, unless a date for an official announcement has been scheduled and made public (Article 27).

6-4: Errors discovered in published statistics are corrected at the earliest possible date and publicized.

The Recommended Practice for National Statistics prescribes statistical agencies to perform a thorough review of the data value, statistical table, terminology, spelling, etc. before the publication of statistics and to promptly post the corrections of errors in published statistics to

its users. It recognizes a number of reasons for making corrections of published statistics which include: the change from an estimated value to a final value when the estimated value was published before its final value was determined; the correction of mistakes committed by statistics collection agencies, the application of new standards. In any case, it is recommended that a notification of changes shall be made in a transparent and prompt manner, and use diverse channels of media to promote easy access by users. The Recommended Practice further prescribes a notification of changes shall contain the specifics of the change, the timing, the official statement of the relevant authority, etc (page 81).

6-5: Information on the methods and procedures used is publicly available.

The Statistics Act mandates statistical collection agencies, upon a release of statistics, to publish the relevant information such as a survey target and a statistical method in order to ensure the accurate use of statistics (Article 27-2). Accordingly, methods, procedures, and statistical tables of official statistics are publicly available on the webpage for the metadata service of national statistics.¹

6-6: Statistical release and statements made in press conferences are objective and non-partisan.

Pursuant to the Manual of Administration etc., Statistics Korea refrains itself from offering commentaries in a statistical release and a press conference but provides fact-oriented explanations in order not to manipulate the direction of articles.

6-7: Statistical release dates and times are announced in advance. A twelve-month-ahead advance release calendar is provided. Official statistics are released according to a standard daily time. Any divergence from the dissemination time schedule is publicized in advance, explained, and a new date is set.

¹ <http://meta.kosis.kr>

Pursuant to the Manual of Administration etc., Statistics Korea provides a twelve-month-ahead calendar showing the release dates of major trend statistics and the release month of other statistics. The release dates of the other statistics will be available by 2018. The changes in the release schedule are updated immediately through the website to prevent any confusion.

6-8: Any major revision or changes in methodologies are announced in advance.

The operation guide of individual statistical surveys and Statistics Korea's internal guidelines etc. mandates Statistics Korea shall make advance announcements of major revisions or changes in statistical methodologies. In practice, each public institution posts important public information and changes thereof on its website, pursuant to the guidelines of the Advance Release of Public Information, a system to release publicly owned · managed information to people. Statistics Korea, for example, made the advance announcement in 2013² for publicizing the major methodological change in the 2015 Population and Housing Census in which they adopted a register-based census using administrative data in replacement of face-to-face interviews. In the case where relevant information has not been announced in advance, it shall be provided at the time of the publication of statistical results.

6-9: Internal guidelines are made available by statistical authorities to respond to erroneous interpretation and misuse of statistics. They are well-known by staff.

Statistics Korea has internal guidelines to respond to erroneous interpretation and misuse of statistics. They include the Detailed Guidelines of Error Response System (1948 by Quality Management Division) which provides recommended measures in each step of statistical production to respond to statistical errors identified during routine monitoring, and the Manual

² A press release titled 'The statistical burden of respondents will be reduced in the 2015 Population and Housing Census' issued on Dec. 17, 2013.

on Data Provision for International Organizations (International Cooperation Division, Nov. 2011) which aims to prevent errors in statistics provided to international organizations. In addition, in order to regulate any interference to the statistical production and dissemination, the Statistics Act prohibits anyone from exercising an influence over statistical processes (Article 27-2) and adjures a punishment upon a violation to this (Article 39).

**6-10: Statistical plans and programs, methodologies, processes and the procedures of quality assessments are made publicly available by the statistical authorities.
(Statistical Policy Division)**

Statistics Korea publicizes, through its website, the names of persons-in-charge, methodologies, statistical production procedures, and histories of programs that are to develop and improve the Master Plan for Development of National Statistics, Key Statistics on National Foundation and Key Policy Statistics. The reports of statistical quality evaluations are made available through the website³ as well. In other words, Statistics Korea provides statistical plans and programs, methodologies, processes, and quality assessments and makes them available to the public.

6-11: Guidelines exist for the presentation of data, including the treatment of time series breaks, and seasonally adjusted data, with the aim to ensure that official statistical data and metadata are presented in a way that facilitates proper interpretation and meaningful comparisons.

For its key trend statistics, Statistics Korea provides descriptions and explanatory notes to clarify the treatments of time series breaks and seasonally · yearly adjusted data such as the methods of time series extension using a coefficient of coupling in the forms of statistical metadata and press release (the operation guide of individual statistical surveys e.g. the Job Manual of Mining and Manufacturing Industries Trend Survey, the Job Manual of Vital

³ <http://kostat.go.kr/policy/quality/index/action>

Statistics Survey)

<Recommendation 7> Adherents employ sound methodology and commit to professional standards used in the production of official statistics.

7-1: Official statistics are produced according to strictly professional considerations, including scientific principles and professional ethics with regard to methods and procedures used for the collection, processing, storage and dissemination of statistical data.

The Statistics Act adjures statistics shall be produced in a scientific manner (Article 2). Especially for the collection of the approved national statistics, a prior approval of the Commissioner of Statistics Korea shall be needed (Article 18) which can only be granted if the credibility of the concerned statistics can be recognized through the use of proven methodologies. The Commissioner of Statistics Korea is responsible for developing and disseminating standard classification and advocating its use which will underpin the standardized production of statistics. By doing this, Statistics Korea promotes the data collection of official statistics to be strictly based on scientific principles and be performed in a professional manner. Statistics Korea also enables the effective implementation of the standardized production and dissemination of statistics for statistics collection agencies by establishing and operating an integrated statistical information system (Article 7-2). In terms of professional ethics, the statistics Act mandates the Commissioner of Statistics Korea endeavor to provide statistical training that fosters national statisticians who are equipped with professional ethics (Article 8). The protection of confidential information obtained during the process of statistical production, the restriction in using statistical data within statistical purpose (Articles 24, 30, 31, and 33), the preclusion of advance disclosure of statistics before or during the process of statistical production and dissemination (Article 27-2), and the adjuration of punishment for the violations thereof (Article 39) are also mandated in the Statistics Act to enforce professional ethics of national statisticians.

7-2: Sound statistical methodology requiring adequate tools and procedures and expertise is implemented and guaranteed by the national statistics law.

To collect the approved national statistics, a prior approval of the Commissioner of Statistics Korea shall be needed (Article 18) which can only be granted if the concerned statistics can be recognized as credible. Further requisites for an approval of the Commissioner of Statistics Korea are delineated by the Enforcement Decree of the Statistics Act. By considering the subject and target of statistics, reference time and the cycle of statistical collection, method of statistical production, data collection system, classification and standard of statistical production, statistical table, format of reporting, questionnaire, and other elements in an approval, the Statistics Act and the Enforcement Decree thereof ensure the official statistics shall apply the capable statistical methodologies in respect to their tools, procedures, and specificity.

7-3: International statistical standards, guidelines and good practices are applied in the National Statistical System as appropriate.

The Statistics Act which governs the collection, aggregation, and production of official statistics in Korea is set out to materialize the principles prescribed in the United Nations Fundamental Principles of Official Statistics. Also in 2011, the Fundamental Principles of Official Statistics in Korea was established based on the UN Fundamental Principles of Official Statistics to present recommended statistical principles applicable to all the actors in the national statistical system.

7-4: National statistical classifications developed by statistical authorities are consistent with international classifications. Detailed concordance exists between national classifications and the corresponding international classification.

The Statistics Act prescribes national statistical classifications to be coherent to international classifications. Article 22 mandates the Commissioner of Statistics Korea to prepare and publicly announce a standard classification concerning industries, occupations, diseases, causes of death, etc. on the basis of international standard classifications so that statistics collection agencies may collect statistics according to the same standard.

7-5: Procedures are in place to ensure that standard concepts, definitions and classifications are consistently applied throughout the National Statistical Authorities.

Statistics Korea provides through its webpage the standard definitions of the terminologies that generally apply to statistics produced and publicized by different statistics collection agencies, for the purpose of preventing the production of duplicated · similar statistics, facilitating efficiency in producing statistics, and mitigating misinterpretation in the use of statistics (The Manual of Administration, pg. 87).

7-6: Subject matter advisory committees made up of external experts advise on relevant statistical matters.

External experts participate in the National Statistics Committee of Korea which aims to deliberate and decide important statistical matters (Article 5-2). Its six sub-committees on subject matters including statistical policy, economic statistics, social statistics, and statistical information provide expert advises on the relevant statistical institutions and systems as well as on the practical issues in the proposed statistics. Other than the National Statistics Committee, the Deliberation Committee for Statistical Data Provision involves external experts (Article 49 of the Enforcement Decree of the same act). This committee deliberates on matters concerning the usage and provision of statistical data, production of new statistics upon being requested by at least 20 persons, etc.

7-7: Graduates in the relevant academic disciplines are recruited.

Statistics Korea has been expanding the recruitment of graduates in relevant academic fields to strengthen statistical expertise throughout its job duties such as statistical production, economic and social statistics analysis and statistics services. Statistics major accounted for 15.5% of the staff in 2010 and the rate has grown to 26.6% in 2016. Taking other related majors such as Economics, Sociology, Demography, and Computer Science into account, the rate was 42.1% in 2016. In the head office of Statistics Korea this rate was significantly higher, as much as 61.2%, than the regional statistics offices, which could be partly explained by the fact that the Head Office is in charge of planning and analysis of statistics whereas the regional offices take charge of field surveys. In addition, Statistics Korea encourages the staff members from non-related majors to get a Certificate of Social Survey Analyst achieving 51.2% of staff at the head office being certified for it (2016 HR Statistics).

7-8: Co-operation with the scientific community, academic institutions and international organizations is organized to improve methodology and the effectiveness of the methods implemented, and to improve methodological and technical skills of staff.

Statistics Korea has been investing heavily to improve the skills of its staff. Established in 2005, the Statistics Research Institute of Statistics Korea has been devoted for research activities ranging from the recruitment of highly qualified researchers to the study of developing and improving national statistical methodologies. Statistics Korea is being represented regularly in a number of domestic academic activities that are organized by academic associations and provides overseas training opportunity to 4~5 staff members each year. The overseas training often takes the form of a secondment to overseas government institutions, international organization, research institutions for targeted training projects or the masters program from an academic institution (the 2016 HR Statistics).

7-9: Strategies for recruitment, as well as processes for technical and managerial development and training of existing staff, are established, implemented, and revised as required.

An annual plan of recruiting is being developed each year to fill the gaps and to ensure the balance of staffing. The practice of hiring experts from private sector for highly specialized areas of work has been continued and accepted widely. In terms of the training of existing staff, Statistics Korea provides vocational training that takes account into the job grade, job proficiency, etc. New employees are required to take basic training to prepare them for new jobs and candidates for promotion are required to take capacity enhancement programs. It analyzes the need for capacity enhancement and knowledge improvement for each job grade and reflects the results into the training courses provided by Statistics Training Institute which are available to all employees. Training programs tailored to specific duties requiring highly specialized skills are provided as well. The organization of so called Specialist Fostering courses are based on job complexity (the Manual of Vocational Training).

7-10: In the case of statistical surveys, questionnaires and systems for production are systematically tested prior to the data collection.

A test survey is performed before the production of new statistics in which the direction of sample design, questionnaire preparation, recruitment of manpower, budget, system of computerized processing, data editing on the input records, items to be released, etc. are tested (the operation guide of individual statistical surveys including the job manuals for the Population and Housing Census, the Survey on the Residence Status of Immigrants, the Survey of Household Finances and Living Conditions, and the Time Use Survey).

7-11: Parallel runs are undertaken when systems or questionnaires are redesigned in any significant way.

Statistics Korea undertakes the parallel runs upon a change of sampling, survey methods, questionnaires etc., to minimize any confusion involved in the change of systems (internal documents e.g. the Plan for the Parallel Run on Agricultural Area Survey, the Plan for the Livestock Statistics Survey, etc.).

7-12: Survey designs, sample selections and estimation methods are well based on,

regularly reviewed and revised as required.

The Sample Design Report of Statistics Korea contains the detailed steps of sample designing e.g. stratification, classification index, the method of sampling and estimation, etc. Each year, the population base of surveys and the results of sample surveys are monitored to identify whether an improvement is needed and what has to be improved in terms of sample design, method of estimation, etc. If an issue is identified, an additional review shall be conducted in forms of the conference of experts, pilot test, and others means to find a way to modify the existing methods.

7-13: The business register and the frame for population surveys are regularly evaluated and adjusted if necessary in order to ensure high quality.

Statistics Korea conducts the annual Census on Business Establishments and the quinquennial Population Census which provide establishment-based or household-based sample frames for most of its sample surveys being used to compile the economic and social statistics. For both censuses, administrative data including taxation data and other data from register is linked to supplement survey results. The establishment of a business register which will be based on a corporation unit is underway.

The frame for population surveys have been monitored annually in order to reflect the demographic change of the population. Since 2015 when register-based census was first introduced, the most updated population information has been reflected annually in the sample frame (the Job Manuals of the Census on Establishment, the Job Manuals of the Population and Housing Census, the Report of the Establishment of Business Register).

7-14: Data collection, data entry, and coding are routinely monitored and revised as required.

The Operation Guide of Individual Statistical Surveys, the Manual for Computerized Data Entry, and the Operation Guide of Field Enumeration⁴ have detailed prescriptions on data

⁴ They are stipulated as the Enforcement Rules of Statistics Korea (Rule No. 463, Feb. 2, 2017)

collection, data entry, and coding methods. Collected data are monitored in real-time by computation systems and are corrected for its error according to the editing rules.

7-15: Appropriate editing and imputation methods are used and regularly reviewed, revised or updated as required.

Statistics Korea applies data entry, editing, and imputation rules to individual statistical surveys by establishing a dedicated computational system for each survey. The editing element performs the review of collected data and the corrections to erroneous records. The methods of imputation or weight adjustment shall apply to no-response cases in order to enhance the accuracy of estimation. For the surveys related to business establishments, ‘banff’ program of Canada is used to make adjustments to non-response, outlier, etc.. (the Job Manual of Population and Housing Census, the Job Manual of Census on Establishments, etc.)

7-16: Revisions follow standard, well-established and transparent procedures.

Statistics on trends such as Industry Activities Trend Survey that are published according to a scheduled monthly release date often contain tentative values in their recent data. The release of this tentative data is accompanied by an announcement of release schedule for the final data and the monthly gap analysis between tentative values and the final values. If some data cannot be reflected within its survey period due to a change of classification standard, delay in closing balance sheets, etc., necessary corrections and supplements are being made as they are prescribed by internal guidance e.g. the manual for annual adjustment and the manual for revision. The editing work is performed transparently by a dedicated computation system for each statistical survey which identifies errors, enables verifications with the field and applies appropriate methods for outlier values (the Job Manuals for Economic Census, for Mining and Manufacturing Industry Trend, for Vital Statistics, etc.).

7-17: A revision schedule is published by the producers of official statistics.

Statistics Korea makes announcement of revisions in terms of including the revised statistical methods and changes in classification standards (Industry Classifications, Occupational

Classifications, etc.) through its website under Notification of Information section⁵.

7-18: The design of statistical questionnaires used in survey-based data collection processes is regularly reviewed.

The Conference of Experts, and the Hearings from statistical users e.g. the relevant ministries are being held annually to discuss and review matters concerning the revisions of statistics including the addition and removal of questionnaire items (the Job Manuals for Economic Census and for Population and Housing Census, etc.).

<Recommendation 8> Adherents commit to quality of statistical products and processes, in particular to key quality dimensions as defined in national and international quality assessment frameworks.

<Quality Control, Monitoring, the Report of Assessment Plans>

8-1: A quality policy ensures that the producers of official statistics systematically assess the quality of official statistics. Quality policy is publicly available through guidelines, frameworks, reports, etc. and staff members receive appropriate training for their application.

The Statistics Act mandates Statistics Korea and, where applicable, the statistics collection agencies to assess the quality of official statistics including the approved national statistics in a systematic manner. Article 9, the Regular Examination of the Quality of Statistics, states Statistics Korea shall periodically conduct an examination of the quality of key official statistics within the scope of ten years. Article 11, the Self-examination of the Quality of Statistics, prescribes the statistics collection agencies shall examine the quality of statistics under their jurisdiction each year.

⁵ http://kostat.go.kr/portal/korea/kor_nw/1/1/index.board

The quality policy of Statistics Korea can be found in the Manual of Quality Control for National Statistics, the Report of Quality Assessment for Individual Statistics, and more which are publicly available from Statistics Korea's website⁶.

The Statistics Training Institute of Statistics Korea offers the Training Course on Quality Control, four times a year, to the employees of statistics collection agencies and plans to extend the course online for which the development of training material has been completed. The Statistics Training Institute also provides the On-the-job Training of Quality Control on a rolling basis.

8-2: An efficient, and possibly independent, quality management system exists.

The quality control system of Statistics Korea is targeted at the official statistics, including the approved national statistics. The system employs the Regular · Self · Occasional Examination of the Quality of Statistics to identify tasks for improvement and the monitoring of the implementation of the identified tasks to support the improvement. For the Regular Examination of the Quality of Statistics, external experts who are not involved in the official statistics system access the overall quality of statistical production process as well as the results of statistical output every five years (Article 9). The Occasional Examination of the Quality of Statistics applies to statistics presenting reasons to believe that the quality thereof has deteriorated. The procedure of the regular examination shall apply mutatis mutandis to occasional examinations of the quality of statistics (Article 10). Self-examination of Quality of Statistics apply to statistics produced by statistics collection agencies on an annual basis (Article 11). Articles 12 and bvc13 of the Statistics Act prescribes Statistics Korea shall provide consulting including technical and financial assistances to the statistics collection agencies if the requirements of improvement exceed the scope of the agencies' capacity.

8-3: The national quality management systems are based on recognized models for

⁶ <http://www.kostat.go.kr/quality>

quality frameworks, such as the IMF Data Quality Assessment Framework (DQAF), the European Foundation for Quality Management, the European Code of Practice, the European Statistical System Quality Assurance Framework, the Total Quality Management and the ISO EN 9001, etc.

The National Statistical Quality Management System of Statistics Korea was established based on widely recognized international models e.g. the ISO models, the European Statistical System Quality Assurance Framework, etc.

8-4: There are regular and thorough reviews of key statistical outputs involving external experts where appropriate (ECoP).

The Regular Examination of the Quality of Statistics being conducted every five years for the official statistics, including the approved national statistics, involves external experts to evaluate the overall quality of statistical production process and of statistical output. Also, a number of statistics will be chosen based on their index from the Regular · Self Examination of the Quality of Statistics which then shall be subject to an in-depth review of the external experts (the Manual of National Statistical Quality Management).

8-5: Quality assessment and certification processes guarantee the official nature of statistics produced in various parts of the National Statistics System (NSS).

According to Articles 9 to 11 of the Statistics Act, Statistics Korea, and where applicable, the statistics collection agencies shall evaluate the quality of the official statistics, including the approved national statistics in a systematic manner. The Regular · Occasional · Self-administered Examinations are designed to assess the quality of all kinds of statistics (approved national statistics) within the NSS and to support the quality improvement thereof for the purpose of guaranteeing the official nature of statistics produced in various parts of the NSS.

8-6: The organizational structure of the entities belonging to the NSS and governance arrangements are appropriate and regularly reviewed to assess and justify new statistical demands and related costs.

Statistics Korea has been conducting the Statistical Manpower and Budget Survey for taking stock of statistical manpower and statistical budgets of the statistics collection agencies. In addition, Statistics Korea has been publishing itemized costs for statistical productions and the criteria thereof via the Manual of Preparing Budget Proposals issued by the Ministry of Strategy and Finance to help government departments prepare their statistical budgets in a manner that can reflect the statistical needs prescribed in the Master Plan for Development of National Statistics. The budget proposal prepared by the relevant government departments according to the above mentioned manual shall be reviewed by Statistics Korea to assess and justify statistical demands and related costs. The evaluation results of Statistics Korea shall be submitted to the Ministry of Strategy and Finance.

8-7: Information and communication technologies are regularly monitored and assessed for use in data collection, data processing and data dissemination.

Statistics Korea has been deploying the latest information and communication technologies to reduce the burden of respondents and to improve the efficiency of data collection and data processing in forms of CATI, CASI, CAPI, mobile CASI, etc. For the regular monitoring of the information and communication technologies and for the expansion of electronic surveys, Statistics Korea has built the Electronic Survey Centers across its regional offices since 2016 (the 2016 Operation Guide for Electronic Survey Center).

<Accuracy >

8-8: Source data, intermediate results and statistical output are regularly assessed and validated (ECoP).

The Statistical Quality Management program has processes to assess and verify the data collection, use of administrative data, data processing, statistical estimation and statistical analysis of individual statistics (the 2017 Manual of National Statistical Quality Management).

8-9: National Statistical Authorities put in place processes to ensure that sampling and non-sampling errors are measured, systematically documented, and that information is made available to users.

It is mandated that statistical authorities publish sampling errors for the key survey items of individual statistics. The Regular Examination of the Quality of Statistics process involves the measurement of sampling and non-sampling errors, preparation of quality assessment reports, and publication of the reports to external experts (the 2017 Manual of National Statistical Quality Management).

8-10: Studies and analysis of revisions are regularly conducted according to transparent procedures and the results are made available to users.

The revisions of samples and indices are undertaken regularly and the reports of the results are publicly available. The revisions of statistical methods and changes in classification standards (Industry Classifications, Occupational Classifications, etc.) are announced on the website of Statistics Korea or on KOSIS, the national statistical portal.

<Timeliness and punctuality>

8-11: Timeliness meets international statistical release standards.

According to the international standards of statistical dissemination, the length of period between the last day of a survey (or a survey reference date) and the initial release date of the survey statistics shall be the determinant of statistical timeliness for which different scales shall apply to different type of statistics (the 2017 Manual of National Statistical Quality Management). See below for the details of assessment criteria.

<The Criteria of Assessment on Statistical Timeliness >

annual stat.	biannual stat.	quarterly stat.	monthly stat.	score
less than 9 mon.	less than 4 mon.	less than 60 days	less than 20 days	5
9 ~ 12 mon.	4 ~ 6 mon.	60 ~ 90 days	20 ~ 30 days	4
12 ~ 18 mon.	6 ~ 9 mon.	90 ~ 135 days	30 ~ 45 days	3
18 ~ 24 mon.	9 ~ 12 mon.	135 ~ 180 days	45 ~ 60 days	2
more than 24 mon.	more than 12 mon.	more than 180days	more than 60 days	1
never published				0

* The table applies the length of period between the survey reference date and the initial release date of the survey statistics, source: the 2017 Manual of National Statistical Quality Management

8-12: The periodicity of statistics takes into account user requirements as much as possible.

The examination of the quality of statistics involves the process of seeking feedback, such as the frequency of statistics, from users. The implementation of the outcomes of feedback shall affect the examination result of individual statistics (the 2017 Manual of National Statistical Quality Management)

8-13: A standard day time for the release of statistics is made public.

The examination of the quality of statistics considers whether a standard day time for the release of statistics is made public (the 2017 Manual of National Statistical Quality Management). Generally, Statistics Korea makes advance announcements of the standard day time for the release of statistics on its website, in the metadata of statistics, or in other forms of publications.

8-14: Preliminary results of acceptable aggregate accuracy are released when considered useful.

Official Statistics including the approved national statistics are released after the review and approval of Statistics Korea on the validity of key statistical items. The statistical validity of those statistics that have already been approved is evaluated during the process of the Regular · Occasional · Self Examinations of the Quality of Statistics (the 2017 Manual of National Statistical Quality Management).

<Coherence and comparability >

8-15: Official statistics are consistent within datasets, across datasets and over time.

The consistency of datasets used in official statistics in terms of the definitions, classification standards, survey criteria, survey timing, etc. is reviewed during the process of the Examination of the Quality of Statistics. The Examination also looks at the coherence with other related statistics and with other datasets (the 2017 Manual of National Statistical Quality Management).

8-16: Statistics from the different sources and of different periodicity are compared and reconciled.

The comparability of statistics with different sources and of different periodicity are examined during the process of the Examination of the Quality of Statistics as prescribed in the Manual of National Statistical Quality Management.

8-17: Statistics are compiled according to common standards with respect to scope, definitions, classifications, and units in the different surveys and sources.

The Examination of the Quality of Statistics probes the use of common standards (the 2017 Manual of National Statistical Quality Management).

<Relevance>

8-18: Processes are in place to consult with users, monitor the relevance and utility of existing statistics in meeting their needs, and consider their emerging needs and priorities.

The sectoral consultative body of users is formed to get user input for each statistical sector which is comprised of policy makers, professors, researchers, and other users of statistics. The outcome of getting feedback is reviewed during the process of the Examination of the Quality of Statistics (the 2017 Manual of National Statistical Quality Management)

8-19: User satisfaction surveys are undertaken on a regular basis. The results are publicly released and considered as input for decisions about plans and priorities and they are reflected in the statistical work programs.

Every October, Statistics Korea undertakes the survey on user satisfaction that is participated in by around 6,000 statistics users from both inside the organization and outside it. The results of the survey feeds into the statistical work programs.

<Recommendation 9> Adherents ensure user-friendly data access and dissemination.

9-1: Statistical information is available through different dissemination tools, including media channels, Internet, an online database and paper publications and easily downloadable in different formats.

The use of diverse dissemination methods is promoted by the Statistics Act, the Enforcement Decree of the same act, and other related legislation (Articles 27 to 29 of the Statistics Act, Article 42-1 of the Enforcement Decree, and Article 13 of the Rules for the National Statistical Data Provision). In practice, Statistics Korea uses press releases,

electronic media, information and communication channels, publications, and other means to disseminate statistics. For example, the website of the national statistics portal, known as KOSIS, provides statistical information organized by the topic and producer of statistics. An integrated database of statistics is in place to provide statistical micro-data promptly and readily in various user-friendly ways (web-based, on-demand, RAS, RDC, MD CD, etc.).

9-2: A dissemination policy ensures the free dissemination of official statistics.

The various dissemination methods promoted by the Statistics Act and other related legislation ensure the timeliness and convenience of the use of statistics as well as the easy access, utilization, and sharing of statistical information. We also encourage the sharing of statistical information widely across the diverse range of social networks, including web and mobile websites, publications, Facebook and Twitter and to utilize the information for the purpose of its users (Articles 27 and 28).

9-3: In order to ensure equal access to national statistics for international users, English-language statistical information (data and metadata) is available on websites of National Statistical Authorities.

Statistics Korea delivers approx. 1,000 statistics that have been produced by the statistics collection agencies through the KOSIS⁷ English website(<http://kosis.kr/eng/>) where statistical information is provided in forms of statistical tables, metadata and graphs. Statistics produced by Statistics Korea are provided on the English website of Statistics Korea(<http://kostat.go.kr/portal/eng/index.action>).

9-4: A corporate strategy and appropriate guidelines are in place for the preparation of

⁷ The national statistical portal

statistical publications (paper and electronic).

The preparation, publishing, and servicing of statistical publications in both paper and electronic forms are governed by the internal guidelines of Statistics Korea. The guidelines delineate detailed matters concerning the registration, archiving, and management of publications and the issuance of a Korean Standard Book Number (KSBN)⁸, such as what is subject to be registered, and when, where, and how to register. The guidelines contain the specifics of the publishing and servicing of online publications as well which include the scope of the application of the rules, roles of different departments, new registrations, formats of delivery, suspension of the services and online transmissions (the Guide for the Registration Specimen Copy of Publications and the Guide for the Publishing and Servicing of Online Publications)

9-5: A corporate database and glossaries promote the use of standard statistical concepts and definitions.

Article 28 of the Statistics Act mandates a statistics database to be constructed under standardized statistics data classification codes, which provides the justifying ground of the use of standards. Statistics collection agencies are required to follow the standard classification codes in compiling their databases in order to ensure the compatibility across the agencies. The information of standard statistical terminology including standard definitions, interpretations and translations in English is publicly available on Statistics Korea's website⁹. Statistical authorities are mandated to use this standard statistical terminology in delivering the KOSIS services and publishing statistical publications in order to enhance the coherence of national statistics and improve the understanding of users.

9-6: Users are kept informed about the methodology of statistical processes including the

⁸ KSBN follows the International Standard Book Number system.

⁹ kostat.go.kr

use of administrative data.

Statistics Korea runs a website for statistical metadata¹⁰ which aims to promote the concrete understanding of the users regarding the process of statistical production. The information provided includes the details of the purpose of statistics, their use, frequency of surveys, survey targets, survey items, sample designs, statistical analyses, and dissemination of statistics.

9-7: Metadata are documented according to standardized metadata systems.

The website for statistical metadata runs on a metadata DB management system that is shared by all of the statistics collection agencies. Each agency uses the metadata DB management system to register, edit, and manage metadata whose range is as follows:

☞ The title of statistics, purpose of statistics, production method, scope, geographical coverage, survey item, questionnaire, release cycle, method of release, reference time, data collection methods, legal basis, survey system, methodology, micro-data, contract information, etc.

9-8: A corporate strategy and appropriate guidelines are in place for the preparation and dissemination of metadata on concepts, scope, classifications, basis of recording, data sources, statistical techniques, differences from internationally accepted standards, annotation of good practices, geographical coverage, etc.

The operation of the metadata DB management system which is performed by Statistics Korea is based on the common metadata items and the standardized compilation format. For every statistic, it is required to provide information on the common metadata items and, if necessary, on additional items which may vary depending on the kind of statistics. A standardized

¹⁰ meta.narastat.kr

compilation format is in place to ensure the systematic and coherent management of the metadata (The Plan for the Standardization of Metadata Items). Statistics Korea puts forth the regular updating session every March and September during which the statistics collection agencies shall refine the statistical data and metadata thereof. The detailed information about how to prepare metadata, how to update the changes in monthly/quarterly statistics, etc. is provided to the agencies (The Handbook of Data Updates and Metadata Compilation). In addition, Statistics Korea encourages the staff of statistics collection agencies including its own staff members to take training: three times a year in March, June and September for the staff of statistics collection agencies and twice a year, anytime during the year, for the staff of Statistics Korea (The Letter of Request for Updating Metadata, the Plan for User Training, etc.).

9-9: Processes ensure that sampling and non-sampling errors are measured and systematically documented and that information is made available to users for all key statistical output.

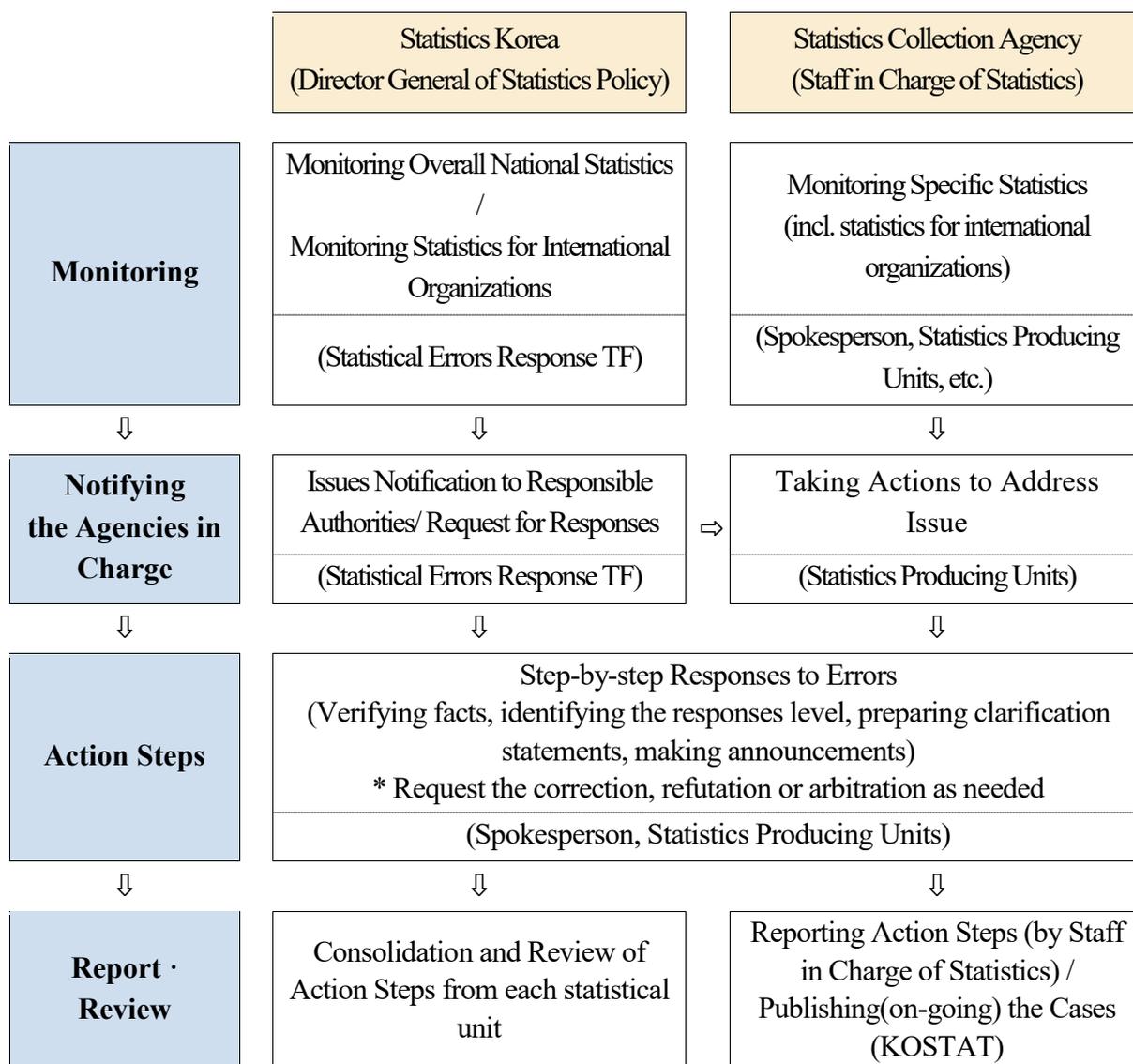
The internal rules of Statistics Korea prescribe the sample survey statistics produced by Statistics Korea shall include the Relative Sample Error (RSE) in their report or the press releases. The same rule applies to statistics collection agencies when they release the results of their sample surveys. Also it is required, in principle, to include a word of caution for the survey results, which have to be prepared in accordance with the accuracy assessment criteria, so as to bring users' attention in using the statistical results having weak reliability. The sample error and RSE are made available on KOSIS or in other portals as in the metadata of statistics in order to keep the statistical coherence of micro-data. The statistical data items with a low level of reliability, in other words a high level of RSE, shall be limited in service or be announced with words of caution (Article 10 of the Guide for Sample Design and Management).

9-10: Internal guidelines are available in statistical agencies on responding to erroneous comments. These guidelines are well known to the staff.

The Office of Spokesperson at Statistics Korea has developed a Manual on Media Relations and distributed the manual internally to address erroneous media coverage concerning Statistics Korea and its statistics. The response to erroneous comments on national statistics in general,

including those that are produced by statistics collection agencies, shall be made in accordance with the Detailed Guidelines of Error Response System¹¹ which has been distributed to all statistics collection agencies. See below for the process.

< Workflow of the Error Response System >



* Source: Detailed Guidelines of Error Response System

9-11: Access to micro-data is allowed for research purposes and is subject to specific rules or protocols.

¹¹ The guideline was prepared according to the ‘Plans for Rectifying Statistical Misuse · Misinterpretation’ that was established on Aug.25, 2016.

There is a procedure in place, including an application, to get an access to ‘Licensed Micro-data’ that has been allowed to be used for policy and research purposes. The associated statistical data can be divided by its usage, into the public-use data and approved-use data. The public-use data can be retrieved and downloaded online on the service webpage whereas the approved-use data can only be accessed through the Remote Access Service or by physically visiting the RDC. In the case where additional deliberation is needed, the case shall be reviewed by the Deliberation Committee for Statistical Data Provision. The detailed information about the usage is provided on the service webpage as well as in the leaflet and official documents delivered to the users (Article 21 of the Rules for the National Statistical Data Provision, Article 4 of the Rules on the use of Licensed Micro-data).

9-12: Where a pricing policy exists for specific services or custom-designed products, conditions of sales are clearly communicated.

Statistics Korea provides an On-demand service to deliver statistical tables to customers according to the orders of the customers for which the aggregated or derived public-use micro-data is used. A straight forward pricing policy exists and is published on the service webpage(mdis.kostat.go.kr) (Articles 18 and 19 of the Rules for the National Statistical Data Provision, Articles 46 and 47 of the Enforcement Decree of the Statistics Act, the Official Notification No. 2015-377 of Statistics Korea on the Data Service Fee).

9-13: Educational material is developed with the aim to enhance the use of official statistics and to avoid their misuse and misinterpretation.

The development of the educational materials for statistics is aimed to achieve the following:

- Enable statistical producers to produce statistics accurately, promptly, economically and according to the original purposes
- Enable the officials involved in the policy making and planning to promote evidence-based policy-making and planning

- Prevent the misuse or abusive use of statistics and improve the users' awareness on statistics for the accurate use of statistics

9-14: Official statistics are released in machine-readable forms ('open data') that encourage reuse and analyses.

Official statistics published through KOSIS are available in machine-readable forms such as Excel, CSV, TXT, SDMX, etc.

<Recommendation 10> Adherents establish responsibilities for co-ordination of statistical activities within the National Statistical System.

10-1: The role and responsibilities of all producers of statistics are clearly determined by law. A coordinator of the National Statistical System, such as the NSO, is also designated by law.

Article 4 of the Statistics Act adjures the state and local governments to formulate and implement policies necessary to realize the purpose and basic principles of this Act. In addition, the Commissioner of Statistics Korea shall collectively coordinate and maintain matters concerning statistics and devise measures to expand the collection, dissemination, and use of statistics. The same article stipulates that the heads of statistics collection agencies shall endeavor to minimize the burden of individuals, corporations, organizations, etc. who are subject to comply to the request of the agencies and to protect confidentiality. It also delineates the cooperation among agencies which include the exchange of statistics staff, joint research and development of statistics collection techniques, and sharing of statistical data.

10-2: The designated coordinator has a responsibility to co-ordinate the statistical activities of official producers in the NSS and to represent the NSS as a whole. This concerns in particular the use of appropriate statistical concepts and procedures, the implementation of international standards and efforts to minimize duplications in data collection, production and dissemination of official statistics.

The Statistics Act gives a mandate for the overall coordination of the NSS to the Commissioner

of Statistics Korea whose coverage spans across all of the statistics collection agencies and statistics authorities within the NSS. The scope of the coordination includes the collection, production and dissemination of official statistics, prevention of duplications, and improvement of related and supporting businesses as they are prescribed in the following Articles of the Act: Articles 4 (Duties of the State, etc.), 5-4 (Formulation of Master Plan for Development of National Statistics), 7-2 (Establishment and Operation of Statistical Information System), 9 (Regular Examination of Quality of Statistics), 10 (Occasional Examination of Quality of Statistics), 12 (Improvement of Collection and Dissemination of Statistics), 13 (Assistance in Budget, Human Resources, Technology, etc.) 15 (Designation of Designated Statistics Collection Agencies), 17 (Designation of Designated Statistics and Revocation of Designation), 18 (Approval for Collection of Statistics), 19 (Revocation of Approval for Collection of Statistics), and 21 (Advice to Collect Statistics). In respect to the standardized statistical procedures and concept, Statistics Korea is adjured to establish and operate statistical information systems and share these with statistics collection agencies to enable the agencies to perform statistical businesses in compliance to the standardized processes (Article 7-2). To implement international standards, Statistics Korea prepares and publicly announces standard classifications concerning industries, occupations, diseases, causes of death, etc. on the basis of the corresponding international standard classifications (Article 22) which the statistical collection agencies have to comply with upon collecting and producing national statistics. In the case where the agencies are to use any standard other than the standardized classifications, they are required to have an agreement with the Commissioner of Statistics Korea.

10-3: Procedures, mechanisms, tools, guidelines, or agreements are in place to ensure effective co-ordination within the NSS. Procedures include: establishment of a national statistics plan; co-ordinated data dissemination, e.g. through a single data portal; assistance with implementation of international standards and classification; and common quality management processes.

The Statistics Act provides provisions for procedures (i) to (iv) to ensure effective co-ordination within the NSS. The following summarizes corresponding articles of the ACT supporting procedures (i) to (iv) directly or indirectly:

- (i) Establishment of the National Statistics Plan: Articles 5-2 (National Statistics Committee), 5-4 (Formulation of Master Plan for Development of National Statistics) and 6 ((Designation and Management of Staff in Charge of Statistics)
- (ii) Co-ordinated data dissemination e.g. through a single data portal: Articles 7-2 (Establishment and Operation of Statistical Information Systems) and 28 (Dissemination of Statistics)
- (iii) Assistance with Implementation of International Standards and Classification: Article 22 (Standard Classification)
- (iv) Common Quality Management Processes: Articles 9 (Regular Examinations of Quality of Statistics), 10 (Occasional Examinations of Quality of Statistics), 13 (Assistance in Budget, Human Resources, Technology, etc), 17 (Designation of Designated Statistics and Revocation of Designation), 19 (Revocation of Approval for Collection of Statistics), 25 (Orders to Submit Date), 35 (Requests for Submission of Statistics), 36 (Requests, etc. for Rectification of Violation), and 39 (Penalty Provisions)

10-4: Exchange of statistical information between statistical agencies is actively undertaken.

The National Statistics Day Award (Sep.1), Conference for the Staff in Charge of Statistics (once a year), Workshop for Statistics Collection Agencies (twice a year), overseas training program (once a year), statistical experts training program (70 sessions each year), Statistical Development Forum (once a year), domestic and international seminars (e.g. on Economic Census, Population Census, Time Use Survey, Survey Methodology, etc.) and many more meetings, events, and training take place to provide platforms for the exchange of information among the statistics collection agencies. In addition, Statistics Korea has made MOUs with around 50 entities, including NAVER, a Korean statistics portal service provider, universities and research institutions, for collaborating with them in the production, analysis, and use of statistics.

<Recommendation 11> Adherents commit to international co-operation

11-1: National statisticians participate actively and regularly in international expert groups, conferences and workshops.

The statistics collection agencies in Korea are actively participating in the international expert groups, conferences and workshops organized by international organizations (UN, ESCAP, OECD, etc.) and overseas statistics institutions. As in 2016, Statistics Korea participated in 37 meetings (51 staff members) convened by international expert groups including the UNSC and the OECD CSSP, 29 international conferences (74 staff members), and 16 international workshops (38 staff members).

11-2: National Statistical Authorities participate in joint projects with other countries to share development burden.

Statistics Korea has been expanding its support for the statistical development in developing countries, particularly for the implementation of the SDGs in these countries, and has been actively responding to the government policies in favor of the ODA, by increasing the scale and scope of its support and by developing new partnerships.

<Summary of the Statistical Capacity Building Projects of KOSTAT >

Year	KOSTAT Project	Joint Project with Int'l Org.
2013	Statistical Training and Staff Capacity Building in Vietnam	Joint Project with the World Bank*/ Statistical Capacity Building for KAZSTAT (2012 ~ 2017)
2014	Statistical DB and Service Systems Establishment in Sri Lanka	
2015	Statistical Staff Capacity Enhancement in Sri Lanka	Joint Project with the IDB/ KOSTAT-IDB Joint Seminar for

2016	IT-based Field Survey in Sri Lanka	the Statistical Capacity Building in Latin America (2013)
2017 (plans)	Consulting for the GIS, Sampling, etc. in Ecuador	Consulting for the Peruvian NSO (e-learning)
	Consulting for the Improvement of the Population Statistics in Colombia	Consulting for the Ecuadorian NSO (GIS, visualization) (2016)
	The Establishment of the Statistical Development Strategy in Laos	

* Include the participation in the Third High-level Meeting for Knowledge Sharing and the g7+ Meeting for the SDGs Monitoring (2016)

11-3: Heads of the NSOs or their staff chair international statistical bodies.

Statistics Korea served as a member of United Nations Statistical Commission (UNSC) for the first time in 2004 until 2007. In April 2015, Statistics Korea was elected by the UN Economic and Social Council to be the member of the Commission once more, representing the Asia and Pacific region. The Commissioner of Statistics Korea has been serving the Bureau of UNSC as a Vice-chairman since 2016. In the meantime, the Commissioner was elected to be a member of the Bureau of the OECD Committee on Statistics and Statistical Policy(CSSP) in 2006 and was re-elected in 2008 and 2010. In 2012, the Commissioner was elected, for the first time in Asia, to serve as a Vice-chair of the Committee. During his service as a Vice-chair lasted until 2015, the Commissioner actively participated in establishing agendas and making decisions to strengthen the global statistical cooperation.

11-4: National Statistical Authorities participate in the main international statistical fora to exchange on their statistical practices, to participate in research and conceptual work and to contribute actively to the definition and design of international norms and statistical standards.

Statistics Korea attends to the UNSC and the OECD CSSP each year to represent Korea's

opinions on major statistical topic and to explore opportunities to develop international works in statistics. Together with the UN, Statistics Korea has been organizing a series of international seminars for data disaggregation on the SDGs. The experts from Statistics Korea attended international statistical fora, such as the ISI, OECD World Forum and UN Data Forum, to exchange knowledge and contribute to the definition and design of international norms and statistical standards.

11-5: Access to micro-data by international organizations is explored as a means to reduce the burden of countries responding to questionnaires.

Upon receiving a request for micro-data from international organizations, Statistics Korea deliberates the request and, if approved, provides aggregated results of the micro-data according to the relevant rules such as the Manual on Data Provision for International Organizations. The provision of micro-data has needs to be further discussed internationally as well as domestically.

11-6: National Statistical Authorities provide complete and timely answers to the questionnaires of international organizations.

Statistics Korea makes efforts in ensuring the coherence and quality of statistics that are provided to international organizations, by complying to the relevant rules such as the Manual on Data Provision for International Organizations. We conduct the satisfaction assessment to improve the credibility and accuracy of the data provided, provide training annually on the subject matters for the major statistical collection agencies that produce and provide official statistics, and collect information about whether they provide data or not. As of in 2016, 113 statistics are provided to 18 international organizations by the statistical collection agencies: 47 to the OECD by 16 agencies, 66 to the UN and IMF by 19 agencies, etc.

11-7: Producers of official statistics use modern statistical and IT tools, such as SDMX for the regular transmission of data and metadata to international organizations,

notably the OECD.

The statistical data provided accordingly to the relevant rules such as the Manual on Data Provision for International Organizations to the UN, OECD, and to other international organizations is in the forms of SDMX or Excel. For example, the Short Term Economic Statistics is provided in the SDMX format, and the Main Economic Indicators is provided in the Excel format to the OECD. In addition, we have been making continuous efforts in enhancing the quality of the provided statistics by improving institutional mechanisms for the data provision to international organizations. The provisions stipulating the underlying reasons for a data provision have been developed to put forth the governance systems including the correction of errors identified from the monitoring of the provided data i.e. press releases. There also has been the improvement of the KODAPS, the system to enable the data provision (Oct. 10, 2016), the development of the system manuals (Nov. 7, 2016), training on the system (Nov. 10, 2016), and discussion sessions with statistical collection agencies for the improvement of business (Jun, 29 and Nov. 10, 2016) which aimed to improve the qualities of the provided data.

<Recommendation 12> Adherents encourage exploring innovative methods as well as new and alternative data sources as inputs for official statistics, and in particular encourage statistical agencies to actively explore possibilities to use new data sources, or to combine existing and new data sources as input for official statistics.

12-1: National Statistical Authorities actively encourage and undertake research on new sources and new methods for official statistics, including in the private sector and through combination of existing sources.

in October 2016, Statistics Korea established a new division to vigorously push forward the business of statistical productions using big data. An outsourced research was conducted to look into the statistical use of big data and the quality thereof, and identify the methodologies

to do so. We made MOUs with private sector corporations including a credit-rating company, credit card company and mobile carrier for our pilot studies of big-data based statistics and achieved meaningful results on them. The analysis of the newly-wedded couples' debt, housing, child-bearing, etc. that were performed by combining individual debt data provided by a credit-rating company and the population/household data of Statistics Korea was a representative example. Other examples included the compilation of online price index that was based on price data from online shopping sites and the SNS based 'social' analysis of economic trend for whose methodology we are currently making some upgrades. The Forum for Big Data-Statistics Strategy forum was formed to have steady discussions and to resolve issues involved in the statistical use of big data. We also explore international opportunities to develop cooperative businesses in the subject matter. Last year in September, Statistics Korea and Statistics Netherland (the CBS) made an MOU to jointly perform the research on the measurement of internet economy, the review of big data analysis techniques, the establishment of a e-learning portal, etc. From this, we aim to develop a good practice of cooperative international business model and to share our experience with the international statistical community. Statistics Korea seeks to build on the international network by participating in the international expert groups such as the UN's Global Working Group for Big Data. Albeit its effort, it will not be in a while until the challenges of big data such as the representativeness and data quality are resolved and the use of big data for official statistics is made into mainstream. And, the continued interest and effort of the international statistical society will be essential to pursue this goal.

12-2: National Statistical Authorities develop methodological work and IT structure to ensure the quality of official statistics when new and alternative data sources are used as input.

Unlike the typical official statistics, big data is unstructured data in most cases. To ensure the reliability and the usability of the big data for official statistics, the quality control system that can cope with the properties of big data has to be in place across the overall statistical processes including the securing of data sources, data collection and processing. In the future, as the cases

of using big data for producing a variety of statistics accumulate and the norm will be formed in regard to the methodology, an international standard on the quality of big data-statistics will be needed. Statistics Korea plans to conduct a study about the quality assurance methods for the above mentioned online price index to develop a quality assurance framework for big data based on which it will develop the detailed quality assurance mechanism for different sets of big data.

12-3: An explicit policy is formulated towards the use of “Big Data” and private data that considers legal, technical and methodological implications.

To overcome the legal and institutional limits, Statistics Korea has devised a mechanism to link public data and private big data without the infringement of personal information. Under this mechanism, Statistics Korea provides de-identified data to a private entity through a separate server of the private entity located in Statistics Korea in which de-identified private data is linked with the data of Statistics Korea. Statistics Korea conducts analysis together with the private entity and releases only the analytical results. These are followed by thorough post factum procedures to prevent any data leakage and re-identification. Current mechanism depends on the MOUs between Statistics Korea and the relevant private entities in terms of the rules to exchange data, information security, etc. However, for the purpose of utilizing and combining different sets of big data for official statistics, a revision of the Statistics Act and other relevant legislation will be inevitable which has to be accompanied by the establishment of social consensus of the need for the data linkage.

12-4: Implications for statistical infrastructure, statistical methods, and analytical tools are systematically assessed.

When the need for new data sources is recognized for compiling official statistics, the responsible officials in Statistics Korea shall verify the sources and proceed to have discussions with owner(s) of the new source. Upon an acquisition of data, the properties analysis of data

and the corrections of errors shall be conducted before the construction of the DB of Original Data. The standardization of the key codes shall then be conducted to enable the data to be linked or combined with other administrative data. This will be followed by the construction of a Statistical DB which involves the data processing, such as the imputation of missing values, and the visualization analysis which is to test the propriety of data. If necessary, identified issues in the original data shall be directed to the owner of the concerned data to enhance its accuracy and compatibility to a standard (the Standard Manual for the Usage of Administrative Data).

12-5: There are explicit agreements between producers of official statistics and owners of private data; and legislation which regulate access to this information and deal with privacy issues.

The protection of personal information poses a great deal of obstacles to utilizing big data, especially to linking different sets of data. A consensus to enable the statistical use of personal information has to be made by engaging a wide spectrum of stakeholders into dialogues and discussions. In the case of Korea, the absence of a related provision in the Statistics Act makes it very difficult for Statistics Korea to collect any private data that contains personal information. Neither is so to utilize any big data that contains personal information which is strongly protected by many independent acts such as the Personal Information Protection Act and the Credit Information Use and Protection Law. To overcome these legislative and institutional obstacles, Statistics Korea developed a mechanism to securely combine its own public data and private data (see section 12-3) which has its base in the MOUs between Statistics Korea and its private entity counterparts. The MOUs cover exchange data rules, information security, etc. For the purpose of utilizing and combining different sets of big data for official statistics in the future, a revision of the Statistics Act and other relevant legislation will be needed along with the establishment of social consensus of the need for the data linkage.

12-6: National Statistical Authorities participate in the development of capabilities to process geo-spatial data.

Statistics Korea has had a specialized division dedicated to geo-information since 2005 and accumulated well established knowledge and experience in processing geo-information and related data. Statistics Korea developed its own geo-coding systems to express the address of survey targets into a spatial coordinate which can support both the street name based address and the lot number based address. The system's street name address DB is updated monthly by means of being linked with a Ministry of Interior's computing system. All of the census results, such as the Population and Housing Census and the Economic Census, have been compiled into a spatial DB, and thematic maps have been constructed for diverse topics including population, household, housing, transportation, labor, economy, etc. In addition, the Statistical Geo-information Service is publicly available which enables its users to use maps to search for and analyze statistics. Synthesized into and combined with other public data and private data, the census data serviced in the form of geo-information is becoming a platform service to support the decision makings that are based on statistical geo-information.

Annex 1

Overview of the Revision of the Statistics Act

In 2007, the Statistics Act enacted the statistical quality assessment systems, instituted Staff in Charge of Statistics to facilitate the integrity of statistical works across the decentralized national statistical system in Korea, and added provisions governing the use of administrative data for statistical purposes.

The National Statistics Committee was enacted in 2008 to collectively coordinate matters concerning statistics, promote cooperation among statistical agencies and increase the efficiency of statistical works. In 2009, the Act was amended to mandate the construction of a statistics database, so that people may access to and use statistics conveniently. The 2010 amendment mandated the reinforcement of the statistical training which included the establishment of the basic plans of statistical training aimed to foster the qualities of national statisticians. In 2016, the act was amended to provide justifying grounds for taking censuses, establishing statistical information systems, and conducting statistics-based policy evaluation. The establishment and implementation of the Master Plan for Development of National Statistics and its implementation plans was stipulated as well through the amendment.

The 2016 amendment features the strengthening of people’s access to statistics in terms of the statistical production and the use of statistical data. People may request the collection of new statistics provided the conditions being met as prescribed in the Act, and may request the provision of statistical data without being limited to certain purposes of the use of statistics. Exceptions were allowed in certain cases where statistics can be provided to statistical agencies even if specific individuals, corporations, organizations, etc. are identifiable. In addition, the prohibition against exercising influence and revealing statistics with regard to collection and announcement of statistics was adjured.

Annex2

The Compatibility between the Korean Statistics Act and the UN Fundamental Principles of Official Statistics

Principle 1. Relevance, Impartiality and Equal Access

Article 2 (Basic Principles) of the Statistics Act demands the statistical relevancy by mandating statistics to be “collected, disseminated and used in a manner that contributes to the development of society as a public resource to help make all kinds of decisions in a rational way.” The impartiality and equal access have been implied in Article 2 which adjures statistics to be “collected in a scientific manner” in order to ensure neutrality. Article 4 (Duties of the State) stipulates the responsibilities of the Commissioner of Statistics Korea who shall “collectively coordinate and maintain matters concerning statistics and devise measures to expand the collection, dissemination and use of statistics” for the purpose of strengthening the relevance of statistics. Articles 21 (Advice to Collect Statistics) and 21-1 (Request for Collection of Statistics) imply the relevancy of statistics by stipulating the Commissioner of Statistics Korea may advise the relevant agencies to collect new statistics to reflect changes in the economic and social environment (Article 21) and that people may request the head of statistics collection agencies to collect new statistics in accordance with certain conditions (Article 21-2). Articles 27 (Official Announcement of Statistics), 27-2 (Prohibition, etc. against Exercising Influence and Revealing Statistics with Regard to Collection and Official Announcement of Statistics, and against Using Statistics for Purpose other than Original Purpose) and 28 (Dissemination of Statistics) defend the equal access to statistics.

Principle 2. Professional Considerations and Ethics

The Article 2 adjures statistics to be “collected in a scientific manner in order to ensure accuracy, opportuneness, consistency, and neutrality,” Article 22 mandates the Commissioner of Statistics Korea to “prepare and publicly announce a standard classification concerning industries, occupations, diseases, causes of death, etc. on the basis of international standard classifications so that statistics collection agencies may collect statistics according to the same standard.” Article 7-2 prescribes the establishing and operating of statistical information systems which enables the efficient collection, dissemination and use of statistical data compliant to the standardized processes. Professional considerations and ethics in statistical productions are also implied in Articles 18 and 19 which requires the statistics collection agencies intending to collect new statistics to obtain prior approval of the Commissioner of Statistics Korea on the matters such as the method of survey, format of statistical tables, etc., and allows the Commissioner to revoke such approval in cases where the statistics collection agencies do not comply with the statistical classifications, the request for improvement of business concerning the collection and dissemination of statistics, etc.

Principle 3. Reliability and Transparency

Statistics has to be collected in a scientific manner (Article 2), be announced “without delay” and “along with necessary matters, such as the object and methodology of a survey so that users of such statistics may use the statistics accurately” (Article 27). In addition, the prohibition against exercising influence and revealing statistics with regard to collection and announcement of statistics was adjured to ensure transparency.

Principle 4. The Prevention of Misuse

To monitor and rectify the errors, The Statistical Error Response TF was formed in Aug. 2016 and the head of a statistics collection agency are mandated to “monitor the status and utilization of the statistics being provided” to international organizations and “prepare a report thereon, and submit it to the Commissioner of Statistics Korea” (Article 14-2). To prevent and the errors, Statistics Korea provides training programs targeted to the professional users of statistics including journalists and undertakes public campaigns, such as the ‘Competition on How Best to Use Statistics,’ to increase the awareness on the accurate use of statistics. Also, the Commissioner may grant an approval of NOT announcing any statistics that is recognized to cause considerable difficulty to the national security, maintenance of order or public welfare

or confusion in its use due to the lack of reliability (Article 27). Exercising influence on the collection and announcement of statistics is prohibited to prevent any abusive use of Statistics (Article 27-2).

Principle 5. The Source of Official Statistics

According to the Statistics Act, the term "statistical data" means "data that a statistics collection agency has collected, acquired or used to collect statistics including electronic data, such as database" (Article 3-4) and the term "administrative data" means documents, ledgers, drawings and electronic data other than statistical data that are "officially prepared, acquired and managed by public institutions" (Article 3-7). Regarding the means of collection of these data, the Act adjures statistical authorities to take census (Article 5-3), to order the submission of data if necessary for the collection of designated statistics (Article 25), and to request for submitting data or ask questions on the matters of nationally approved statistics that are not the designated statistics (Article 26). In addition, the respondents have been questioned or requested to provide data have duties to respond in a faithful manner under the law (Article 32). Matters concerning the collection and acquisition of administrative data are prescribed in Articles 24 (Provision of Administrative Data) and 24-2 (Provision of Data by Judicial Agencies, etc.).

Principle 6. The Protection of Confidentiality

Article 33 of the Act states "matters belonging to the confidential information of individuals, corporations, organizations, etc. that have become known in the course of collecting statistics shall be protected" and "data belonging to the confidential information of individuals, corporations, organizations, etc. that have been collected for the collection of statistics shall not be used for any purpose other than that of collecting statistics." There are other provisions which explicitly or implicitly expresses the protection of confidential information and the restriction in using collected information for statistical purposes only: Articles 1 (Purpose), 2 (Basic Principles), 4 (Duties of the State, etc.), 12-2 (Statistics-Based Policy Evaluation), 18 (Approval for Collection of Statistics), and 27 (Official Announcement of Statistics).

Principle 7. Legislation

Many statutes other than the Statistics Act, e.g. Building Act, State Public Officials Act,

National Health Promotion Act, Cancel Control Act, and Bank of Korea Act have provisions to regulate statistical activities including the production of official statistics, dissemination of statistical results, and release of statistical publications. However, statistical activities are generally governed by the Statistics Act (Article 5) which establishes the foundations and sets the requirements for statistical productions, disseminations, and usages (Article 1).

Principle 8. Coordination within the NSS

The Commissioner of Statistics Korea is mandated to “collectively coordinate and maintain matters concerning statistics” so that the statistics can contribute to the development of the society (Article 4), which is reinforced by having the heads of statistical collection agencies obtain prior approval of the Commissioner to collect new statistics (Articles 18 and 19). The Commissioner may advise relevant agencies to “collect new statistics in accordance with the changes in the economic and social environment” (Article 21) and to “improve the business concerning the collection and dissemination of statistics” according to the results of the statistical quality evaluations (Article 12). In addition, the National Statistics Committee shall deliberate and vote on “matters concerning the adjustment and consolidation of similar and overlapping statistics and the cooperation among statistics collection agencies” (Article 5-2) and the Staff in Charge of Statistics in statistics collection agencies are responsible for taking care of businesses concerning the “integration, coordination and quality control of statistics of the statistics collection agency and its affiliated agency” as well as the “cooperation with other statistics collection agencies” (Article 6).

Principle 9. The Use of International Standards

The Commissioner of Statistics Korea prepares and publicly announces standard classifications concerning industries, occupations, diseases, causes of death, etc. “on the basis of international standard classifications so that statistics collection agencies may collect statistics according to the same standard” (Article 22).

Principle 10. International Cooperation

The Commissioner of Statistics Korea may undertake joint research and development, technical

assistance, the exchange of statistical techniques, etc. with international organizations, foreign government or other foreign entities for the purpose of the development of statistics (Article 14).

Annex 3

The Details of the Recommended Practice for National Statistics

To collect data under an impartial and objective criterion, statistical terms being used in a survey questionnaire need to be defined clearly; use standard classifications; leave questions neutral; use a simple sentence structure; be specific and direct in questioning; write questions in an easily understandable manner (page 11). Questionnaires have to be reviewed by a diverse group of people (page 15).

Regarding the management of enumerators, the recruiting process shall be transparent; the training of enumerators is conducted and is based on a standard training material; a proper supervision is provided to conduct surveys in an accurate manner; the data of survey targets' profile shall be collected during a complete survey if any change thereof is observed; survey progresses shall be checked step-by-step during the survey period and identified issues from the checkups shall be distributed to all of the enumerators (page 51).

In respect to data processing, the plans for data processing shall be established during the planning of a survey so that data can be aggregated into statistical results accordingly (page 56), the response rate of a survey shall be officially announced (page 64), and any imputation be clearly marked to corresponding data sets (page 66).

The frequency and timing of an announcement of statistics shall be determined to consider the needs of its users (page 77). Collected statistics shall be officially announced without delay, unless a release date is scheduled otherwise (Article 27 of the Statistics Act) to ensure the determination of collection, aggregation, and dissemination of statistics are dependent on statistical considerations only.