**On approval of a standard methodology for describing the process of production of statistical information by state bodies**

Order of the Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan dated March 30, 2015 No. 53. Registered with the Ministry of Justice of the Republic of Kazakhstan on April 29, 2015 No. 10893

In accordance with subparagraph 11) of Article 12 of the Law of the Republic of Kazakhstan dated March 19, 2010 "On State Statistics", as well as subparagraph 7) of paragraph 14 of the Regulation on the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, approved by order of the Minister of National Economy of the Republic of Kazakhstan dated September 30 2014 No. 33, registered in the Register of State Registration of Normative Legal Acts No. 9779, **ORDER:**
1. Approve the attached standard methodology for describing the process of production of statistical information by state bodies.
2. The Department for Planning Statistical Activities, together with the Legal Department of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, shall ensure in the manner prescribed by law:
1) state registration of this order with the Ministry of Justice of the Republic of Kazakhstan;
2) within ten calendar days after the state registration of this order, its submission for official publication in the information and legal system "Adilet";
3) placement of this order on the Internet resources of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan.
3. This order shall enter into force upon the expiration of ten calendar days from the date of its first official publication.

*Chairman A. Smailov*

*"AGREED"*
*Minister of Agriculture*
*of the Republic of Kazakhstan*
*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A. Mamytbekov*
*March 18, 2015*

*"AGREED"*
*Minister of Health and*
*Social Development*
*of the Republic of Kazakhstan*
*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ T. Duysenova*
*March 20, 2015*

*"AGREED"*
*Minister of Finance*
*of the Republic of Kazakhstan*
*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ B. Sultanov*
*February 27, 2015*

*"AGREED"*
*Minister of Culture and Sports*
*of the Republic of Kazakhstan*
*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A. Mukhamediuly*
*March 30, 2015*

*"AGREED"*
*Chairman of the National Bank*
*of the Republic of Kazakhstan*
*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ K. Kelimbetov*
*March 16, 2015*

Approved by the order of the Chairman of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan

dated March 30, 2015 53

**Model methodology for describing the process of production of statistical information by public authorities**

 **1. General Provisions**

1. This standard methodology for describing the process of production of statistical information by state bodies (hereinafter - the Standard Methodology) was developed in accordance with subparagraph 11) of Article 12 of the Law of the Republic of Kazakhstan dated March 19, 2010 "On State Statistics", as well as subparagraph 7) of paragraph 14 of the Regulation on Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan dated September 30, 2014 No. 33.
2. This Standard Methodology describes the process of producing statistical information and applies to state bodies and the National Bank of the Republic of Kazakhstan that conduct national and departmental statistical observations in accordance with the Statistical Work Plan, approved for the current year (hereinafter - state statistics bodies).
3. This Standard Methodology is used to describe the process of production of statistical information by government agencies and regulates the standard framework, the general terminology of the statistical process.
4. This Standard Methodology uses concepts in the meanings defined in the Law of the Republic of Kazakhstan dated March 19, 2010 "On State Statistics" and the following concepts: 1) classification
- division of a set of objects into groups according to similarity or difference in accordance with accepted characteristics;
2) imputation - the process of replacing missing, incorrect or inconsistent values with other values;
3) the weight of the index is a value that reflects the significance of each individual element in their totality;
4) metadata - data on statistical data, including data and other documentation describing objects in a formalized way;
5) weighting - a procedure used in index calculations to obtain summary indicators and ensure the commensurability of different goods that are not directly summable;
6) official statistical information - statistical information generated by state statistics bodies in accordance with the Statistical Work Plan;
7) statistical information - aggregated data obtained in the process of processing primary statistical data and (or) administrative data;
8) a statistical indicator is a qualitative characteristic of socio-economic phenomena and processes in society, reflecting the essence of a phenomenon or process in specific conditions of place and time;
9) sample - individual items from approved classifiers, nomenclatures and reference books used in the collection and processing of statistical data,
as well as the following terms and definitions in the meanings defined by the State Standard of the Republic of Kazakhstan ST RK ISO 9000-2007 “Basic Provisions. Dictionary";
10) information - meaningful data;
11) validation - confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application are met;
12) system - a set of interrelated and interacting elements;
13) effectiveness - the relationship between the result achieved and the resources used;
14) production environment - a set of conditions in which work is performed;
15) products - the result of the process;
16) procedure - an established way of carrying out an activity or process;
17) quality - the degree to which the totality of inherent characteristics meets the requirements;
18) quality management - a part of quality management aimed at fulfilling quality requirements;
19) quality assurance - a part of quality management aimed at creating confidence that quality requirements will be met;
20) process - a set of interrelated and interacting activities that transform inputs into outputs;
21) analysis - an activity undertaken to establish the suitability, adequacy, effectiveness of the object under consideration to achieve the established goals;
22) efficiency - the degree of implementation of the planned activities and achievement of the planned results.

 **2. Description of processes and sub-processes for the production of official statistical information**

 5. The production of official statistical information consists of the following processes (stages) in accordance with the Annex to this Model Methodology, taking into account the sub-processes included in them:
1) study of needs;
2) design of the production process;
3) construction of the production process;
4) collection of primary statistical data;
5) data processing;
6) data analysis;
7) dissemination of official statistical information;
8) evaluation of the production cycle.
In this Model Methodology, the bodies of state statistics adhere only to those processes and sub-processes that are applicable to them in their activities in the formation of national and departmental statistical observations.
6. The study of needs includes the need to revise statistical information, the need for additional statistical information, all types of work related to a clear definition of the needs of users of statistical information and consists of six sub-processes: 1) the definition of user needs involves the study and determination of the required statistical information
. This need is determined on the basis of a study of the practice of national and international organizations involved in the production of similar data and, in particular, methods for taking into account the special needs of users;
2) for a deep understanding of the needs of users in statistical information, including the timing of submission, the purpose of its further use, it is necessary for the state body (hereinafter - the state body-developer) to conduct consultations with stakeholders, taking into account previously identified user needs;
3) based on the results of the consultations, the state agency-developer develops statistical indicators containing the required information. These statistical indicators are subject to clarification with users for their compliance with needs and qualitative characteristics. Data privacy and resource availability should be taken into account when setting the goals for generating a statistical indicator;
4) determination of the list of required data corresponding to the satisfaction of needs within the framework of the proposed process;
5) to establish the compliance of the data sources used with the needs of users, to determine the conditions under which the data will be obtained, including any restrictions on their use, as well as to check for duplication of indicators, the state agency-developer conducts a data availability check. It includes an assessment of the legal framework within which primary statistical data will be collected and used, which may result in the need to consider proposals for changes to existing legislation or the establishment of new legislative frameworks;
6) The business model preparation sub-process documents the outputs of the other sub-processes of this stage in the form of a business model in order to obtain approval for the implementation of a new or modified production of statistical information. This statistical information meets the requirements of the state agency-developer and includes the following elements:
a description of existing business processes with information on the implementation of the current production of statistical information, indicating shortcomings, as well as issues that need to be addressed;
proposed forward-looking solutions, detailing the development of business processes for the production of new or revised statistics;
assessment of costs and benefits, as well as any other constraints.
7. Manufacturing process design includes a description of development and design work to define statistics, statistical methodologies, collection mechanisms, and workflows. At this stage, all relevant metadata are specified, ready for use later in statistical production, as well as quality assurance procedures:
1) provides for the design by the state agency-developer of statistical information planned for release, including the development and preparation of tools needed at the dissemination stage. Inputs to designing a statistical publication include metadata derived from previous collections of statistical information;
2) determines the need for the preparation of metadata descriptions for the collected and retrieved variables and their classifications;
3) determine the methods and mechanisms most suitable for collecting primary statistical data. The actual work under this sub-process varies depending on the type of collection mechanisms. The sub-process includes designing collection mechanisms, model questions and answers, as well as designing any formal agreements related to data provision, such as memorandums of understanding, and confirmation of the collection of primary statistical data;
4) Frame and sample design apply only to processes involving the collection of data from a sample, for example, through statistical observations. The sub-process is used to develop the sampling plan and the register to be used, and to determine the most appropriate sampling criteria and methods. Sampling sources are administrative and statistical registers, censuses and information obtained from other sample surveys. If necessary, the state agency-developer combines sources;
5) design of processing and analysis offers a methodology for the processing of statistical information for its implementation at the stages of "Processing primary statistical data" and "Data analysis". Includes refinement of methods for coding, editing, calculation, evaluation, integration, confirmation and finalization in the data set;
6) defines the production process from the collection of primary statistical data to the dissemination of official statistical information, providing an overview of the processes required within the entire statistical production cycle, and also ensures the effectiveness of interaction without any gaps or redundancy. The sub-process traces the analysis of the interaction of employees with the systems, and also determines their responsibility.
8. Building a manufacturing process involves building and testing manufacturing solutions to ensure they are ready for use in a production environment. The outputs of the Manufacturing Process Design phase determine the selection of reusable processes, tools, information and services that are assembled and packaged in the Manufacturing Process Design phase to create a fully operational environment for its implementation. The stage is divided into seven sub-processes:
1) building the data collection mechanism describes the work on building the data collection mechanism that will be used in the “Collection of primary statistical data” stage. The collection is carried out using one or more methods of obtaining data, such as: personal or telephone surveys, paper, electronic or online questionnaires. The collection mechanism is created in accordance with the plans developed in the "Design of the production process" stage. This sub-process also includes the preparation and testing of the content, the operation of the relevant tools, for example, the testing of questions in a statistical form;
2) building or strengthening process components includes dashboard procedures and functions, information services, transformations, work systems, respondent and metadata services;
3) building or strengthening dissemination components describes the work to build new and strengthen existing components and services necessary for the dissemination of official statistical information, identified in the sub-process "Design a statistical publication". Includes all components and services for the dissemination of official statistical information, ranging from those used for the production of traditional paper publications, ending with those that provide web services, open data production;
4) the layout of production processes provides the layout of the production processes, systems and transformations used in the framework of statistical production, from the collection of primary statistical data to the dissemination of official statistical information. The sub-process ensures the functioning of the practical production process created in the sub-process “Design of production systems and process”;
5) testing of the production system represents testing of the assembled and packaged services and related production processes, provides for the verification of their interactions, and also ensures the operability of the production solution as a coherent set of processes;
6) statistical business process testing describes the work of conducting field trials, piloting the use of a statistical business process. The sub-process leaves room for adjustments to mechanisms, systems or components;
7) commissioning of the production system includes the work of putting the assembled and assembled processes and services, including modified and newly created services, for use by industry departments.
9. The collection of primary statistical data includes the collection of all necessary information using various methods, as well as its loading into the appropriate environment for further processing. The collection process is broken down into four sub-processes:
1) Framing and sampling for a given process involves the coordination of samples between events in the same statistical process and between different processes using a common frame or register. Also within the framework of this sub-process, work is carried out to ensure the quality and approval of the general population and sample;
2) the organization of the collection of primary statistical data ensures the readiness of employees, processes and technology to collect information in all planned modes and includes:
preparation for collection;
training of collecting staff (interviewers);
ensuring the availability of funds for the collection;
completing collection systems for requesting and receiving data;
ensuring the protection of the data to be collected;
preparation of collection tools (printing out questionnaires, downloading questionnaires and data to enumerators' computers).
For non-survey data sources, the sub-process includes ensuring that confidentiality processes, systems and procedures are in place to obtain and extract the required information from the source;
3) the collection of primary statistical data is carried out using various means for collecting information, includes:
raw data or aggregated data received from the source of information;
initial contact with respondents and any further follow-up.
It is also possible to manually enter information at the point of contact or control work in the field, depending on the source and method of collection;
4) completion of the collection of primary statistical data involves uploading the collected primary statistical data to the appropriate electronic environment for further processing. Includes manual or automatic data loading.
10. Processing of primary statistical data includes:
description of the data cleaning process and their preparation for analysis;
consists of sub-processes dedicated to the validation, cleaning and transformation of input data for the purpose of analysis and dissemination as official statistical information:
1) data integration is based on the integration of the results of the “Collection of primary statistical data” process. Input data come from various external and internal sources and are the result of various collection methods. The result is a set of linked data. After integration, depending on security requirements, data may be anonymized (removed from identifiers such as name and address) in order to protect confidentiality;
2) classification and coding are carried out automatically (or manually), performed by assigning numerical codes to text answers in accordance with a predefined classification system;
3) the check and validation sub-process allows data to be checked for potential problems, errors and inconsistencies, such as outliers, non-responses to the question, and erroneous coding;
4) editing and imputation involves the addition of new values using a variety of methods if the data is found to be inaccurate, missing and unreliable. Specific steps:
defining the addition and modification of data;
selection of the editing method to be used;
adding or changing data values;
entering new data values into the dataset and designating them as changed;
production of metadata on the editing and imputation process;
5) as part of the formation of new derived variables and statistical units, data are calculated for variables and statistical units that were not explicitly identified at the collection stage, but are necessary for the production of the desired data. This sub-process generates new derived variables by applying arithmetic formulas to one or more variables that are already present in the data set, or by applying different model hypotheses;
6) the calculation of the weight of the index creates weights for individual datasets according to the statistical methodology created within the sub-process "Processing and analysis design";
7) the calculation of aggregates involves the summation of data from accounts that have certain common characteristics, as well as the determination of averages and dispersion indicators, weighting;
8) the completion of data generation is based on the summary of the results of other sub-processes of this stage into one data set, which is used as an input resource in the "Data Analysis" stage.
11. Data analysis includes the production of statistical information, detailed verification and preparation for the dissemination of official statistical information:
1) preparation of preliminary statistical information is carried out by converting data into statistical information. The sub-process provides for the creation of additional indicators, such as indices, trends or seasonally adjusted time series, as well as the recording of qualitative characteristics;
2) validation includes work aimed at determining the compliance of the collection and formation of information with the previously presented requirements for the expected results;
3) the interpretation and explanation of statistical information creates the basis for the correct interpretation of official statistics;
4) the application of measures to counteract identification ensures compliance with the rules of confidentiality in the dissemination of statistical information. The degree and method of counteracting identification varies with different types of statistics;
5) the completion of the formation of statistical information ensures the verification of its compliance with the set goal, the required level of quality and readiness for use.
12. The dissemination of official statistical information includes the implementation of the dissemination of official statistical information to users. The fundamental principle is to meet the needs of users in statistical information to the fullest extent by providing free access to it for a wide range of users:
1) updating the systems for producing statistical information provides for a final check for the availability of metadata and readiness for dissemination. Update systems that store data and metadata ready for dissemination:
formatting data and metadata ready for inclusion in databases of output statistical information;
uploading data and metadata to aggregated indicator databases;
ensuring that the data is linked to the corresponding metadata;
2) production of official statistical information in pre- designed forms (publications, tables, interactive graphics, etc.);
3) the management of the dissemination of official statistical information ensures that all components for the dissemination of official statistical information are in place, including compliance with the deadlines for publication. Provides briefings for specific user groups such as the press, as well as the introduction of any prohibition on the disclosure of statistical information before it is published. In addition, it includes the delivery of statistical publications to subscribers. Seizures of published official statistics are also part of this sub-process;
4) popularization of official statistical information in order to facilitate its dissemination among the general public. Includes the use of user relationship management tools to provide a more targeted experience with potential users, as well as the use of mechanisms such as websites, social networks, email newsletters, and others to facilitate the process of communicating statistical information to users;
5) user support management ensures registration of user requests and requests, as well as providing responses to them in a timely manner. Such requests and applications should be regularly reviewed to inform the end-to-end quality management process as they indicate new or changing user needs.
13. The evaluation of the production cycle includes the evaluation of specific components of the statistical production by the state agency-developer. Logically, it takes place at the end of the statistical process, but draws on information collected at various stages and assesses the success of a specific statistical business process event, looking at a variety of quantitative and qualitative information in order to identify and prioritize potential improvements. This process consists of three sub-processes:
1) information for evaluation is collected in various forms, including user comments and suggestions, process metadata, system metrics, and employee suggestions;
2) the assessment is carried out by analyzing and summarizing information. The resulting report notes any quality problems, and also contains recommendations for possible changes regarding any process or sub-process;
3) the government agency-developer consolidates all the necessary policy powers to develop, agree and approve an action plan based on the assessment report.

Appendix
to the Standard Methodology for Describing the Process
of Production of Statistical Information
by State Agencies

     **Description of the production process of official statistical information**

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| Processes and sub-processes for the production of official statistical information |
| 1. Learning needs |
| 1) identifying user needs 2) consulting and validating needs 3) setting goals for generating a statistical indicator 4) determining the list of required data 5) checking data availability 6) preparing a business model |
| 2. Design of the production process |
| 1) statistical publication design 2) variable description design 3) data collection design 4) population and sample design 5) processing and analysis design 6) production system and process design |
| 3. Construction of the production process |
| 1) build data collection mechanism 2) build or harden process components 3) build or harden dissemination components 4) build workflows 5) test production system 6) test statistical business process 7) commission production system |
| 4. Collection of primary statistical data |
| 1) formation of the general population and sampling 2) organizing the collection of primary statistical data 3) conducting the collection of primary statistical data 4) completing the collection of primary statistical data |
| 5. Data processing |
| 1) Data integration 2) Classification and coding 3) Checking and validation 4) Editing and imputation 5) Generation of new derived variables and statistical units 6) Calculation of index weights 7) Calculation of aggregates 8) Completion of data generation |

      *Table continuation*

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| 6. Data analysis |
| 1) preparation of preliminary statistical information 2) validation 3) interpretation and explanation of statistical information 4) application of measures to counteract identification 5) completion of the formation of statistical information |
| 7. Dissemination of official statistical information |
| 1) update systems for the production of statistical information 2) production of official statistical information 3) management of the dissemination of official statistical information 4) promotion of official statistical information 5) management of user support |
| 8. Evaluation of the production cycle |
| 1) Gather information for evaluation 2) Conduct evaluation 3) Agree action plan |

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