Food and Agriculture Organization of the United Nations

Statistical Standard Series

User consultations

Endorsed by the Inter-Departmental Working Group
Technical Task Force on Statistics
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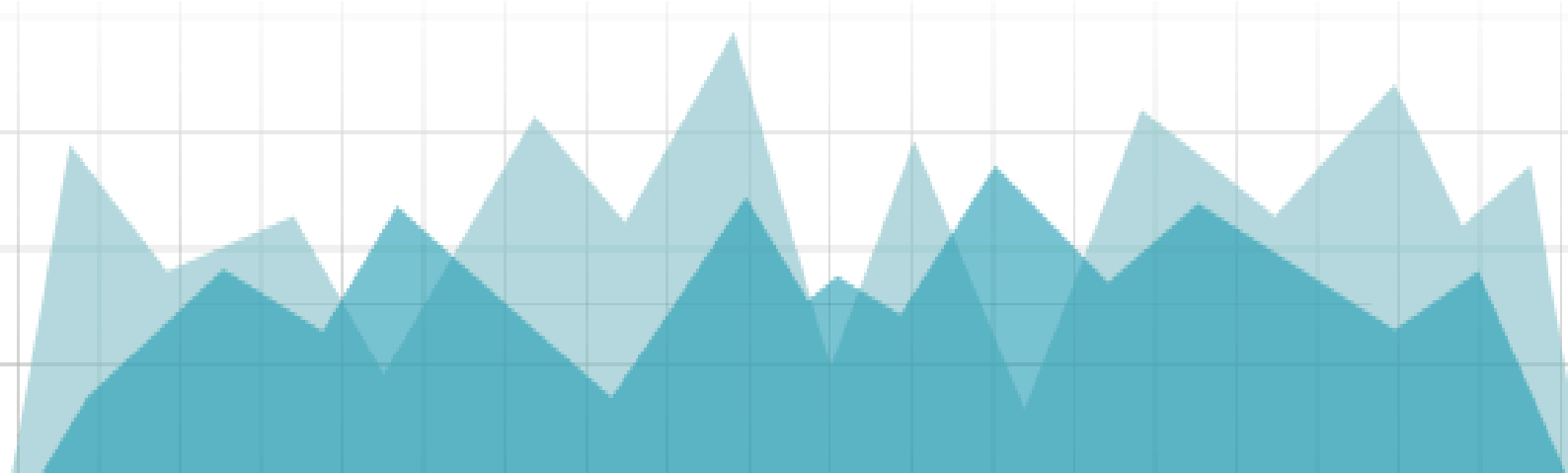

This document includes the recommended methodology, and required indicators for undertaking a Public Database User Consultations.

The document was endorsed as FAO standard by the Inter-Departmental Working Group on Statistics on 5 April 2019.

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Background and motivation

User consultations for databases are undertaken to investigate users' satisfaction with statistical outputs disseminated by the Organization, characteristics and needs. In FAO, user consultations are also one of the tools used to monitor the implementation of FAO's Statistics Quality Assurance Framework (SQAF). In particular, user consultations directly measure compliance with principles covering relevance, accessibility and clarity.In addition, they measure users' perception of FAO SQAF compliance for the principles covering accuracy and reliability, timeliness and punctuality, and coherence and comparability, as these quality dimensions can be directly measured using ad-hoc methods or quality indicators. Lastly, user consultations are an opportunity for managers to get actionable insights from their users to maximize the value of their databases disseminating statistical outputs. User consultations are analogous to marketing surveys undertaken by commercial companies to better tailor products and services to the needs of clients. The establishment of a statistical standards series on FAO's public database user consultations was motivated by the need to ensure consistency in how users' satisfaction is measured across FAO's various statistical databases and how user profiles are defined in user consultations to allow comparability of results across corporate databases and measure progress overtime. It follows that the development of the user consultation instruments, analysis and reporting should be a partnership between the Office of Chief Statistician (OCS) and the technical division to maximize the utility.

This statistical standards series defines the recommended *generic* corporate methodology for undertaking user consultations on FAO's public databases. Accordingly, the document is structured in two main sections:

- measurement objectives and methods
- generic process and implementation

1. Measurement objectives and methods

This section describes the measurement objectives and methods to be included in all user consultations across the Organization. Each user consultation should collect data which (i) allows for the analysis of user profiles; (ii) measuresuser perception of data quality across the five FAO SQAF principles defining the quality of statistics (Principles 1to 5); and (iii) receives feedback on the specific database features (e.g. metadata, visualization tools,export formats, and additional features). For (i) and (ii), it is important that data are collected using thesame terms, definitions, and questions in all user consultations to ensure that results are comparable. A sample generic questionnaire is added as Annex 1.

User Profiles

When designing any product, it is important to know who your clients are. Statistical outputs and databases are no different and it is critical that FAO ensures its statistical outputs are useful to member countries across the world and among diverse sets of user groups. Accordingly, the user profiles at a minimum should cover the following information:

- contact
- institution
- country of Institution
- user type
- frequency of database access

Contact information should include name, and email address, at a minimum. This information is useful to follow-up with respondents if needed for clarifying a survey response, sending an additional questionnaire, creating a user registration system, and/or notifying users of updates. Thequestionnaire should clearly inform users that their personal information will not be shared with anyone for any reason.

The **name of the institution** is important to help FAO identify the key stakeholder institutions, and serve as a control for user type. It is anticipated that most data users will be affiliated with some institution, but there may be some unaffiliated users. The **country** of the institution is also collected to determine the geographic distribution of users. For users unaffiliated with an institution, the country where he/she is currently located is to be recorded. In accordance with the Statistical Standard Series on Standard Country or Area Codes for Statistical Use, the country list that is used should correspond to the M49 country codes (United Nations Statistical Division, 2019).

The primary purpose of user type is to determine how data are used. The following **user types** are identified:

- Government/Public sector – Public administration and Policy analysis
- Government/Public sector – National Statistical Institution
- International Organization – UN agency
- International Organization – Development Bank
- International Organization – Regional Organization
- International Organization – Other (Consultative Group on International Agricultural Research, etc.)
- Research/Educational – Researcher
- Research/Educational – Educator
- Research/Educational – Students
- Commercial Company

- Commercial re-disseminator
- Farmers or farmers association
- Other private users (not affiliated to any institution)
- Political party, political organization, or lobbyist
- Media
- Non-governmental organization

The groups were selected to correspond to the most well-known use cases of FAO datasets. One question in the user profile should be included to assess the **frequency of database access.**

Measuring compliance with the Statistics Quality Assurance Framework's assessment

The user consultation measures users' degree of satisfaction across FAO's five principles (Ps) related to quality of statistical outputs (P1: relevance, P2: accuracy and reliability, P3: timelines and punctuality, P4: coherence and comparability, and P5: accessibility and clarity). By nature, user satisfaction is subjective. The Likert-scale (Likert, 1932) is a widely used survey design technique that allows quantitative analysis of subjective evaluations. The Likert-scale defines Likert-items that correspond tothe level of agreement with a given statement. The user consultation's methodology recommends a five item response scale including (1) "Strongly agree", (2) "Agree", (3) "Neutral", (4) "Disagree", and (5) "Strongly disagree". This is an ordinal scale wherein the response values lie in equal intervals from one another.Accordingly, statements are created for each principle of the FAO SQAF referring to quality of statistics,and the number of respondents which select each Likert-item provides a measure of user satisfactionfor each of them.

Many approaches can be applied when analyzing Likert data from ranging simple summaries, to more complex methods using statistical models (Warmbrod, 2014). The two approaches defined in this exercise are simple in-line with practices at other international organizations such as the Eurostat (Eurostat, 2017).

The **first approach** is to compute the share of respondents that correspond to each Likert item for each principle using the equation below:

$$R_{ip} = \frac{\sum_{n=1}^{N} c_{ipn}}{N} \times 100,$$

where R_{ip} is the percentage of responses for Likert-item i={1,2,..,5} and principle p ={P1, P2,.., P5}, N is the total number of respondents, and c_{ipn} is equal to 1 if respondent n ={1,2,..,N} selected Likert-item i *for* principle p. Results should be presented graphically and/or tabular. The percentage of totally satisfied responses is computed by adding together all the responses which selected "Strongly agree" (i=1), or "Agree" (i=2) for each principle and dividing by the total number of responses (N). It may be useful to also compute the percentage of totally satisfied defined as the percentage of users which select "Strong agree" or "Agree" for every Likert question.

The **second approach** requires recoding the Likert items, and estimating a composite score. By re-coding Likert items as -1: Strongly disagree, -0.5: Disagree, 0: Neutral, 0.5: Agree, 1: Strongly agree, simple averages can be taken to compute a composite satisfaction score for each user, for each FAO SQAF principle related to quality definition, and aggregated to compute a composite score for the satisfaction level of all users of a particular database. The composite satisfaction score therefore lies between -1 indicating strong dissatisfaction and therefore non-compliance to 1 indicating strong satisfaction and therefore strong SQAF compliance. The mid-point score of 0 indicates neutrality. Accordingly, a score above zero indicates compliance, and less than zero, non-compliance.

The following equation computes the Composite Score for a specific user:

$$Composite\ Score\ for\ User_n = \frac{1}{5}\sum_{p=1}^{5} ls_{np}$$

where ls_{np} is the recoded Likert score for respondent n and principle p. Accordingly, the $Composite\ Score\ for\ User_n$ is the simple average of the recoded Likert scores. These scores can then be averaged across respondents to compute an overall compliance score as follows:

$$Overall\ Composite\ Score = \frac{1}{N}\sum_{n=1}^{N} Composite\ Score\ for\ User_n$$

This composite score can be used to compare compliance across databases, as well as across time by comparing different rounds of user consultations. Applying a similar approach measures compliance for each principles as follows:

$$Composite\ Score\ for\ an\ SQAF\ Principle_p = \frac{1}{N}\sum_{n=1}^{N} ls_{pn}$$

Results from the composite score by principle computation could be presented as a radar plot to highlight variation among the principles.

Feedback on database features

Applying the FAO SQAF provides a robust way of evaluating user satisfaction on data quality which is comparable across time and databases. However, including custom questions which collect information on specific features is also important to maximize the utility of the exercise. Some features common in most databases in FAO are metadata, data export formats, data download and visualization tools, and support. If other features are present for a particular database, then they should be included in the user consultation.

Metadata is included in the accessibility and clarity dimension of the SQAF, but it is grouped with other related topics. As a result of its importance, it is advisable to ask a specific question on the sufficiency of metadata. If a respondent indicates that metadata is not sufficient, another question should be enabled which asks for specific reasons, and suggestions for improvement.

In compliance with Open Data Principles (Open Data Charter, 2019), **data exports** should be provided in at least one non- proprietary and machine readable format (i.e. .csv, .tab, .txt, .rda, etc.). However, if many users requesta specific proprietary format which FAO can readily produce (e.g. .dta, .xlsx, etc.), then it should be taken into consideration. Accordingly, a question should be included regarding useful data formats.

Data visualization and download tools are commonly included in the graphic user interfaces of FAO databases, but it may be challenging for data providers to predict which visualizations are useful, and how user friendly the data download options are. Accordingly, a set of questions should be added to allow respondents to indicate which data visualization tools they use, and which they would like to see added. For data downloads, questions should be added to assess if it is easy for the user to download the data, and if the structure of the dataset is adequate.

Finally, a few questions should be included to allow users to assess the priority of features which are in the data providers' pipeline, as well as, free text questions allowing them the opportunity to suggest new features.

The specific features and feedback will vary from database to database, and the corresponding questions should be designed in close collaboration between the Office of Chief Statistician and the technical divisions in charge of statistical databases. The Office of Chief Statistician will maximize comparability across databases where possible, but there must be balance with ensuring that the information is of maximum use also to the technical divisions.

Many databases provide a mechanism for users to **request support**. One question should be included in asking users if they have ever requested support, and if so, whether or not their needs were fulfilled.

2. Generic process and implementation

The specific work plans, and tools will vary, but each user consultation should follow similar steps, and not exceed 12months from start to completion. This section describes the main steps, data collection, and generic timeliness and frequency to guide the user consultation's process.

Main steps
The conduct of a typical user consultation will include the following steps:

1. short-form survey
2. long-form survey
3. key Informant interviews
4. analysis and reporting

The **short-form survey** should collect the data needed to create the user profiles and measure roughly compliance to SQAF principles related to quality of statistics (Principles 1 to 5). Notably, these are the results which would be standardized and can be compared to other user consultations for other databases. The short-form survey should also build the frame for the long-form questionnaire by asking the respondent if they would be willing to fill-in a longer questionnaire. It is anticipated that the number of short-form respondents will greatly exceed the number of long form respondents.

The **long-form survey** should include questions on specific database features, and measure FAO SQAF compliance on lower level data groups and features of the database. For example, the FAOSTAT user consultation collected information on FAO SQAF compliance for overall FAOSTAT using the short-form survey, and SQAF compliance by FAOSTAT group (e.g. Production, Food security, Forestry, etc.) using the long- form.

Key informant interviews should be carried out if more qualitative feedback is needed. This could be helpful if levels of FAO SQAF compliance vary for particular user groups. It could also be helpful in soliciting more direct information about how the data are used.

The final report should include tabulations and/or visualizations of every variable collected. The report should identify the key findings, and provide actionable insights for managers to make improvements to the database. The **report and analysis** will be led by the Office of Chief Statistician, but the technical divisions are expectedto provide comments and feedback. All final reports will be shared with the Inter-Departmental Working Group on Statistics.

Once the final report is delivered to the technical division, the technical division should provide a reaction to each recommendation. During each wave of user satisfaction survey, an evaluation of the implementation of the recommendations from the previous round will be undertaken.

Data collection
Questionnaires for the short-form and long-form surveys should be distributed electronically using a representative list (if such a list exists) of database users or directly through the database website. In the case of the **short-form survey**, if a list of users is not available, then a simple HTML pop-up form should be displayed to users when they download data. If creating an HTML form is not possible, then embedding a link to a Google Form could be a substitute. A filter question should be included to ask if it is their first time to download data. If so then only user information is collected, otherwise all questions should be enabled. Ideally, the short-form survey should not exceed ten questions as a rule of thumb.

If the **long-form survey** is complex with a large number of respondents, then the questionnaire should be administered online using a Computer Aided Web Interviewing software (such as Survey Solutions). Also, emailing links, and follow-up can be automatized using scripting in R, and accessing the Survey Solutions database using the Application Programming Interface (API).

Web surveys are notorious for lower response rates than other types of surveys (Fan and Yan, 2010). The response rates vary across studies, and some major companies cite an acceptable response rate as low as 10–15 percent (SurveyGizmo), and a high response rate would be maximum 20–30 percent (SurveyMonkey, 2019). The response rate for the long form can be computed as the share of valid completedquestionnaires received out of the total distributed. The required sample size will vary depending on the objectives of the survey and the level of needed disaggregation for the final estimates (by major user groups, data domains, etc.).

The objective of **key informant interviews** is to obtain qualitative feedback for which the long and short form questionnaires are not well-suited. The questions of the interview should be defined based on the results of the quantitative survey data. For example, if a certain user group is more dissatisfied than the others, and the reasons are not clear from the quantitative data, then an open-ended interview may provide useful insights. Another example may be that the data indicate that users are not satisfied with the user interface. Key informant interview may be a good way to get suggestions.

The selection of participants for key informant interviews should be based on three main criteria: their user group, frequency of their or their organization's usage, and likely quality of their inputs. It may be that some user groups are considered more important than others. Accordingly, key information interviews may want to focus on a specific group. The frequency of their or their organizations may indicate users which have a more well-informed opinion. Obviously, a user that accesses once a week is more aware of different aspects of the databases than one that access once a year. Furthermore, if the data indicates there are many users from a particular institution, then one can be chosen which would reasonably represent its views. Lastly, the quality of their inputs can be estimated by comments (if any) in the long and short form questionnaire. In both questionnaires, the respondents have space to insert open-ended comments. Respondents which insert particularly useful or interesting comments are good candidates as key informants.

Generic timeline

As previously mentioned, the entire user consultation's exercise should not take more than one year. The table below shows the list of steps, and estimates of time required for each. Note that the length of time the questionnaires are deployed will depend on the total number of questionnaires received. For the short-form survey, it will largely depend on how many users access the database per day. Since the long- form is distributed to a pre-defined sample, the survey can be closed as soon as a suitable response rate is reached. Non-response follow-up are recommended to increase response rates.

Table 1. Generic user consultation's work plan

Steps	Months											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Develop short form questionnaire	x	x										
Deploy short form questionnaire			x									
Develop long form		x	x	x								
Deploy long form					x							
Analyze data						x	x					
Key informant interviews (if needed)								x	x			
Report results										x	x	x

Source: FAO. 2019. *Statistical Standard Series on User consultation*. Rome.

The frequency of user consultation per database should not exceed once every two years. The conduct of one user consultation every four years for each database is likely sufficient, unless major new features have been added. In thiscase, an additional user consultation can be undertaken at the request of the technical division.

Annexes

Annex 1: Generic questions for user profile and the Statistics Quality Assurance Framework's assessment

Text	Question type	Validation
User name (First and last name)	*Short answer*	• Required
User email address	*Short answer*	• Required • Is email address
User email address (again)	*Short answer*	• Required • Is email address
Country of work place	*Single selection* (list of FAO short name countries)	• Required
Name of institution or establishment (Instruction: Please write "none" if you don't belong to any institution.)	*Short answer*	• Required
To which user group do you belong?	*Single selection* • Government/Public sector – Public administration and Policy analysis • Government/Public sector – National Statistical Institution • International Organization – UN agency • International Organization – Development Bank • International Organization – Regional Organization • International Organization – Other (Consultative Group on International Agricultural Research, etc.) • Research/Educational – Researcher • Research/Educational – Educator • Research/Educational – Students • Commercial Company • Commercial re-disseminator • Farmers or farmers association • Other private users (not affiliated to any institution) • Political party, political organization, or lobbyist • Media • Non-governmental organization	• Required
How often have visited **[insert name of database]** *during the last 12 months?*	*Single selection* • one time • two to five times • six to nine times • ten or more times	• Required

Statistics Quality Assurance Framework's assessment

Please select the category that best corresponds to your opinion

Quality dimension	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
[Insert name of database] *statistics meet mycurrent & potential needs.*					
[Insert name of database] *statistics are accurateand reliably portray reality.*					
[Insert name of database] *statistics are consistentinternally, and over time.* ***[Insert name of database]*** *statistics are internationally comparable, and can be used in conjunction with statistics provided by other organizations*					
[Insert name of database] *statistics are easily accessible to all users on an impartial basis, are presented in a clear and understandable format,and are accompanied by relevant supporting metadata.*					
[Insert name of database] *statistics are timely and punctual.*					

Annex 2: Document history (for internal purposes)

Revision version	Revision date	Author	Description of changes/status
0	4/12/2018	**M. Rahija**	
0.1	29/1/2019	**M. Rahija**	Added some references, improved introduction, clarifications.
0.2			

References

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