

Integrating User Satisfaction in Agriculture Statistics: The Case of Nepal

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Abstract

This paper uses the findings of a User Satisfaction Survey, 2017 conducted by Central Bureau of Statistics (CBS) of Nepal. The CBS has conducted a Statistics User Satisfaction Survey in 2017 (SUSS 2017) to assess data use, data demands, and level of satisfaction and perceptions of its users towards its statistical products and services provided by the bureau. The respondents were allocated to six domains based on their work affiliation to various organizations and institutions. The findings from the User Satisfaction Survey show that the agriculture statistics produced by CBS is one of the least used sectoral statistics. The overall quality of the agriculture is comparatively lower than other main sectors. The publications lack analytical and thematic analysis, the data are not accessible directly from the website and the users' needs are not properly considered in survey planning. However, the survey further shows that the users still need more agriculture data with wider coverage and disaggregate to the lowest administrative levels of the country.

Based on the findings and users' feedback, it presents the steps taken by CBS to strengthen the quality, quantity, coverage and use of agriculture statistics in Nepal. The CBS has prepared an action plan and taken initiatives to expand the coverage and contents of the agriculture surveys and upcoming Agriculture Census 2021/22 and to produce quality data for plans and policy makings and monitoring development indicators of national priorities and international commitments like SDGs related to agriculture. The paper concludes that the User Satisfaction Survey, though it is seen very rare in NSOs of developing countries, found to be a very effective means to integrate user's needs, feedback and satisfaction in agriculture statistics in Nepal.

Key words: User satisfaction, data quality, data needs, Agriculture census, CBS initiatives

1. Introduction

The Central Bureau of Statistics (CBS) and the Ministry of Agriculture and Livestock Development (MoALD) are two main government agencies responsible for production and dissemination of agriculture statistics in Nepal. The current agriculture statistics compiled and published by the MoALD is mostly administrative in nature, whereas, the CBS has been producing mainly structural agriculture statistics through censuses and surveys. The CBS has a long history of taking agriculture census and survey in Nepal. It has been producing a basic structural data on agriculture through agriculture censuses since 1962 in every ten years. The last agriculture census taken in 2012 was 6th census in the series. The next one is scheduled to happen in 2022. On the other hand, some annual and ad-hoc agriculture surveys are also taking place between two censuses. The CBS has been also adopting different methods for disseminating agriculture statistics such as publications, web dissemination and data in machine readable formats.

Despite its generous efforts to make easy availability of agriculture data to public, an assessment of users' satisfaction shows that the agriculture statistics is one of the least used sectoral statistics in Nepal. The CBS has conducted a "Statistics User Satisfaction Survey" in 2017 to assess data use, data demands, and satisfaction of its users towards its statistical products and services provided by the bureau. The sample size of the survey was 1200 users allocated to six domains based on their work affiliation or engagement to various organizations and institutions. When users are asked to provide the main sector of statistics produced by CBS that they have used, the result shows that only 3.1% users have used agriculture statistics. Likewise, when the quality of 10 statistics sectors produced by

CBS is measured in 5 dimensions: reliability, timeliness, frequency, adequacy and accessibility, the Agriculture statistics sector shows weak in composite quality score. The use of micordata of agriculture surveys is also found very low.

However, the survey further shows that the users still need more agriculture data with wider coverage and disaggregated to the lowest administrative levels of the country. The major feedback from the survey are to identify users' needs, to diversity publications, to take effective dissemination strategy, to make user-friendly website and provide data online, and to provide adequate statistical literacy and advocacy programs to users to promote the data use. Based on the assessment and user's feedback obtained from the survey the CBS has prepared an action plan and taken initiatives to expand the coverage and contents of the agriculture surveys and upcoming Agriculture Census 2021/22 to produce quality data for agriculture plans and policy makings and monitoring development indicators of national priorities and international commitments like SDGs related to agriculture. The paper provides a good example of NSO initiative to show how a User Satisfaction Survey could be used to address data demands, promote data use and retain user's trust on official statistics. It concludes with some recommendations to improve data quality, accessibility and expand the use of agriculture data.

2. Methodology

This paper mainly adopts a qualitative research approach. It has two parts. The first part reviews and presents the findings of a Statistical User Satisfaction Survey, 2017 conducted by the CBS to show the quality, quantity, use and demands of the agriculture data, and the level of user's satisfaction towards the agriculture statistics in Nepal. In the second part, it presents the major steps taken by the CBS to strengthen the quality, coverage and use of agriculture statistics in Nepal based on the findings and the users' feedback received from the survey.

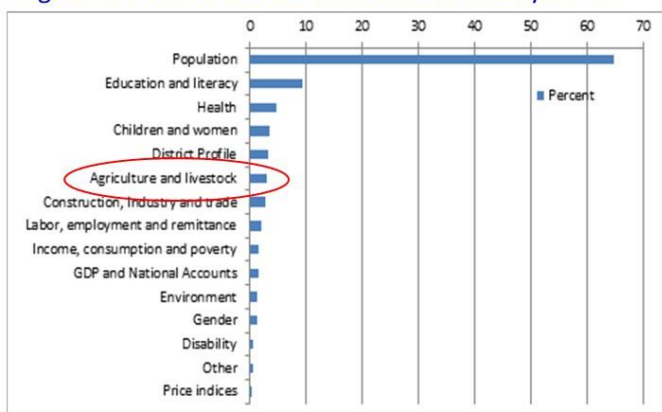
3. Results

3.1. Findings of the User Satisfaction Survey, 2017

3.1.1. Use, quality and accessibility of the agriculture data

When users are asked to provide the main sector of statistics produced by CBS that they have used, the result shows that the population statistics is found to be the most preferred sector of statistics for 64.6% users, but only 3.1% users are found using agriculture statistics (*Figure 1*).

Figure 1: The main sector of statistics used by users



Source: Statistics User Satisfaction Survey, 2017, CBS

Likewise when the quality of 10 statistics sectors produced by CBS is measured in 5 dimensions: reliability, timeliness, frequency, adequacy and accessibility, the Agriculture statistics sector shows weak in composite quality score (*Figure 2*). Particularly the frequency of agriculture statistics production found lower than the other sectors.

Regarding the users, the finding reveals that a higher number of users (39.2%) use CBS statistics for Study, Research and Analysis purposes followed by Planning and Policy-making (20.1%) and other. It is noticed that the CBS website (67.6%) is

the most popular medium for obtaining CBS statistics (*Figure 3*). However, more than half of the users (58.6%) reported that the design and appearance of the website is not user-friendly.

Figure 2: Overall quality of the CBS statistics by sector

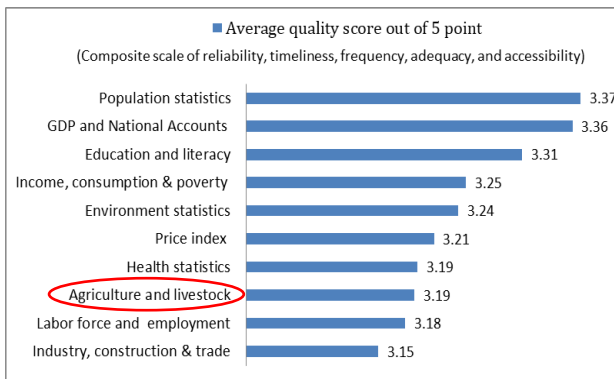
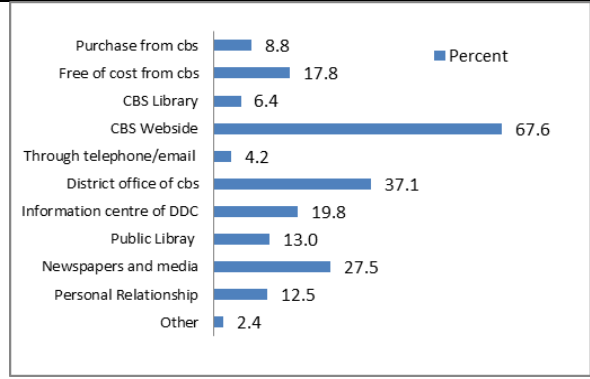


Figure 3: Medium for obtaining CBS statistics*



*Based on multiple responses.

3.1.2. Publications and microdata dissemination

The CBS publications are mostly contained with statistical tables with a simple statistical description. However, the Figure 4 shows that most of the users (61.6%) wish to have the CBS statistical reports and publications with more analytical description including tables, charts and appropriate figures.

The CBS provides microdata of recent surveys and censuses to all potentials users with a minimum price as determined by the price committee of the bureau. A complete data set of last agriculture censuses (NSCA 2001/02 & 2011/12) and some recent agriculture surveys are accessible to public use. The survey asks the adequacy of microdata to users and a preferred channel of receiving it. The results show 76% of the users are getting microdata of their needs from CBS but not sufficient of their needs (Figure 5) and about 75% of the users report a direct download from CBS website would be the best option for obtaining the microdata.

Figure 4. The presentation format of statistics in CBS publications

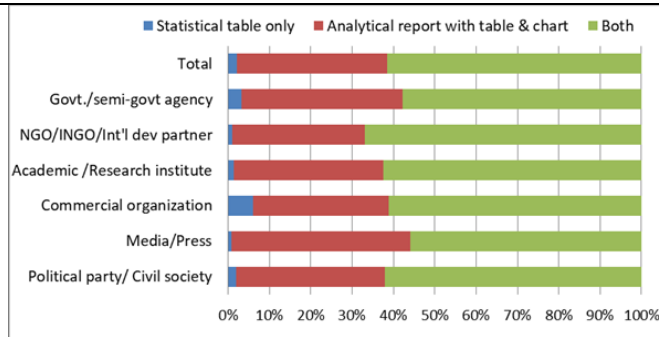
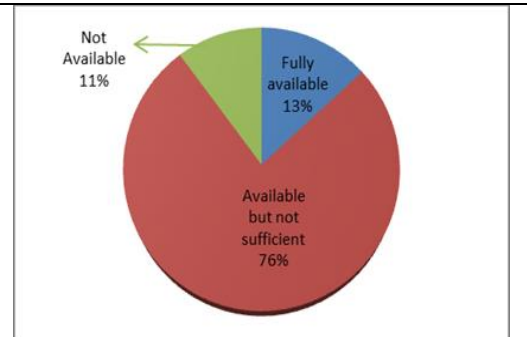


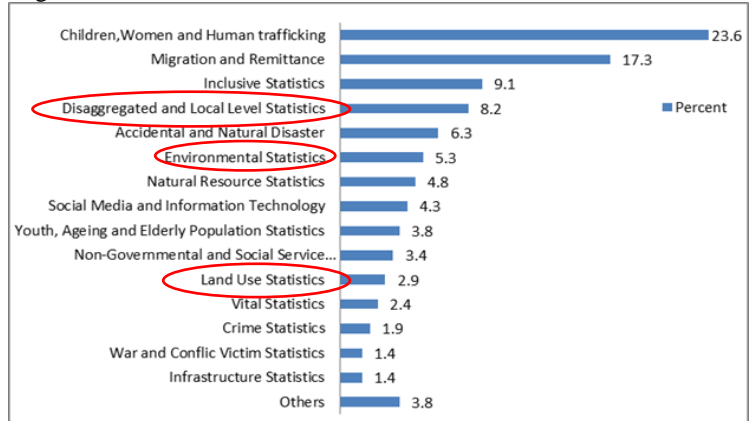
Figure 5: Adequacy of microdata.



3.1.3. Additional area of statistics of users' needs

The Figure 6 shows the additional area of statistics that the users want to get from CBS. Although many of the statistics of users' demands have been producing by CBS since long, the users still want, e.g. Environment statistics (5%), Land use statistics (3%) in detail with wider coverage and disaggregation to local levels.

Figure 6: Additional area of statistics of users demands.



3.1.4. Users' feedback

The users provided opinions for making surveys and censuses that have been conducted by CBS or will be conducted in future, more informative and useful to users. Table 1 shows that most of the users suggest CBS to discuss with stakeholders (71.6%) followed by coordinate with similar data producers (65.6%), identify users' needs (54.6%) and design survey and census which could provide more disaggregated data to local level (44.3%). The priorities of users by their sectoral engagement and profession are presented in detail in the Table 1.

Table 1. User's suggestion to make the surveys and censuses more informative and effective. (Percent*)

Agency type	Discuss with stakeholders	Coordinate with similar data producers	Identify users' needs	Provide more disaggregated data for the lowest level	Others
Total	71.6	65.6	54.6	44.3	2.6
Govt./semi-govt agency	61.1	68.9	56.1	45.6	1.7
NGO/INGO/Int'l dev partner	73.7	72.2	59.0	52.7	2.9
Academic /Research institute	75.2	59.4	51.7	34.9	3.0
Commercial organization	71.6	59.5	52.6	48.3	2.6
Media/Press	70.3	72.0	63.6	37.3	0.8
Political party/ Civil society	76.7	64.1	43.7	56.3	4.9

* Based on multiple responses

Regarding the users opinions to maximize the use statistics, 62% users suggest CBS to timely update them about CBS new data and publications, 57.5% users want digital copies of data and publications in website for easy download and use followed by statistical literary and advocacy program (46.6%), availability of CBS publications and data in public libraries (45.8%), and so on as shown in Table 2.

Table 2: Activities to promote the use of statistics produced by CBS (Percent*)

Agency type	Timely Update users on new data and publication	Provide statistical literacy and advocacy program	Provide specific training for using statistics and data	Provide digital copy of publications and data on website	Provide data & publications from public libraries	Provide publications from local private book sellers	Include official statistics in curriculum of university education
Total	62.0	46.6	26.8	57.5	45.8	19.1	29.4
Govt./semi-govt agency	55.0	42.8	29.4	58.9	50.0	22.2	27.8
NGO/INGO/Int'l dev partner	64.4	42.9	28.8	66.8	46.8	17.1	28.8
Academic /Research institute	56.7	46.0	26.8	55.0	43.3	18.1	33.9
Commercial organization	59.5	54.3	22.4	57.8	37.1	20.7	31.0
Media/Press	74.6	48.3	22.9	55.1	49.2	18.6	21.2
Political party/ Civil society	72.8	51.5	27.2	45.6	49.5	19.4	28.2

* Based on multiple responses

The findings from the User Satisfaction Survey show that the agriculture statistics produced by CBS is one of the least used sectoral statistics. The overall quality of the agriculture is comparatively low than other main sectors. The CBS publications which mostly contained statistical tables with a simple statistical description are not sufficient to users who wish to have the CBS statistical reports and publications with more analytical description including tables, charts and appropriate figures. Likewise, there are very limited users of microdata and most of them want the microdata directly downloadable from the CBS website. However, the survey further shows that the users still need more agriculture data with wider coverage and disaggregate to the lowest administrative levels of the country. The main feedback received from the survey is to identify users' needs on coverage, level of disaggregation and accessibility of the data to expand its use and demand. This indicates that the CBS has to explore the reasons behind the low use and poor quality of the agriculture data and has to work on to expand the agriculture data use and improving the quality and frequency of data production.

3.2. Causes of low use of the agriculture data

The possible causes of low use of the agriculture statistics are,

- Low frequency of agriculture statistics – insufficient agriculture surveys
- Users doubt on quality of the agriculture statistics

- Short of socio-economic variables and links with key aspects of the societies
- Missing important sectors in agriculture surveys and censuses
 - Commercial agriculture activities
 - Use of modern machinery and technology in agriculture
 - Land use and production methods
 - Food loss and food security
 - Disaster and shocks
 - Access to facilities and markets
 - Use of chemical fertilizers and pesticides and its impact of human health
 - Agriculture loan, insurance, subsidies and grants
 - Environmental impact on agriculture
- Inadequate advocacy on data availability and use
- Ineffective dissemination strategy
 - User unfriendly web dissemination
 - Not directly downloadable from the website
 - CBS head office centric data access
 - No specific data/microdata dissemination policy

3.3. Steps taken to strengthen the quality, quantity and use of the agriculture statistics

The CBS has been providing agriculture statistics to users through agriculture censuses and surveys since last six decades. On the other hand, the CBS is very open to disseminate its agriculture statistics through various channels such as publications, web dissemination and data in machine readable formats. Despite its generous efforts the SUSS 2017 shows a low use of the agriculture statistics with some doubts in its quality. In response to the findings from the SUSS 2017, the CBS has taken following three steps to improve its quantity, quality and use the agriculture statistics.

3.3.1. To address data needs

- Implement Annual Agriculture Survey program
- Improve agriculture census questionnaire
- Expand sample size and disaggregation of data
- Capture commercial agriculture activities
- Coordinate with MoALD and stakeholders to enlarge data coverage

The agriculture data production in CBS is mainly based on agriculture census that happens once in every ten years. It lacks a regular annual agriculture survey that could provide a regular flow of current agriculture statistics like yearly production and yield of crops, fruits, vegetables and livestock. The present agriculture data production system also lacks the technical, economic, environmental and social dimensions of farms and farm-based households. To maintain a regular flow of data and mitigate the data lacks on various aspects of agriculture the CBS has initiated an annual agriculture survey from 2019 based on an Agricultural Integrated Survey (AGRIS) approach with the support of FAO. The AGRIS is a farm-based modular 10-year survey programme designed to accelerate the production of quality disaggregated data on the technical, economic, environmental and social dimensions of farm-based agriculture production.

The agriculture census which is the main source of structural data also lacks many important aspects of agricultural activities like land use and production method, food loss and food security, disaster and shocks, commercial agriculture, climate change and environmental impacts on agriculture, etc. The previous agriculture censuses also felt short of producing data for local levels due to small sample size. To address the short fall, the CBS has initiated a program for agriculture census to make it wider, inclusive and more informative to users down to the local levels. It has conducted several stakeholder meetings in province levels to incorporate the data needs of provincial and local governments and different sectors. The sample size has decided to increase as sufficient to give representative information to all 753 local governments. The drafting of questionnaire has started to include data needs of central, province and local governments and for reporting major SDG indicators related to

agriculture. The upcoming agriculture census 2022 plans to capture both non-commercial and commercial agriculture activities and the technical, economic, environmental and social dimensions of agriculture production and agriculture households.

3.3.2. To improve data quality

- Methodology: follow international and national concepts, definition and methodology
- Tools : face-to-face interview, crop cutting surveys, remote sensing surveys, MIS
- Technology: CAPI, GIS, Satellite images, web-based dissemination tools

There are five important characteristics of data quality - accuracy, completeness, reliability, relevance, and timeliness. A high quality data fulfills the intended uses in operations and leads to better decision making and planning. The CBS has taken an initiative to increase the quality of agriculture data taking considering the five characteristics through three approaches – with adoption of new methodology, new tools and new technology. The CBS will follow the new concepts, definition and methodology, particularly the new set of methodology and guidelines developed by the FAO World Programme for the Census of Agriculture 2020 (WCA 2020) that involve a number of developments taking into account the changing nature of data use and collection. The CBS also follows national definitions and norms on agricultural data set by ministry of agriculture and related government agencies. A good coordination with stakeholders and the adoption of international and national norms and guidelines helps to increase the accuracy, reliability and comparability of data.

The CBS has been also planned and piloted testing of new tools and technology in data collection, analysis and dissemination. The Computer-Assisted Personal Interviewing (CAPI) and remote sensing surveys techniques used in a pilot annual agriculture survey found effective in significantly reducing the time of data collection. Likewise, the GIS and web-based data dissemination system made faster and easy access to data for wider users. The CAPI and remote sensing techniques will be used continuously in upcoming agriculture census and surveys.

3.3.3. To expand data use

- Develop a data/microdata dissemination policy (a draft of the policy has been already prepared)
- Prepare data documentation and dissemination guideline (a draft of the guideline has been already prepared)
- Improve web dissemination
 - Provide direct access/download of publications, data and microdata
 - Develop a specific web portal for agriculture data (for aggregate, microdata and metadata)
- Develop effective advocacy materials
- Publish thematic analytical reports
- Compile and publish agriculture related SDG indicators

The agriculture statistics, both aggregate data and microdata, produced by CBS are accessible to users through publications, CD-ROMs, website and web portals. The CBS uses a National Data Archive (NADA) platform for the web documentation and dissemination of microdata of its new surveys and censuses every year and the process has been internalized in the agency with its own budget and skill. However, the microdata as well as the aggregate data in machine readable format are not available online for a direct download. The users have to depend on publications for their further use and analysis. Furthermore, there are no any thematic analytical reports for specific interest and use except the statistical report. The estimations of farm-based SDG indicators are still not done. The technical words and terminologies used in agriculture statistics are somehow difficult to understand for general users, but it still lacks proper advocacy materials.

Even though, the CBS has a good intension to disseminate its agriculture statistics for wider users, it is not happening properly due to the lack of formal data dissemination policy and data dissemination guideline. Therefore, the CBS has planned and started developing a formal data dissemination policy and taken the other initiatives mentioned above for expanding the agriculture data use.

4. Discussion, Conclusion and Recommendations:

4.1. Discussion

The CBS Nepal is probably the first National Statistics Office (NSO) in South Asia which has done a Statistics User Satisfaction Survey in 2017 to assess its data uses and demands, and the level of satisfaction of its users towards its statistical products and services. A number of positive and negative findings and feedback were received from the users. In positive side, a high trust in CBS data than other agencies, a highly popular population and social statistics, with low price or freely available publications, friendly behavior of staff, etc. But in negative side, unfriendly website, aggregate and microdata are not available online, not having a proper data dissemination policy and guideline, not enough thematic reports and disaggregate data, low use of agriculture data, etc. The findings and feedback were found very useful to CBS for the improvement of its activities and outputs. For example, the CBS website is completely changed and made user-friendly, a draft of a formal data dissemination policy and guideline were prepared and submitted to parliament for the approval, and an initiative to improving data quality and use of agriculture statistics has been started as mentioned above.

4.2. Conclusion

Although the User Satisfaction Survey is very common in most of the National Statistics Offices (NSOs) of developed countries, it is rarely done in NSOs of developing countries. The first SUSS done in 2017 by CBS is proved to be a very effective tool in order to know user's needs and level of satisfaction on its statistical products and services and to receive feedback for further improvement. The SUSS shows that the agriculture statistics produced by CBS is one of the least used sectoral statistics with overall quality comparatively lower than other main sectors. This paper shows the CBS took benefit of the survey findings and feedback related to agriculture statistics to identify its shortfalls and necessary actions to be taken for the improvements. According to the paper the negative attributes of the agriculture statistics – insufficient data, lower quality and low use of data are addressed with a three-step action plan for improving its quantity, quality and use. The paper concludes that the User Satisfaction Survey, though it is seen very rare in NSOs of developing countries, found to be a very effective means in integrating user's needs, feedback and satisfaction in agriculture statistics in Nepal.

4.3. Recommendations

- As it is shown, this paper recommend an User Satisfaction Survey (USS) to each NSO of developing countries to be taken as an tool to identify user's needs and level of satisfaction on its statistical products and services.
- The findings and user's feedback obtained from the USS should be taken as a means to improve the quality, quantity and use of the particular statistics identified.
- Agriculture census which is a major source of structural statistics and provides sampling frame for other agriculture surveys should be standardized and improved to strengthen the agriculture statistics of a country. However, a regular flow of current agriculture statistics through annual integrated surveys should be maintained to balance the supply and demands of current agriculture statistics.
- Not only the production, but an appropriate dissemination channel, especially the online access to data helps to expand the use of agriculture statistics.
- Unlike population and social statistics, the agriculture statistics is considered a bit technical and difficult to use by general users. In such case the role of advocacy and statistical literary is important to enlarge its use.

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