

The Tool for Assessing Statistical Capacity (TASC)

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Abstract. Identifying strengths and limitations is crucial to building the statistical capacity of a national statistical office (NSO). The Tool for Assessing Statistical Capacity (TASC), developed by the U.S. Census Bureau, offers an efficient solution for statistical capacity assessments because it allows for one or two administrator(s) – who need not necessarily be expert in all census and survey operations – to obtain a comprehensive and objective picture of household-based census and survey operations at an NSO. Administering the TASC is cost effective and the results are widely accepted because of its participatory nature, making it an invaluable instrument for assessing an NSOs readiness to conduct surveys and censuses. Results from the TASC are used to target training to build statistical capacity. This paper describes the foundational framework, modality of measurement, strengths, and limitations of the TASC.

Keywords: Statistical capacity, assessment tool, TASC

1. Introduction

We increasingly inhabit a world where almost every activity is captured as a data point, often unknown to us, presenting both promise and challenges. Producers of official statistics must grapple with new sources of data, new methods, and new technologies, even as they continue to implement the surveys and censuses that provide data for development. The challenges of the data eco-system, as well as data demands like producing the indicators for Sustainable Development Goals (SDGs), are thus varied and consequential. It is a difficult environment for all national statistical offices (NSO) to operate in, especially for those whose statistical capacities are not strong.

The International Programs (IP) of the U.S. Census Bureau has been strengthening the statistical capacity of low- to middle-income countries for over seventy years. While the design, scope, and implementation of the assistance programs has changed over the years, IP's primary mission has remained the same: to build the

statistical capacity of NSOs and other statistical units to collect and analyze the data that enable economic and human development. To do this best, one of the first steps is to conduct a gap assessment to understand the needs of an NSO. IP's best opportunity to build hands-on capacity is usually around the global census rounds, since funding from various sources for statistical capacity strengthening is most generous then. Population and housing censuses are the largest peace time operation of a country, requiring significant government funding and donor support in developing countries. The Tool for Assessing Statistical Capacity (TASC) – sponsored by the U.S. Agency for International Development (USAID) and Inter-American Bank (IADB) – was developed to assess gaps in a country's capacity to conduct a demographic census or survey [1]. This paper describes the foundational framework, strengths, and limitations of the TASC.

2. Building statistical capacity

The Census Bureau began its program of international technical assistance in the 1930s and its formal training program began in 1947. IP's training program

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was initially established as part of the program of assistance to Western Hemisphere countries. In the early 1950s, the program was expanded to developing countries globally. From the beginning, its main goal was to impart the practical skills needed by statisticians and data processing specialists in statistically less developed countries [2].

IP uses many formats for building statistical capacity. It runs a headquarters-based training program on various statistical subjects like sampling, cartography, demographic analysis and population projections (DAPPS), gender statistics, data visualization and storytelling with data, Census and Survey Processing (CSPro) software, Computer Assisted Personal Interviewing (CAPI) adoption for managers, and many others. It also conducts regional training programs in collaboration with international organizations like the United Nations Population Fund (UNFPA) and other regional training centers on these subjects. But most of the assistance provided by IP is structured as comprehensive, multi-year, project-based capacity strengthening, which often focuses on a population and housing census. These projects cover the full census life cycle – from planning and management to dissemination of results. When this is done over successive census and survey rounds, countries can successfully graduate from the need for assistance.

The assistance provided by IP to countries is based on requests from NSOs and funded by aid and development agencies, including strong support from the U.S. Agency for International Development (USAID), or the requesting country government. Before the 2010 round of censuses, IP would send multiple managers and senior staff with various expertise to assess the capacity of an NSO to conduct a census prior to assisting with a census or survey. The delegation conducted the assessment trip at the invitation of the NSO before finalizing the scope of assistance.

Delegations, sometimes as large as seven senior members – experts on mapping, data processing, management, logistics, field operations, analysis, evaluation – were sent to determine the scale and scope of training needs. Assessments could take up to two weeks before a scope of training was drafted. This mode of assessment was not only resource- and time-intensive, it was often subjective, as it depended on the experts sent. It was also frequently impractical to devote valuable resources to such an assessment, which could be otherwise spent on building capacity.

As funding for statistical development became relatively scarce, IP realized the need for a more efficient

way to assess an NSO's capacity to do a household-based census/survey and identify areas that needed strengthening. The solution was to develop a tool that merged expert knowledge of each census and survey operation with standards documented in major international statistical frameworks.

The expertise and standards by which NSOs self-assess became resident in the tool and thus more constant from project to project. The self-assessment design of the TASC also encourages buy-in among the managers and senior staff as the results presented to them are the result of their own introspection and deliberation. So, while the initial emphases of the TASC were cost-effectiveness and objectivity, it also became comprehensive and participatory during development.

3. Frameworks to Assess Statistical Capacity

Frameworks that measure statistical capacity are common in development planning and practice [3]. Before publishing the first version of the TASC, IP considered previously developed frameworks and tools that analyzed issues external to NSO technical capacity, as well as processes and products that reflect generalized statistical capacity. These frameworks considered elements of statistical capacity related to both individual organizations and national statistical systems (NSS). The TASC tightened the focus on measuring the operational – meaning pertaining to census and survey operations – statistical capacity of NSOs to produce quality household-survey but used structure and scoring strategies seen in predecessor frameworks especially relevant at the time of its development:

- International Monetary Fund's (IMF) Data Quality Assessment Framework (DQAF): Developed in 2003 and updated in 2012, the DQAF covered seven dimensions of end-product data quality and a set of prerequisites for data quality [4]. The five dimensions of data quality were: integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility. The framework had 50 broad and qualitative indicators. The IMF's DQAF provided guidance for the dimensions of capacity measured in the TASC. However, the TASC was designed to focus more on measurable aspects of practices and activities at NSOs that should lead to complete, high-quality data products *but not to assess the products themselves*.
- Partnership in Statistics for Development in the 21st Century (PARIS21) Task Team on Statistical

Capacity Building: In 1999, the PARIS21 Task Team on Statistical Capacity Building developed a set of indicators to help track the statistical capacity of countries [5]. The indicators were developed specifically to target “statistically challenged countries.” The tool included sixteen quantitative indicators that primarily measured performance and eighteen qualitative indicators drawn largely from the IMF’s DQAF. The main limitation of this approach was that the quantitative indicators measured only performance and the qualitative indicators provided only highly aggregated scores that lacked discriminatory power to narrowly target the training in a specific operation.¹

- World Bank Statistical Capacity Indicators (SCI): The World Bank published an SCI for over 140 countries [6]. The indicator was constructed using metadata from the World Bank, IMF, UN, UNESCO, and WHO. A score was computed for three dimensions: (1) statistical methodology, (2) source data, and (3) periodicity and timeliness. The main drawback of this method was that it was based on performance indicators rather than capacity indicators. A low SCI was not sufficient to inform the user on the causes of a low score and a high SCI score might have been the result of foreign technical assistance and funding. Therefore, the SCI did not necessarily provide information about the capacity or sustainability of an NSO. Finally, the SCI did not reveal whether the data produced by the countries are effectively shared and used or if the methodologies behind them are reliable.²
- Health Metrics Network (HMN) Assessment Tool: The Tool was developed in 2005 and has been used to assess health information systems (HIS) in over fifty countries [7]. The HMN Assessment Tool examines six components of HIS: HIS resources, indicators, data sources, data manage-

ment, information products, and dissemination and use. HMN Assessment Tool items could not be directly used because it was focused on measuring HIS. However, it provided the framework for the TASC’s scoring system and modality, which is self-assessment by individuals and operational groups with expertise spanning a broad range of skills and activities.

The TASC was designed to build on the strengths of these tools. TASC drew heavily from Principles and Recommendations for Population and Housing Censuses (P&R) [8], which focuses on good practices for processes likely to result in high quality data, in addition to standards for final products. Each module, section, and item in the TASC is based on such knowledge and standards.

4. Tool for Assessing Statistical Capacity (TASC)

The TASC was originally developed during a period of about two years in response to the needs of the 2010 global census round for low- to middle-income countries conducting traditional censuses. The first version was released in 2013. Senior NSO staff use the TASC to score their census and survey lifecycle operational practices against recommended international standards. It provides a quantitative score of the overall capacity of an NSO, as well as a module-by-module breakdown of areas of strength and weakness. Although this information has many uses, three stand out:

- 1) TASC results aid NSOs and donors in identifying and targeting areas where training is needed.
- 2) TASC results can help NSOs and donors to justify the need for funding for training in specific areas.
- 3) TASC results can provide a measure of the impact of capacity building activities by being administered at two points in time, pre- and post-assistance.

The TASC was developed based on The World Bank definition of statistical capacity at that time as “a nation’s ability to collect, analyze, and disseminate high-quality data about its population and economy” [6]. But, the TASC was specifically designed to measure the capacity of an NSO to conduct household-based surveys and censuses. This focus directed the development of the TASC in two ways. First, the TASC approaches capacity in terms of measuring processes rather than outcomes. Second, the TASC does not measure the ability of NSOs to produce statistics based on businesses, agri-

¹In 2020 PARIS21 released the Guidelines for Developing Statistical Capacity that provides a roadmap for Capacity Development 4.0 which draws a broader, more holistic framework focusing strengthening capacity at three levels – system, organization, and individual, each targeting five areas – resources, skills, management, power and politics and incentives. In future iterations of the TASC, relevant parameters of this holistic framework will be considered.

²The World Bank recently released the Statistical Performance Indicators (SPI), which include elements of the SCI but broadens its focus from the capacity of the NSO to the NSS. The SPI also focuses more on NSS-wide infrastructure and resources, while the SCI measured output and activities at the NSO [9]. The SPI is a new measurement framework and was not considered in the design of the TASC but will be considered during future updates.

Table 1
TASC operational module descriptions

Module	Content
Census/survey planning and management	Overall capacity of NSO management to coordinate activities and data flow between the operational areas involved in census and survey taking.
Mapping	Covers the production and management of geospatial data infrastructure that enables a georeferenced frame as well as production of digital cartographic dissemination products.
Sampling	Covers the ability to design and analyze surveys using methodologically sound statistical techniques. The module also considers whether census data can provide the basis for sample-based surveys.
Questionnaire content and testing	Covers the range of topics, consistency with international standards, degree of pre-testing, and effectiveness of flow/skip-patterns of census and survey instruments.
Field operations	Covers the materials, logistics, and management of in-person data collection throughout the territory covered by a census or survey.
Data processing	Covers the information technology and computer science programming and resources required to collect and process census and survey data.
Data analysis and evaluation	Covers the production of subject matter reports, projections, and coverage/demographic analysis, which independently assess data quality after a census.
Data dissemination	Covers the ability of the NSO to reach stakeholders with census and survey results and professionally designed products.
Publicity	Covers the ability of the NSO to reach stakeholders with messaging that improves stakeholder awareness, participation, and buy-in for censuses and major surveys.

culture, and other domains not based solely on household data collection. The scores are specific to relative self-assessment of capacity and not meant to be comparable between NSOs. An understanding of this scope is important when deciding if the TASC is fit for purpose and when interpreting and presenting results.

To successfully conduct a census or survey, an NSO must demonstrate statistical capacity across a defined set of operations. Table 1 shows the TASC modules that assess census and survey taking operations and provides a description of each.

The basic unit of the TASC is an assessment item. Each item prompts participants to consider their NSO's census or survey operational practice. There are four possible responses for each item representing fully realized capacity to non-existent capacity. NSO participants respond to each item with a rating from 3 (fully realized) to 0 (non-existent) based on the description that most closely reflects their practice. The items are arranged into sections corresponding to factors of capacity, including:

- Human and physical capital: Items under this factor relate to the staff and material resources an NSO must have to meet operational needs in each module.

For example, in the Sampling module there are three items pertaining to human and physical capital, one of which asks whether the NSO has permanent staff trained in sampling theory, sampling concepts, and mathematical statistics (e.g., Central Limit Theorem, normal distribution, cluster sampling, simple random sampling, etc.)

- Methodological soundness and international standards: Items under this factor consider how NSO practices for each operational module compare to global frameworks and standards.

For example, in the Planning and Management module there are five items pertaining to methodological soundness and international standards, one of which asks whether the NSO uses project management scheduling tools to determine the timing and dependencies between the various components of census and survey operations (network analysis, flow charts, calendars, etc.)

- Quality assurance: Items under this factor relate to how the NSO analyzes data quality and program effectiveness for each operational module and then shares the results of those analyses.

For example, in the Mapping module, there are eight items that measure quality assurance capacity, one of which is whether satellite or aerial imagery are used to verify physical features (housing units, roads, rivers) and boundaries.

- Written procedures and documentation: Items under this factor look at how the NSO ensures the legibility of its methods and products to internal and external stakeholders and works to preserve intuitional knowledge.

For example, in the Data Processing module, there are seven items pertaining to written procedures and documentation, one of which is to

2. Census / Survey Planning and Management		3	2	1	0
		NSO has sufficient permanent staff trained and experienced in applying project management principles	NSO has permanent staff trained and experienced in applying some project management principles	NSO has permanent staff trained but not experienced in applying project management principles	NSO does not have permanent staff trained or experienced in project management principles
Human and Physical Capital					
2.1	National Statistical Office (NSO) has permanent staff trained and experienced in applying project management principles including budgeting, scheduling, reporting, and quality control for census and survey operations	NSO has sufficient permanent staff trained and experienced in applying project management principles	NSO has permanent staff trained and experienced in applying some project management principles	NSO has permanent staff trained but not experienced in applying project management principles	NSO does not have permanent staff trained or experienced in project management principles
2.2	Plans for each census include detailed physical space and equipment requirements	Plans for each census ALWAYS include detailed physical space and equipment requirements	Plans for each census OFTEN include physical space and equipment requirements	Plans for each census SOMETIMES include physical space and equipment requirements	Plans for each census RARELY include physical space and equipment requirements
2.3	Plans for major surveys include detailed physical space and equipment requirements	Plans for major surveys ALWAYS include detailed physical space and equipment requirements	Plans for major surveys OFTEN include physical space and equipment requirements	Plans for major surveys SOMETIMES include physical space and equipment requirements	Plans for major surveys RARELY include physical space and equipment requirements
2.4	Plans for each census include estimates of staffing needs, types of skills required, and time when staff are needed	Plans for each census ALWAYS include estimates of staffing needs, types of skills required, and time when staff are needed	Plans for each census OFTEN include estimates of staffing needs, types of skills required, and time when staff are needed	Plans for each census SOMETIMES include estimates of staffing needs, types of skills required, and time when staff are needed	Plans for each census RARELY include estimates of staffing needs, types of skills required, and time when staff are needed

Source: [1] TASC Booklet, U.S. Census Bureau

Fig. 1. Sample of TASC booklet module.

what extent change control and version management procedures are used when developing requirements and specifications for hardware and software.

Figure 1 illustrates the format of the TASC by dis-

playing the first few items of Planning and Management along with the scored responses for the Human and Physical Capital factor section.

In addition to evaluating operations, it is important to assess the environment within which the NSO operates.

Table 2
Distribution of assessment items in TASC

Module	Subsection				Total
	Human and physical capital	Method. soundness and intl. standard	Quality assurance	Written procedures and documentation	
1. Institutional Capacity*					40
2. Census/Survey Planning and Management	10	5	3	4	22
3. Mapping	7	5	8	4	24
4. Sampling	3	4	2	2	11
5. Quest. Content and Testing	2	6	6	2	16
6. Field Operations	4	6	4	2	16
7. Data Processing	11	4	12	7	34
8. Data Analysis and Evaluation	8	5	4	6	23
9. Data Dissemination	5	13	7	4	29
10. Publicity	8	4	4	6	22
Total Number of Questions	58	52	50	37	237
A. Administrative Records	1	5	6	2	14

*The subsections in the Institutional Capacity module do not align with the rest of the TASC so only the total number of questions is shown. Source: [10] TASC Manual, U.S. Census Bureau.

To capture those, the TASC has an additional module on Institutional Capacity, which covers cross-cutting factors not tied to a specific operation in the census/survey process. The module looks at the enabling – again, the underlying legal, political, and resource – environment in which the NSO operates and the extent to which the NSO maximizes its success through planning, practice, and coordination. The Institutional Capacity module has sections unique to this focus, including:

– Legal background

There are eight items in this section, an example of which asks to what extent decisions on all steps of data collection and dissemination are made independently from political influence.

– Data Confidentiality and Protection

There are seven items in this section, an example of which is whether the NSO has an appropriate group (such as a Data Review Board) that enforces confidentiality and reviews guidelines at least once a year.

– Human and physical capital

There are ten items in this section, an example of which is whether NSO has an on-the-job training program that is supported financially, and employees are given time to attend training.

– Organizational structure

There are six items in this section, an example of which is whether there is an advisory

council with members of the public and private sectors that advises the NSO.

– Stakeholder coordination

There are eight items in this section, an example of which is whether NSO assesses financial needs annually and makes funding requests to donors sufficiently in advance of expenses (A 3 response is given if NSO does not need donor support).

Due to increasing NSO recognition of their importance in improving data quality and coverage, the TASC also has an optional module for Administrative Records. This module is structured identically to the operational modules with assessment items grouped into four sections corresponding to the factors of capacity.

These eleven modules and sections were chosen for two reasons:

- 1) They facilitate the administration of the TASC in that they set expectations for and bound the range of consideration as the participants self-assess.
- 2) They clearly define the areas where the NSO rates high or low on statistical capacity and where capacity strengthening should be focused.

Table 2 shows the distribution of assessment items across the operational modules and within four factor sections assessed in all modules except for Institutional Capacity. There are 237 items in the 10 main modules and an additional 14 questions in the optional Administrative Records module. The questions are mostly evenly distributed between the modules, however the greater number of items in Institutional Capacity and Data Processing reflect the complexity of those topics.

4.1. TASC (v2) modules

The TASC was developed during the 2010 round of global censuses but was updated in 2017 to measure capacity for using new and updated technologies like CAPI for data collection and geographical information systems for mapping that were becoming common in the 2020 global round in developing countries. An additional operational module on Publicity was also added based on feedback from TASC participants and the importance of publicity programs to census and survey data quality and success [1].

4.2. Mobile data capture (MDC)

To address technological advances in survey and census operations, the TASC includes items that probe the readiness of the NSO to implement MDC technology [10]. These questions are spread throughout several operational sections. A summary score is provided that consolidates answers to these questions.

4.3. Administering the TASC

The TASC is a self-assessment instrument and is available online for free. The toolkit includes an Administrator's Manual along with the other products – an informational flyer; the TASC Introduction Presentation; Booklet; and Results Calculator – needed to administer a TASC [10]. It should be administered by someone who (1) has many (15+) years of experience on a range of statistical operations; (2) is preferably external to the NSO; and (3) is a respected member of the statistical community. However, since the expert knowledge resides in the tool, the administrator does not have to be knowledgeable on *all* operations. Their role includes the following – engage with the NSO to set up the TASC meetings; make a presentation on the value and specifics of the TASC and the role of the participants in assessing their NSO; clarify the meaning of items when questions are raised; coordinate and monitor the exercise; calculate the results; prepare the results presentation; and finally, present the results to NSO management and participants.

Managers and senior staff across the various census operations are invited to participate during a TASC administration. The accuracy of the TASC results depends upon the full participation of senior and highly experienced members across the requisite operations in an organization. The administrator first makes a presentation on the importance, purpose, and limits of the

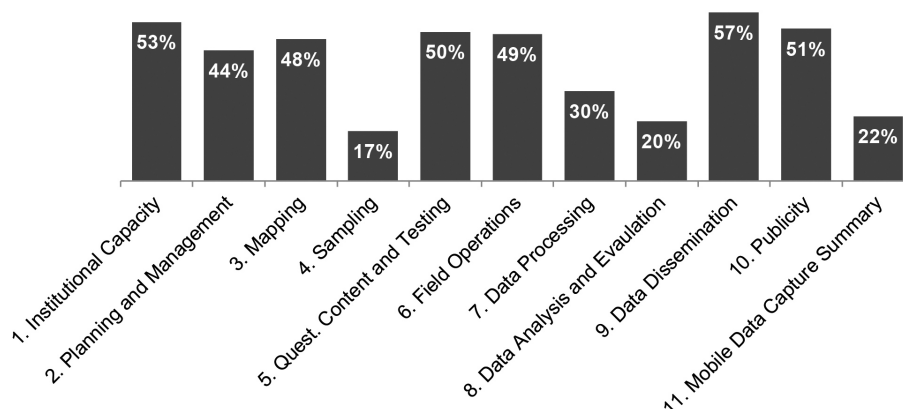
TASC as well as the participants' role in completing the response modules before the administrator facilitated response sessions. Participants are expected to answer only those modules in which they have experience. For example, subject matter specialists may answer questionnaire content and the testing, data analysis and evaluation, and data dissemination modules. If they are also managers, they could also answer the planning and management and institutional capacity modules. Cartographers answer the mapping module or, depending on their experience, may also answer the field operations module.

The TASC is administered in two sequential rounds:

1. Individual response round: Each participant answers the modules relating to their expertise individually. They then submit the individual answer sheets to the administrator. The Results Calculator allows up to fifteen individual data per module.
2. Group responses round: Participants that answered a particular module come together and answer that same module together as a group. For instance, all the staff/managers that answered the questionnaire content and testing module must agree on a single score for each item based on their organization's practices. If there are more than six individuals who have answered a module, we recommend they be split into two separate groups that answer on two separate answer sheets. The Results Calculator allows up to three groups per module.

This approach ensures that every participant has read, understood, and scored the practices in their operational area during the individual round, which should provoke a discussion of practices during joint scoring of the group round. The group round ensures that any gaps in TASC participants' knowledge of practices at the individual level are compensated through discussions. It is important that the administrator observe group dynamics during these discussions. Some interactions are participatory and egalitarian, while others may be hierarchical. Observations of the group dynamics and discussions help the administrator when they develop the results presentation. The TASC produces scores for both (aggregated) individual- and group-based results.

TASC evaluations reflect it being a predominantly positive experience for participants. They feel valued as they are involved in the assessment of their operations. Participants always enjoy the group discussions for various reasons – some learn about the international standards, others because it provokes ideas on how they could enhance their practices.



Source: [11] TASC Results Calculator, U.S. Census Bureau

Fig. 2. Example of an overall result chart.



Source: [11] TASC Results Calculator, U.S. Census Bureau

Fig. 3. Example of factors of capacity section scores for planning and management module.

4.4. Generating results

The TASC kit includes a Results Calculator, which is an Excel spreadsheet where the administrator enters responses from the participants’ answer sheets [11]. There are separate columns for individual scores and group scores in the TASC Results Calculator – there is space to enter scores for up to 15 individuals and 3 groups for each module. Upon completion of data entry, the tool generates various charts and statistics that describe the statistical capacity of the NSO. The tool calculates an overall statistical capacity score, as well as separate scores for each statistical operation.

The NSO overall TASC score is the average of all the module scores. The module scores are an average of self-scored responses across all items for a module in the four sections. For example, for the overall Institutional Capacity, the module score, expressed as a percent, is calculated by summing the response values across all the 40 items, dividing it by the maximum possible score of 120 (40 items × 3 points) and multiplying by 100. Similarly, for Sampling the denominator is 33 – the number of items (11) × the maximum possible value for each item (3). Scores for each factor of

capacity section within the operational modules are calculated in a similar manner – with the numerator as the sum of responses and a denominator as the maximum possible score expressed as a percentage. Overall scores for the factors of capacity are also generated responses across all sections. In the current version of TASC all items are weighted equally.

See Figs 2 and 3 for examples of charts produced by the TASC. In addition, the results provide a breakdown for every operational area with respect to the factors of capacity: the need for human and physical capital, whether practices are methodologically sound and follow international standards, whether quality assurance standards are defined, monitored, and met, and finally if there are written procedures and documentation.

4.5. Presenting results

Once the administrator completes the Results Calculator, they will make the results presentation to NSO senior management and participants. The scoring shown in the results presentation should usually be based on the group round for every module, rather than the individual round. The knowledge sharing that takes place

between TASC participants during the group round leads to scores that are more representative of NSO capacity. The results presentation should highlight where the individual and group scores differ markedly and try to identify why there is a large gap between the two for an operation. The administrator's observation of participants and their group dynamics could suggest possible reasons. Conversely, if the group discussions were hierarchical despite participation by experienced staff, the individual results may be a more accurate reflection of the operational capacity. There are also situations where some of the participants were so new to the NSO that they were not knowledgeable about practices. This results in many missing responses and should be flagged. New staff or interns should not be answering the TASC.

A results presentation should also describe the module and subsection scores and highlight both areas of strength and potential areas for capacity building. The disaggregated scores by operation and factor of capacity allows an NSO to identify exactly what the training program should target.

TASC participants are often interested in how their results compare to scores the administrator(s) may have seen in other countries. These comparisons are strongly discouraged, as factors other than underlying NSO capacity – including group dynamics and cultural attitudes towards multiple viewpoints and critical self-assessment – become pronounced when moving between countries. However, it is appropriate to consider results obtained at an earlier time at the same NSO, as these cultural factors can be assumed as relatively stable and differences interpreted as decreased or increased capacity.

4.6. *TASC adoption*

The TASC has been administered in over 40 countries since 2012. Compared to the information gathered by delegations in the past, the TASC results are more standards-based, comprehensive, targeted for capacity strengthening, better documented and shareable with other donor groups, and the subsequent buy-in for training is easier due to its participatory nature. In many countries, it has been administered twice separated by a few years of capacity building activities. It has been translated and administered in several languages by various organizations and consultants prior to country censuses to assess the status of statistical capacity and the need for training. From our experience, and the reports by other administrators, it has served those purposes well as training programs designed using the TASC

have resulted in building sustainable capacity in Nepal, Mozambique, Malawi, Tanzania, Zambia among many others. Knowledge and skills acquired are reflected in subsequent surveys, data products, and censuses.

The administration of the TASC by the Census Bureau is almost always preceded by interviews with various departments and proceeded by intense interaction with the NSO over multiple years and across a range of operations. In a typical census capacity building project, IP experts engage with staff from various operational areas over a period of two to three years through. IP experts make multiple two-week training visits in the form of formal workshops or less structured technical assistance with the NSO staff working on their own in the interim using the skills last acquired. In addition, IADB has tested the robustness of their version of the TASC (adapted by Census Bureau for national statistical systems) in Latin American countries by administering it repeatedly and comparing results within the country (3–5 year gap) and across countries [12]. The results reflect increased capacity within countries, for the most part, and that the differences in capacity between countries remained similar to previous assessments.

4.7. *Common areas for capacity strengthening*

After conducting the TASC in many countries, there are some operational areas that tend to be most in need of capacity development in middle- to low income-countries. Often these are the areas where there has been the most technological advancement – mapping and data processing. In addition, those areas that require higher levels of formal training and experience – planning and management, sampling, and data analysis. Overall, across operations, quality assurance practices and written procedures and documentation seem to be weak in many countries. Across operations, change control management is missing or poorly enforced, thus making it difficult to fix problems before they become too affect other operations and the overall timeline. Staffing is also lacking in many of the resource constrained countries, but a training program cannot address that. In institutional capacity, stakeholder coordination is an area that is often highlighted as an area for improvement. There is a need for more training in soft skills like, management, communication, and advocacy.

4.8. *Challenges and limitations*

Some of the challenges while administering the TASC and interpreting results are the following:

- Assigning and scheduling groups: If there are many people participating and also answering multiple modules (quite common), breaking them into groups requires the administrator to first collect all the information on who answered which modules and then schedule and assign them to groups. So if person A answered planning and management, questionnaire content and testing, and data analysis, this person has to be part of 3 separate groups and the group meetings must be scheduled sequentially so that they are able to participate in all 3 groups. If person B has answered planning and management and data processing, then the administrator also has to make sure that A and B are scheduled concurrently and that all the other operational modules they (persons A and B) have completed are not scheduled at the same time. Scheduling challenges can be managed by a well-organized administrator and, if necessary, by extending TASC administration so that the group session occurs the day after the individual.
- Junior staff: In some NSOs, despite instructions to limit the participation to experienced staff, junior staff are invited to fill the TASC. Their lack of experience results in TASC scores that may not accurately reflect actual NSO capacity. For example, in one country junior staff who were not aware of the practices left many items blank.
- Organizational culture: In some hierarchical organizations or cultures, managers may dominate the discussion and scoring during the group round. It is thus instructive for the administrator to walk around while groups are filling the TASC and get a sense of group dynamics. That will help them understand the results and which score – individual or group – is a more accurate reflection of capacity. It is also one of the reasons that we caution against any comparison of scores between countries. The TASC is best suited to measure relative capacity between the modules and over time, as it is a self-assessment tool and cultural differences in responses may skew inter-country comparison.
- Inadequate participation: If operations are not adequately represented, the TASC scores are not robust. In such a situation, a re-administration is strongly recommended. For example, in one country despite being invited to the TASC meeting, most of the field operations senior staff were out in the field, so the field operations module score did not accurately reflect operational capacity. In that case, that module had to be re-administered when the senior staff returned.

The TASC also has limitations that prevent it from more broadly measuring NSS production capacity:

- Household-based data collection: The TASC measures the capacity of an NSO to do household-based surveys/censuses – it does not measure capacity for processes based on collection from other statistical universes.
- Process orientation: The TASC is a process-oriented tool, not a product-oriented one. It does not describe the products or specific indicators produced by the NSO.

5. Future of TASC

The TASC offers an efficient solution for capacity assessment for household-based statistical operations because it allows for one or two administrator(s) to obtain a comprehensive picture of NSO strengths and capacity building needs in a relatively short amount of time. TASC administrations are cost effective and the results widely utilized because of its participatory nature, making it an invaluable instrument for assessing NSO readiness to conduct surveys and censuses.

Since TASC version 2.0 was released in 2017, some of the frameworks that it was based on have been updated. The World Bank's SCI was updated to the new Statistical Performance Indicators (SPI) [9]. Unlike the previous SCI, which mainly focused on the NSO, the SPI expands to measuring the entire NSS and includes new areas like infrastructure and resource components. The TASC, being a process-focused tool, already included many of the SPI's components in the assessment. However, because it is currently designed only for household-based surveys, measurement of the NSS is only included in the Institutional Capacity module in as much as it assesses the enabling environment for an NSO to conduct surveys and censuses.

Another framework that has been updated is the PARIS 21 Capacity Development 4.0 [13]. The updated framework is broader and more holistic, focusing strengthening capacity at three levels – system, organization, and individual, each targeting five areas – resources, skills, management, power and politics, and incentives. The current TASC is designed to be a self-assessment tool at the organizational level, thus covering that level and the system level from the Capacity Development 4.0 but leaving out the individual. We have no plans to include measurement of individual skill level in TASC. As for the target areas, TASC currently does not measure incentives and measures power and

politics only to some extent in the Institutional Capacity module. Future versions may include items to assess both.

TASC will be updated periodically to capture the latest technological and methodological advances, apart from drawing on the enhanced statistical frameworks. The TASC must also incorporate new statistical frameworks such as the 2019 Global Geospatial Statistical Framework and others as they become available [14].

Depending on the availability of funding and interest, future TASC development could include creating supplementary modules for different types of surveys and statistics on agriculture, businesses, or the environment. The Census Bureau would benefit from collaboration with other international agencies to create such modules and to update existing ones, just as we collaborated with IADB on the original version of the TASC.

6. Conclusion

Gap assessments are crucial to effectively targeting capacity strengthening initiatives. The TASC continues to show value in targeting training effectively during its use in the 2010 and 2020 global census rounds. Ongoing updates to account for new technologies – including the adoption of web assisted interviewing in response to the COVID-19 pandemic – and NSO feedback will ensure that the TASC continues to show value through future census rounds. TASC 3.0 will include these updates, and more.

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