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Towards defining quality for data and statistics on time use*
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* This document has not been formally edited.

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Towards defining quality for data and statistics on time use

Introduction

All statistical agencies have in place quality systems to ensure agreed quality standards are applied across all aspects of their operations. A number of different frameworks and quality management systems have been developed to support agencies in applying these standards. Best practice guidelines recommend that open, honest and transparent quality statements are included with data releases.

While quality will be inherent in all chapters of the Guidelines[2] being developed by the Expert Group on Innovative and Effective Way to Collect Time-Use Statistics, a more detailed chapter dedicated to discussing quality within the context of the production of time-use statistics will also be included to provide a detailed framework for defining and addressing quality. The chapter will describe the quality standards, elements and indicators that should be considered when planning, conducting and producing time-use surveys. Applying well defined, consistent quality standards will result in robust data to support sound decision making and allow for comparisons between countries and over time.

The UN National Quality Assurance Framework (NQAF) is being used to provide the overarching strategic framework with the Generic Statistical Business Process Model (GSBPM) used to operationalise the framework. By presenting the information in this multi-dimensional framework, the quality dimensions for all phases of the survey cycle will be included.

To progress this work, information is being gathered from members of the Expert Group about the quality standards applied to their time-use survey. The team leading this work is also conducting desktop research on the quality standards applied by other countries that are not part of the Expert Group. This work will build a solid understanding of the breadth of quality parameters applied to the production of time-use statistics. Information gathered from both these pieces of work will be consolidated and presented to the Expert Group for discussion and agreement on what should be included. The final product will provide comprehensive guidance on the application of quality to all aspects of time-use surveys. Countries will be able to use it to assist in planning their survey.

The chapter will also include country specific examples, describing how the different quality parameters are applied to their time-use survey. This will provide further context and will support the understanding of how to apply these standards. The examples will highlight different approaches to achieving the same quality outcomes.

Acknowledging the diverse methodologies, resources and survey capabilities of countries, the chapter will also include a recommended minimum set of elements plus a core set of quality indicators and their cut offs. The purpose of these is to indicate the minimum required to support

[2] The Statistics Division and the Expert Group on Innovative and Effective Ways to Collect Time-Use Statistics have been working towards the implementation of the International Classification of Activities for Time-Use Statistics (ICATUS 2016) and the modernization of time-use surveys, in the context of updating the Guide to Producing Statistics on Time Use.

the production of quality time-use statistics. For example, the minimum number of activities that should be included in the diary and the minimum number of hours that must be completed for a diary to be considered complete. Consistent application of the minimum set will support comparisons over time and country comparisons. To identify the minimum set, information is also being gathered from Expert Group members and other countries on the minimum standards applied to their surveys. This information will be summarised and presented to the Expert Group for discussion and decision on what should be included in the minimum set.

This document discusses a proposal for a general framework for defining quality in the context of data and statistics on time-use that aims to enable a multi-dimensional assessment of the quality of the time-use data collected and statistics produced (statistical output or product) and to guide the assurance of quality through all phases of the survey. The current thinking so far by the Expert Group is reflected in the discussion below.

Building blocks of a quality framework for time-use data and statistics

To be able to provide a multi-dimensional assessment of quality that at the same time guides the assurance of quality through all phases of a time-use survey (the essence of a quality assurance framework), two existing statistical tools are being explored—the (1) Generic Statistical Business Process Model (GSBPM) and the (2) National Quality Assurance Framework (NQAF).

The GSBPM describes and defines the set of business processes needed to produce official statistics. It provides a standard framework and harmonised terminology to help statistical organisations to modernise their statistical production processes, as well as to share methods and components. The GSBPM can also be used for integrating data and metadata standards, as a template for process documentation, for harmonising statistical computing infrastructures, and to provide a framework for process quality assessment and improvement.[3] A graphic representation of the eight phases and sub-processes corresponding to each phase is presented in Annex 1.

An NQAF is a coherent and holistic system for statistical quality management which assures trust and quality of official statistics across the entire national statistical system. Many of the existing national frameworks are also known as codes of practice (CoPs); some have been adopted at the national level from regional CoPs. Other NQAFs were formulated based on a 2012 UN generic NQAF template guidelines. The United Nations National Quality Assurance Frameworks Manual for Official Statistics (UN NQAF Manual) adopted by the UNSC and issued in 2019 builds on and replaces the generic 2012 template and guidelines[4]. This proposal for time-use data and statistics is based on the 2019 UN NQAF guidelines and recommendations, but can be applied as well to existing national quality frameworks.

The building blocks for the proposed quality framework consist of the following:

- A matrix mapping of survey cycle components to the GSBPM phases. See, for example, Figure 1.
- Quality assurance requirements for each matrix cell anchored on a quality assurance framework of the national statistical office (e.g., UN NQAF; CoP). An illustrative

[3] More information on the GSPBM @ https://statswiki.unece.org/display/GSBPM/GSBPM+v5.1
[4] More information on the 2019 UN NQAF @ https://unstats.un.org/unsd/methodology/dataquality/un-nqaf-manual/

example from Morocco of a straightforward mapping of the GSBPM phases and elements to be assured is provided in Annex 2. A further step to be undertaken is to map these elements to be assured to the survey cycle stages. See, for example, Figure 2.

- A mapping of elements to be assured in each stage of the survey cycle to the quality dimensions of the national quality assurance framework and the corresponding indicators. *The work of the Expert Group is focused on this, as discussed in the next section.*

Figure 1. Illustrative mapping of Survey Cycle and GSBPM [Note: This mapping can be expanded to level 2 sub-processes within each phase.]

GSBPM Phase/ Survey Cycle	A- Survey Content	B- Survey Instrument	C-Field Procedures	D- Processing	E- Publishing
1- Specify needs	x	x	x	x	x
2- Design		x	x	x	x
3- Build		x	x	x	x
4- Collect			x		
5- Process				x	
6- Analyze	x			x	
7- Disseminated	x				x
8- Evaluate	x	x	x	x	x

x: correspondence of GSBPM phase to the survey cycle

Figure 2. Illustrative example. Quality assurance elements at each survey cycle stage

A- Survey content

GSBPM Phase	Quality Assurance Elements
1- Specify needs	Extensive consultation with data users and stakeholders to ensure a thorough understanding of contemporary data needs and relative priorities. Considerations include: assuring coverage of relevant subpopulations such as those that are difficult to reach
1- Specify needs	Where appropriate, apply consistent content between survey cycles to support comparability over time.
1- Specify needs	Where appropriate, apply content that enables comparison with other relevant surveys (e.g. Labour Force).
1- Specify needs	Undertake research into the international context to align survey with international surveys where possible and to apply international best practice.

B- Survey instrument

GSBPM Phase	Quality Assurance Elements
2- Design	Adoption of question standards, where they exist, particularly for variables such as employment and educational attainment.
3- Build	Extensive testing of survey instruments and diaries to ensure respondents' understanding of questions and requirements. Testing strategies could include cognitive interviewing, usability testing and field tests; different language versions, where appropriate

GSBPM Phase	Quality Assurance Elements
3- Build	Consistency between the computer assisted web interview questionnaire (CAWI), computer assisted personal interview questionnaire (CAPI) and computer assisted telephone interview (CATI) to ensure the same information is collected in all modes.
3- Build	Thorough testing of the questionnaire instrument to ensure correct wording and sequencing.
3- Build	Where different diaries are used in the same survey; e.g., electronic diary and paper diary, ensure alignment of content.
3- Build	Survey instrument to reflect how respondents expect to interact with the instrument for example, use of button selection in electronic diary for common activities to reduce respondent burden and increase consistency across activity coding.
3- Build	Clear instructions and extensive diary examples for respondents to understand what is required for completing the questionnaire and diary and why it is important.
3- Build	Balance between data requirements and survey length to minimise respondent burden and impacts on data quality.
3- Build	Balance between data requirements and complexity of the diary to minimise respondent cognitive load.

C- Field procedures

GSBPM Phase	Quality Assurance Elements
2- Design	Size and geographic distribution of sample is sufficient to support release of data at the required geographical levels (e.g., national, state, provincial, etc.) This includes making allowances for expected non-response and non-contact.
2- Design	Selection of designated days. Considerations for representativeness: weekdays, weekend, holidays and seasons—to be consistent with objectives and analytical needs identified in phase 1
3- Build	Development of rigorous, well tested field procedures to ensure consistency in survey collection.
3- Build	Development of a paper diary tracking system to ensure all paper diaries allocated to households are accounted for.
4- Collect	Extensive interviewer training. Considerations: to ensure interviewers have a good understanding of the survey and what is required and are equipped to motivate response from each household and respondent; training about proper interviewing techniques, such as asking neutral, non-leading questions to avoid biasing the respondent's answers. In the case of self-reporting, detailed written instructions and examples are provided in the introductory letter or email to ensure proper completion.
4- Collect	Approach material sent to households introducing the survey and explaining the authority under which the information is collected.
4- Collect	Use of follow-up actions such as reminders to encourage participation.

GSBPM Phase	Quality Assurance Elements
4- Collect	Contingency for extending enumeration and substituting designated days to maximise response rates. Considerations for response rates: look at paradata, if available, to focus efforts on among other things best time to contact the household, the number of attempts, etc.

D- Processing

GSBPM Phase	Quality Assurance Elements
2- Design	Consistent application of diary editing rules. For example o What is an acceptable level of completion for the diary? For example: minimum of 5 activities in a 24 hour period (excluding sleep) and 14 hours of the diary to be completed? o How many columns need to be completed? Are there priority columns? o What to do about missing data? – e.g., imputing travel time if the location between activities has changed.
2- Design	Treatment of households with missing instruments.
5- Process	Application of survey weighting at the level required for output – e.g., household, person and day level.
5- Process	Checking for internal consistencies within the data and procedures to deal with identified inconsistencies. Examples: if someone says they spent time caring for a household child, verify that they actually had a child under age 18 (according to definition of child) living in the household; range checks.
5- Process	Use of intelligent coding technology to ensure objective and consistent coding.
5- Process	Clear and agreed rules for deriving data items.

E- Publishing

GSBPM Phase	Quality Assurance Elements
7- Disseminate	Estimates with high relative standard errors; Considerations: will be appropriately highlighted in the output (with explanatory notes); will be suppressed using documented suppression rules; e.g.: depending on the type of estimate, number of observations, estimated standard errors, and the coefficients of variation
7- Disseminate	Confidentiality rules will be applied to outputs.
7- Disseminate	A data quality statement will be developed and published.
7- Disseminate	Transparency of coding rules applied for derived output data items.
7- Disseminate	A variety of data access options with a focus on making the experience simpler for researchers; simpler to use, simpler to analyse, simpler to understand. Considerations: extensive documentation; design of outputs facilitating use and understanding

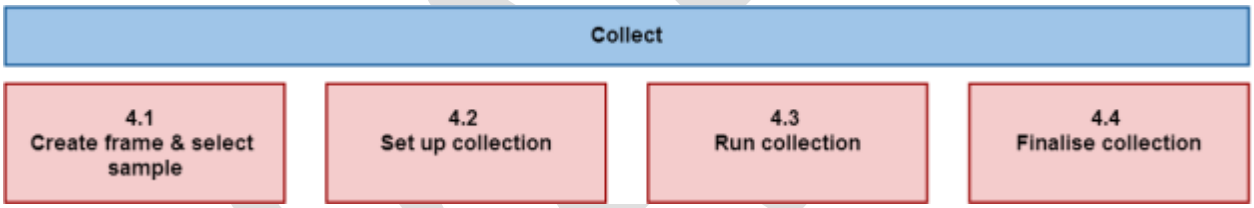
Quality standards and indicators for data and statistics on time-use

The proposed framework will focus on specific aspects of time-use data and statistics for which quality needs to be assured. These can (potentially) be based on the following considerations***:***

- Selecting a core set of quality indicators and define "cut-off" values for quality. A starting point for this would be the GSBPM quality indicators[5]. The determination of "cut-off" values—whether feasible or not will be explored. See, for example, Figure 3.
- Identifying a "minimum" set of elements to be assured. An illustration of mapping survey design elements that need to be considered in assuring quality dimensions is presented in Annex 3, with proposed "cut-off" or minimum requirements. The illustration is a proposed starting point for identifying a minimum set of elements to be assured.

Cross-mapping of GSBPM, the survey cycle and the survey design elements will form the structure of the TUS quality framework.

Figure 3. Examples of Quality Indicators (GSBPM) for Subprocess 4.3- Run collection



Indicative Quality Indicators for Subprocess (4.3) Run collection

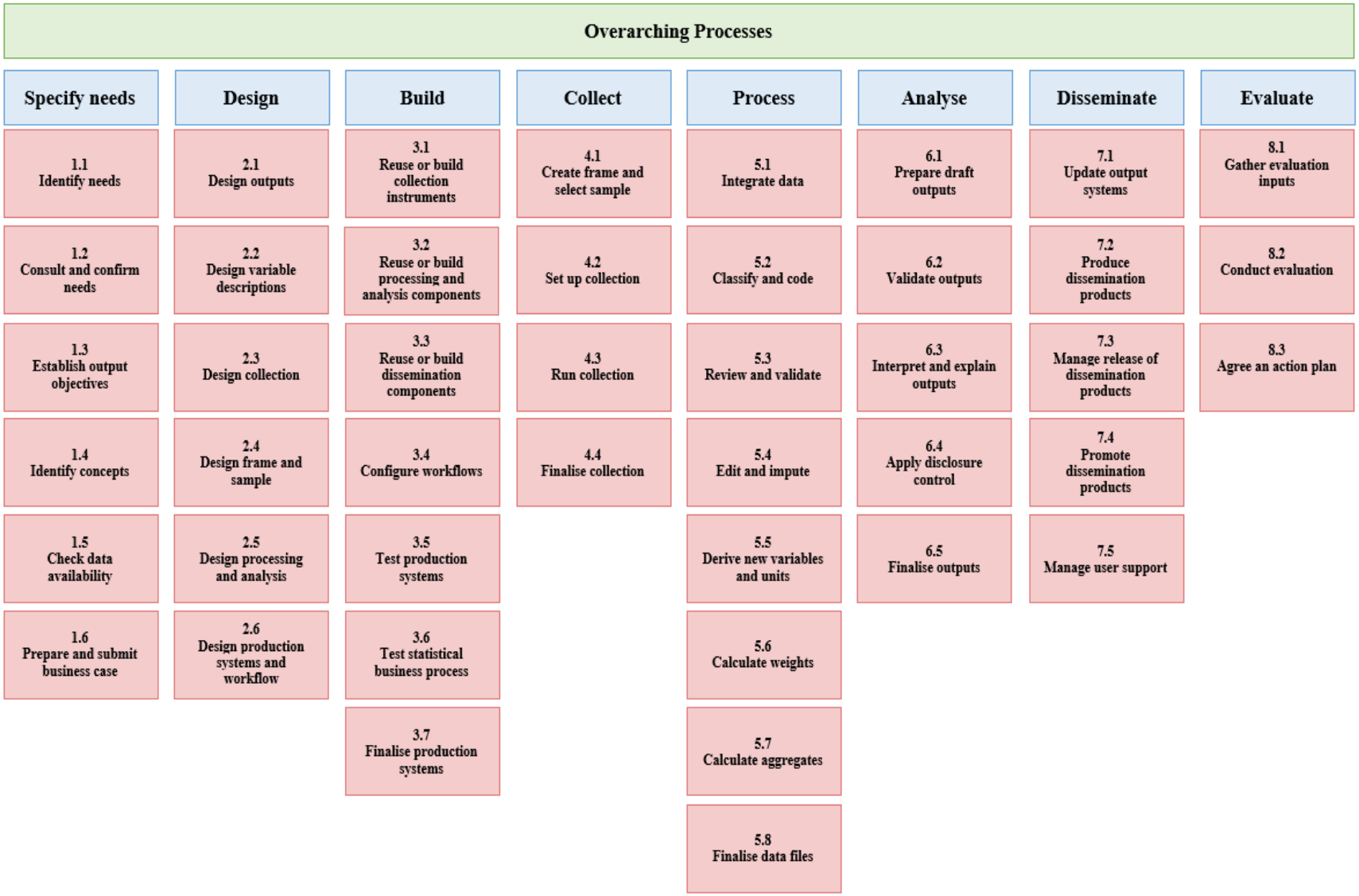
Quality Dimension	Indicator	"Cut-off"[6]
Managing respondent burden	Are there enough staff responsible for dealing with the respondent's questions?	
Managing respondent burden	Support is provided to respondents	
Accuracy and reliability	Quality control is used to manage the quality of data collection and data capture processes.	
Accuracy and reliability	Meaningful feedback is provided to interviewers and fieldworkers on a regular basis.	
Accuracy and reliability	Monitoring of fieldwork operations is done during data collection.	
Accuracy and reliability	Interviewer performance is measured for CATI, CAPI, PAPI surveys (e.g. interviewers' productivity).	

[5] Quality indicators for GSPBM Version 2017 @ https://statswiki.unece.org/download/attachments/185794796/Quality%20Indicators%20for%20the%20GSBPM%20-%20For%20Statistics%20derived%20from%20Surveys%20and%20Administrative%20Data%20Sources_Final.pdf?api=v2

[6] Cut-offs to be discuss by the Group

Quality Dimension	Indicator	"Cut-off"[6]
Accuracy and reliability	Domain response rates; representativity indicators; achieved CVs of key variables in domains of interest	
Accuracy and reliability	Incompleteness of the diary in terms of the average time spent in un-codable activities and gaps such as times the respondent didn't know or couldn't remember what they were doing, or times they refused to provide info about her activities.	
Accuracy and reliability	Average or median number of activities per diary	
Accuracy and reliability	Unit nonresponse rate; item nonresponse rate; proxy rate	
Accuracy and reliability	Outgoing error rates; estimate of non-sampling error	
Timeliness and punctuality	Delay between expected and actual start and close of collection	
Timeliness and punctuality	Time between when data is collected until it is disseminated and available to the public	

Annex 1. *Graphic representation of the GSBPM*



Annex 2. *Illustrative example—Mapping GSBPM phases with quality assurance considerations (Morocco)*

Overview of the time-use survey quality process in Morocco

The High Commission for Planning (HCP) of Morocco has been developing and implementing frameworks, practices and tools to assess and improve the quality of statistics by targeting all the production process, from the design to the dissemination of statistical products, taking into account the multidimensional nature of quality, and its indicators, standards and benchmarks identified for each dimension.

The quality approach adopted by HCP involves the establishment of a Moroccan Statistical Quality Assessment Framework (MASQAF) based on international standards and best practices. The objective is to assess and address the possible quality gaps using the frameworks, tools and indicators to measure the existing level of quality. The process started by setting up a dedicated working group under the MEDSTAT[7] that is coordinating different departments and collaborating with Eurostat. The approach involves the establishment of the MASQAF that covers quality aspects and processes of the entire statistical value chain.

In the context of the time-use survey (TUS), the framework will be specifically applied by mapping the time-use survey steps to the Generic Statistical Process Model – GSBPM – (
Use a data collection management system make necessary and regular changes to improve data quality and checks of the structure and the integrity of the data.

- Use the systems established to extract information from the paper questionnaires, converting the formats, encoding the variables and applying editing rules that will be applied to the diary.
- Ensure systems are in place for the CAPI face to face data collection. This includes the applications for interviewers, supervisors and managers with a data management center for checking, updating, organizing and archiving data.

Process

- Utilize the HCP processes developed for the integration and anonymization of TUS data in order to protect the confidentiality.
- Use standard processing procedures to prepared the data for analysis including: check, clean, code, transform and aggregate.
- Apply procedures developed by HCP for identifying and dealing with incoherencies, potential problems, errors and discrepancies, outliers, non-responses, miscoding, including or excluding data, assigning data to missing values, dealing with errors/miscoding as well as flagging and imputations processes.
- Apply procedures to developed for deriving variables needed to deliver required outputs: aggregating, estimation and calculation of values and the calibration of weights to get required adjustments and outputs are developed.
- Apply procedures for final checking of requirements to produce both preliminary and final estimates.

[7] Euro-Mediterranean statistical cooperation programme, targeting south Mediterranean countries covering many sectors including the quality lead by Eurostat.

Analyse

- Apply the HCP TUS data transformation process to outputs, main figures and graphs, in order to maximize the value and capacity for the analysis and interpretation.
- Implement the process developed for validating the quality of outputs: identifying divergences from previous TUS surveys and from expectations as well as the consistency by confronting to internal data (LFS, National accounts data, etc.) and external data (transport, education, health, protection, etc).
- Undertake the final output checking of the different types of outputs to ensure better understanding and interpretation of the statistics by assessing and viewing from various perspectives
- Include supporting information, interpretation, commentary, technical notes, briefings, approving the statistical content for release.
- Use in-depth analysis and modeling as well as techniques to estimates the unpaid domestic works end its costs estimates for the better understanding of these outputs.
- Conduct internal consultations and pre-release discussions with relevant, analysts and experts to approve the statistical content for release and dissemination.

Disseminate

- Include the process and methodological notes with necessary metadata and explanatory brochures on how to use TUS data and ensure confidentiality rules before uploading into output databases to make data available/accessible for users.
- Include a list of the expected and needed outputs and how/when these will be released: notes, reports, publications, press releases, web platform and data bases, etc.
- Include a dissemination strategy with the aim of reaching a wide audience, meet all needs and try to adapt outputs to the typology of users' groups.

Evaluate

- Undertake a thorough evaluation through feedbacks from users and evaluation materials. This will include:
  - A discussion on the data disseminated compared to those expected or to benchmarking results and highlight the specific gaps and needs. In order to produce regular data on TUS (at least each 5 years): consider integrating light diaries/stylized questions in other sources for monitoring SDGs.
  - Explore and implement the new recommendations/tools for subsequent surveys.
- Explore new innovative ways and the use of ITC for the next TUS in order to enhance quality and minimize cost.

Adopt and adapt the ICATUS for the national needs and ensure continuity/comparability with previous TUS data and use innovative ways/tools in coding.) processes and phases, and identifying quality dimensions and indicators to measure each. The quality indicators will be determined based on the practices, platform and tools developed by HCP. They are based on both the European and the global framework of the National Quality Assurance Framework (NQAF)[8].

For example, in an initial step of a time-use survey, an assessment of the need and the demand for time-use statistics and the capacity to produce them should be undertaken. This is reflected in

[8] Developed by Eurostat and the expert group under the UN Statistical Commission.

the first phase of the GSBPM, "specify the data needs" that includes activities such as identifying the needs of users, consulting with users, establishing output objectives and preparing the business case.

The following outlines the actions the HCP will take to address TUS quality.

Specify Needs

- Ensure the need for relevant, regular and accurate statistics that measure and report time use patterns, including gender issues related are well identified.
- Establish an extensive consultation process with a broad range of data users and stakeholders (line ministries & UN & NGOs & scholars) to understand their needs and to set priorities. Confirm the strong commitment of the HCP to meet these needs by integrating the TUS in its regular statistical program.
- Ensure comparability over time and with other NSOs through consistent content, collection procedures and the application of standards (TUS concepts, modules, questions, ICATUS classifications, method), etc.
- Establish a process for implementing light diaries or stylized questions, where appropriate in existing surveys (LFS, LSMS, INCOME).
- Commence activities to modernize and digitize the TUS. Apply sound project management practices including costs, sample deliverables, time frame, budget, required technical /logistical / human resources, and the impact on stakeholders.

Design

- Ensure the TUS data items, indicators and outputs are well defined and follow existing standards. Determine questionnaires: household, individual, diary, variables (contextual, derived and qualitative, etc.) classifications , and list of activities and align these to relevant standards.
- Establish the most appropriate mode/s of data collection are where multi-modes are applied, maintain consistency between these.
- Design test and develop the instrument, procedures, manuals, methods, questions, response templates, skips, test, coding checks etc to collect accurate data.
- Design a sample frame for optimal coverage of all strata, regions, groups, 12 months over year, days (weekdays/ weekends, special) Specify the frames, routines and rules for coding, editing and imputing. Design and build diary data capture sources according to data collection mode.
- Define and develop a sound production workflow and process, from data collection to dissemination, taking an overview of all the processes required within the whole production process and ensuring all steps fit efficiently without gaps or redundancies.

Build

- Achieve a balance between data requirements and survey length to minimise respondent burden and impacts on data quality.
- Ensure the TUS application and its components (dashboard functions and features, data repositories, transformation tools, workflow framework components, metadata & management tools) is well developed.

- Implement innovative dissemination techniques and tools as well as a dedicated web plate-form to make the various outputs available for all users. This includes anonymized micro data.
- The workflow, data management system and transformations used within the business processes, from data collection to dissemination are well established and set up with consultation with HCP-regional offices.
- The scenarios/ tools of the survey instruments and diaries to ensure respondents' understanding of questions and the requirements are well explored and tested.
- Use a probabilistic, stratified and multistage sampling design to select the survey sample from the household master sampling.
- Implement rigorous, well tested field procedures to ensure consistency. This includes follow-up actions to encourage participation of respondents, deal with non responses and support team in the field.
- Produce and distribute to regional offices the documents on the process, technical manuals and procedures for field work training, and its management process.

Collect

- Set up the data collection strategy for training staff, resources to be mobilized (logistics: cars and drivers, laptops/tables and application, manuals and instruments, maps and sampling instruments, staff of interviewers and supervisors, etc.), calendar, processes, etc
- Prepare and launch advertising tools and survey promotion. The purpose of this is to make it easier to collaborate with local authorities, and secure the contact and cooperation of the respondents/interviewees, etc.
- The period in the field to be dedicated to data collection should be 12 months, with an average time for a household of 40 minutes using a face to face interview.
- Use a data collection management system make necessary and regular changes to improve data quality and checks of the structure and the integrity of the data.
- Use the systems established to extract information from the paper questionnaires, converting the formats, encoding the variables and applying editing rules that will be applied to the diary.
- Ensure systems are in place for the CAPI face to face data collection. This includes the applications for interviewers, supervisors and managers with a data management center for checking, updating, organizing and archiving data.

Process

- Utilize the HCP processes developed for the integration and anonymization of TUS data in order to protect the confidentiality.
- Use standard processing procedures to prepared the data for analysis including: check, clean, code, transform and aggregate.
- Apply procedures developed by HCP for identifying and dealing with incoherencies, potential problems, errors and discrepancies[9], outliers, non-responses, miscoding, including or excluding data, assigning data to missing values, dealing with errors/miscoding as well as flagging and imputations processes.

[9] For example: the total time of the diary is 1440 Minutes, the acceptable sleeping time, the travel time if the place changes/or not, etc.

- Apply procedures to developed for deriving variables needed to deliver required outputs: aggregating, estimation and calculation of values and the calibration of weights to get required adjustments and outputs are developed.
- Apply procedures for final checking of requirements to produce both preliminary and final estimates.

Analyse

- Apply the HCP TUS data transformation process to outputs, main figures and graphs, in order to maximize the value and capacity for the analysis and interpretation.
- Implement the process developed for validating the quality of outputs: identifying divergences from previous TUS surveys and from expectations as well as the consistency by confronting to internal data (LFS, National accounts data, etc.) and external data (transport, education, health, protection, etc).
- Undertake the final output checking of the different types of outputs to ensure better understanding and interpretation of the statistics by assessing and viewing from various perspectives
- Include supporting information, interpretation, commentary, technical notes, briefings, approving the statistical content for release.
- Use in-depth analysis and modeling as well as techniques to estimates the unpaid domestic works end its costs estimates for the better understanding of these outputs.
- Conduct internal consultations and pre-release discussions with relevant, analysts and experts10 to approve the statistical content for release and dissemination.

Disseminate

- Include the process and methodological notes with necessary metadata and explanatory brochures on how to use TUS data and ensure confidentiality rules before uploading into output databases to make data available/accessible for users.
- Include a list of the expected and needed outputs and how/when these will be released: notes, reports, publications, press releases, web platform and data bases, etc.
- Include a dissemination strategy with the aim of reaching a wide audience, meet all needs and try to adapt outputs to the typology of users' groups.

Evaluate

- Undertake a thorough evaluation through feedbacks from users and evaluation materials. This will include:
  - A discussion on the data disseminated compared to those expected or to benchmarking results and highlight the specific gaps and needs. In order to produce regular data on TUS (at least each 5 years): consider integrating light diaries/stylized questions in other sources for monitoring SDGs.
  - Explore and implement the new recommendations/tools for subsequent surveys.
- Explore new innovative ways and the use of ITC for the next TUS in order to enhance quality and minimize cost.
- Adopt and adapt the ICATUS for the national needs and ensure continuity/comparability with previous TUS data and use innovative ways/tools in coding.

[10] Deep analysis : statisticians, demographers, and econometrists were deeply involved during data analysis

Annex 3. *Illustrative example of assuring quality of key survey design features, with "cutoff" or minimum requirements (Australian Bureau of Statistics (ABS) 2006 TUS)*

Survey Design Feature	**Quality Dimension**	**Details**	**Minimum requirement (ABS)**
Type of survey	• Relevance • Cost effectiveness • Accuracy and reliability	What type of survey best provides data for the specified use objectives?	Household survey
Need to capture changing activity patterns in a year, such as: • Seasonality (e.g., economic activities) • Holidays • School days	• Relevance • Accuracy and reliability	Do the analytical objectives of the survey require data on activity patterns in a year?	If no—not needed. If yes, sample of assigned days should represent all seasons.
Response rate	Accuracy and reliability	What is the minimum response rate required?	Aim for as close to 100%
Frequency or periodicity of data collection on time use- e.g., • Annual • Every three years • Every five years • Every ten years	• Relevance • Timeliness • Cost-effectiveness	Considerations: • Objectives and use • Type of survey	Depends on considerations
Completion of background questionnaire where a diary is used	Accuracy and reliability	What percentage of the questionnaire should be completed in order for the selected respondent proceeds to the diary phase?	The entire questionnaire must be completed for survey respondent to progress to the diary phase
		Is it a requirement that the background questionnaire is completed for everyone in the household?	The entire household questionnaire must be completed for anyone in the

Survey Design Feature	Quality Dimension	Details	Minimum requirement (ABS)
			household to progress to the diary stage.
Days: number of days	• Relevance • Accuracy and reliability	How many diary days are reported for each person?	Two days
		If more than one day – do you have a cut off?	One day
Days: day selection	• Relevance • Accuracy and reliability	Are the diary days fixed for the household or can the respondent select their diary day?	Fixed
Time	Accuracy and reliability	Are there a minimum number of hours that must be reported for the diary to be included in analysis?	Minimum of 14 hours
		What is the diary time interval?	5 minutes
		At what time does the diary commence?	12am
Diary completeness	• Accuracy and reliability • Methodological soundness	Is there a minimum number of activities that must be reported for the diary to be included in the analysis?	Minimum of 5 activities excluding sleep
		Do you output episodes?	Yes
		How do you calculate an episode?	A change in any component of the diary
		Do you have a minimum episode requirement?	6
		Are there priority columns that must be completed	The activity column is the main column. If it is completed to the above

Survey Design Feature	Quality Dimension	Details	Minimum requirement (ABS)
			requirements a diary is included in the analysis
		How do respondents report their activities? Self-completion or interviewers	Self-completion via paper diary
		What is the minimum number of diaries that must be completed for the household to be included in analysis?	One diary
Contextual information	Relevance	What contextual information do you collect in the diary?	For whom Secondary activity Location Who with
	Relevance	Which of these are critical for including the diary in analysis?	
	Relevance	Do you ask any other additional questions in the diary?	Yes – personalised questions such as whether it was a typical day.
Diary processing: Imputation	Accuracy and reliability	Are activities added to the diaries during editing? For example: eating, sleeping, addition of travel when location has changed, gaps?	Yes
		For interviewer administered diaries, do interviewers prompt for missing activities	N/A – self completion diary
		Is the contextual information imputed when there is sufficient information in the diary to support this?	Yes

Survey Design Feature	Quality Dimension	Details	Minimum requirement (ABS)
		For countries collecting secondary activities, are activities swapped to main activities based on their 'perceived' priority?	Yes
Classification	• Coherence and comparability • Relevance	Which activity classification do you use to code activities (ICATUS, HETUS, Other)?	ABS activity classification