CHANGES TO THE MONTHLY ACCOMMODATION SERVICES SURVEY METHODOLOGY
2014

1.   Introduction

The National Bureau of Statistics is proposing to amend the methodology used in conduct of the Monthly Accommodation Services Survey (MASS) and seek user feedback on the proposed changes.

The information collected from the (MASS) is published quarterly in the Hotel Statistics publication. This bulletin shows data for rooms and beds available and occupied by location and accommodation type.

The data for location is presented for:

- Mahe
- Praslin
- La Digue
- Other Islands

The data for accommodation type is presented for:

- **Hotels** – Accommodation establishments with 25 rooms and above as defined by the Seychelles Tourism Board (STB).

- **Guesthouses** - This includes Bed and Breakfast Guesthouses; Luxury Villas; Small Hotels with up to 24 rooms.

- **Self Caterings** – Establishments that provide lodging or sleeping accommodation to the public for hire, in which the facilities and equipment are provided for guests or clients to cook or prepare their own meals.

   Also included are Fast-Tracks, that is existing establishments which were operating illegally to license themselves of which the criteria used was not as demanding as that of a normal Self-catering establishment.

The latest publication on bed and room occupancy is accessible at

http://www.nbs.gov.sc/wp-content/uploads/2013/10/Hotel-Statistics_2013-Q3.pdf

Population

The list of all active accommodation establishments is obtained from the STB and was last updated in January 2014. While this listing contains cafes and restaurants this is not required for the MASS and is automatically excluded from the list of active accommodation establishments.   There are currently 437 active accommodation establishments used by the NBS.

The list of active accommodation establishments by location are:

- Mahe – 233
- Praslin – 112
- La Digue – 74
- Other Islands – 18

The list of active accommodation establishments by location are:

- Hotels - 29
- Guesthouses - 113
- Self Catering (including Fast Track) - 295

2.   Current Methodology for MASS

The current methodology for the MASS is full enumeration (a census).

In a census the objective is to collect data in relation to every member of the population under study.

The advantages include:

- Data will be truly representative of the whole population;
- Data are generally available at highly disaggregated levels,
- Benchmark data may be obtained for future studies, This can then be used to determine a suitable sampling frame (or list of the members of a population or group) for future surveys

The main disadvantages of a census are:

- Resource costs are large, both in staff and monetary terms;
- The number of questions asked has to be kept as small as possible, so as to minimize both the reporting burden on data providers and costs;
- It may be difficult to approach all members of the population within a reasonable time; and

- Processing time is slow, so the results may become available too late to be useful.

A full enumeration of the target population may be a very large project with associated logistical problems. This can lead to errors in the resultant data output that could be avoided in a smaller survey. Thus, a small survey conducted effectively may result in higher quality results than a full scale census where available resources can be stretched too far.

3. Proposed Change in Methodology

It is proposed to implement a _weighted sample survey_ for guesthouses and self catering accommodation establishments, while continuing a _census_ of large hotels.

In a sample survey, only a part of the total population is approached for information on the topic under study. These data are then 'expanded' or 'weighted' to represent the target population as a whole.

Advantages of sample surveys include:

- Resource costs are generally significantly lower than for a census;
- More, or more detailed, questions can be asked; and
- Results can be available far more quickly.

The major disadvantages of sample surveys are:

- Data may not be representative of the total population, particularly where the number of respondents is small; and
- Finely classified data (e.g. small area data) are generally not available.

3.1   Sample size

Choosing a sample size for a survey involves considering factors such as:

- Available resources
    — Time
    — Money
    — Personnel
    — Equipment (e.g. computers, software, envelopes)

 The extent of resources available may dictate the scale of the survey.

- The required accuracy of the results
    — Acceptable margin of error
    — The level of confidence required

The sample proposed for the MASS is **121** out of the population of **437** accommodation establishments.

3.2   Sample Design

A **'stratified sampling'** will be used. A probability sample selection method in which the population is divided into homogeneous groups (strata) with different sampling methods applied to the different strata.

The strata of the MASS will be **by** Accommodation Type **by** Location.

The Accommodation type refers to:

- Hotels
- Guesthouses
- Self Catering

The Location refers to:

- Mahe Central
- Mahe North
- Mahe East
- Mahe South
- Mahe West
- Praslin
- La Digue
- Other Islands

In each strata there will be **Completely Enumerated (CE'd)** establishments. That is, establishments which are always in the survey and do not rotate out like sampled establishments. These establishments represent the larger units in that strata with the number of beds available greater than a set cutoff limit (this cutoff will vary for different location).

Table 1: Coverage of Sample Survey by Accommodation Type

	Total Beds	Beds in Sample	% Coverage
Large Hotels	4542	4542	100.0%
Guesthouses	2134	878	41.1%
Self Catering	2434	896	36.8%
TOTAL	**9110**	**6316**	**69.3%**

Table 2: Survey sample size by Strata

LARGE HOTELS		
Location	**Number of Establishments in Strata**	**Number of Establishments CE'd**
Mahe	12	12
Praslin	11	11
La Digue	3	3
Other Islands	3	3

GUESTHOUSES				
Location	**Number of Establishments in Strata**	**Number of Establishments CE'd**	**Number of Establishments in Sample**	**Highest Weighting in Strata**
Mahe Central	6	1	1	5
Mahe North	21	5	2	6
Mahe East	10	2	2	5
Mahe South	10	2	1	5
Mahe West	4	1	1	3
Praslin	26	2	3	6
La Digue	24	1	4	10
Other Islands	12	3	1	5

SELF CATERING				
Location	Number of Establishments in Strata	Number of Establishments CE'd	Number of Establishments in Sample	Highest Weighting in Strata
Mahe Central	7	1	1	5
Mahe North	74	2	12	22
Mahe East	37	2	5	11
Mahe South	42	3	4	12
Mahe West	10	1	11	6
Praslin	75	1	10	12
La Digue	47	4	7	11
Other Islands	47	0	1	3

3.3 Sample Rotation

One of the primary requirements of the Accommodation Statistics is to provide a measure of change in the characteristics of the Tourism Industry over time, for both month-to-month variation and longer trends over time. The best estimates of change from one month to the next would be obtained if the survey was collected from the same sample of accommodation establishments each month. However, it is neither reasonable nor representative to continually retain the same respondents in the survey. Instead a proportion of the sample is replaced each year in order to measure changes in the accommodation market while also ensuring the survey is representative. This procedure is known as **sample rotation**.

It is proposed that one-quarter of the sample be replaced every six month. The sample can be thought of as consisting of four sub-samples (or rotation groups), and every six months one rotation group which is a new sample of establishments replaces a sample of establishments which has been in the Monthly Accommodation Survey for the previous two years. The establishments in the replacement sample will come from the same strata as the establishments they replaced.

Sample rotation enables reliable measures of monthly change in tourism statistics to be compiled, as three-quarters of the sample from one month are retained for the next month's survey. At the same time, the sample rotation procedure ensures that no establishment is retained in the sample for more than two years.

The component of the sample that is common from one month to the next makes it possible to reduce the sample error when deriving growth rates: this is referred to as the **'matched sample'**.

3.4   Editing

Editing is used in the NBS MASS to correct a number of non-sampling errors such as those introduced by misunderstanding of questions or instructions, miscoding, non-availability of data, incorrect transcription, non-response and non-contact. Editing can be performed both on the values collected from respondents and on the accumulated survey results as part of the estimation process.

3.5   Estimation

For non-responding units in the sampled strata, the existing weights for the responding establishments will be revised in order to reflect the number of beds in the strata.

For non-response units in the completely enumerated strata, an imputed growth rate is applied to the most recent reported data for the unit, provided that data was reported in either of the two previous quarters. Growth rates are estimated from live CE sector respondents in the most recent cycle. Otherwise data is imputed based on the previously reported occupancy.

Survey outliers are treated using the **'surprise outlier'** technique.

The 'surprise outlier' technique is used to deal with a selected unit which is grossly extreme for a number of variables. The approach treats each outlier as if it were the only extreme unit in the stratum population. The outlier is given a weight of one, as if it had been selected in a CE'd stratum. As a result of the outlier's movement to the CE'd stratum, the weight for units in the outlier's selection stratum has to be recalculated, as the population and sample size have effectively been reduced by one. This has the effect that the other population units which would have been represented by the outlier are now represented by the average of the other units in the stratum. Therefore the choice of treatments for a suspected outlier using the surprise outlier approach are either for it to represent all of the units it would normally represent or to represent no units other than itself. It is preferable to set a maximum number of surprise outliers which can be identified in any one survey.

Adjustments maybe made to survey estimates each year to allow for births and deaths of businesses that have occurred up to the end of the survey reference period but which are not reflected on the survey frame.

4.   Future Improvements

The NBS plans to investigate sources of data for non-land accommodation such as yachts and luxury liners, as well as ensure complete coverage of establishments located in Seychelles.

5.   User Feedback

We welcome any user feedback and suggestions regarding the changes in methodology for the Monthly Accommodation Survey by **Friday 31 January 2014**. For more information please contact **Ms. Laurenia Pouponneau** on telephone **4611671** or via email **Laurenia@nbs.gov.sc**