



TECHNICAL ASSISTANCE REPORT

SEYCHELLES

Report on the Consumer Price Index Mission
(April 22–26, 2024)

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Table of Contents

Acronyms and Abbreviations	2
Summary of Mission Outcomes and Priority Recommendations.....	3
Section I. Detailed Technical Assessment and Recommendations	5
A. Organization and Resources.....	5
B. Scope and Purpose.....	5
C. Update of the CPI of Seychelles	5
D. Index Calculations	7
E. Missing Prices, Imputed Prices, and Variety Replacements	8
F. Dissemination.....	8
G. Other Discussions and Recommendations.....	9
H. Officials Met During the Mission.....	11

Acronyms and Abbreviations

AFS	IMF's Regional Technical Assistance Center for Southern Africa- AFRITAC South
COICOP	Classification of Individual Consumption According to Purpose
CPI	Consumer Price Index
EA	Elementary Aggregate
HBS	Household Budget Survey
IMF	International Monetary Fund
NA	National Accounts
NBS	National Bureau of Statistics of Seychelles
OOH	Owner-Occupied Housing
PPI	Producer Price Index
SADC	Southern African Development Community
TA	Technical Assistance

Summary of Mission Outcomes and Priority Recommendations

- 1. A technical assistance (TA) mission on the Consumer Price Index (CPI), sponsored by IMF AFRITAC South (AFS),¹ was conducted during April 22–26, 2024 to the National Bureau of Statistics of Seychelles (NBS).** Previous missions on CPI were done in relation to the last CPI update in 2020/21.
- 2. The objectives of the mission were to assess the current CPI methodology and to identify areas with room for improvements including assisting the NBS with planning of the CPI update.** The main output of the mission is a detailed work plan guiding the NBS on their way forward.
- 3. The CPI of Seychelles broadly follows international guidelines and good practices, but some areas of methodological improvements were identified.** Seychelles is a small island, and the NBS is a small institution with high staff turnover and dependence on few key personnel. There is no internal documentation on how the CPI production is conducted, making the CPI vulnerable for staff turnover. The current compilation system also makes it difficult to follow best practices when it comes to matching samples, resampling and quality adjustment.
- 4. NBS currently compiles and disseminates a monthly CPI based on weights from the Household Budget Survey (HBS) of 2018/19.** The current expenditure weights are likely to be outdated and no longer be representative of the expenditure patterns of Seychellois households. Outdated weights can introduce bias in the index that hampers the reliability of the CPI. A new HBS is planned to be launched in June/July 2024 and is expected to be conducted over a 12-month period. The CPI update heavily depends on the results of the HBS. Implementation of the new COICOP (Classification of Individual Consumption According to Purpose) 2018 classification standard adds complexity to both HBS and the CPI update.
- 5. The NBS compiles a direct fixed basket index (i.e., prices of current month are directly compared to the corresponding prices of the average of 2020).** The direct index is chained to long-term series with index reference period 2014=100. During the last weight update in 2020/2021 the index reference period was not updated, and the current series are therefore chain-linked to the old series by using a fixed forward linking factor.
- 6. The mission provided recommendations concerning index compilation to better reflect best practices.** A Modified (short-term) Young index that puts emphasis on month-to-month chaining was demonstrated and recommended by the mission. A Young index keeps the expenditure shares as they are from the weight reference period (i.e., the period from when the HBS is conducted). This short-term index formula, recommended in the CPI Manual,² is more flexible and better facilitates updated samples of products and outlets.

¹ AFS provides TA and training to Angola, Botswana, Comoros, Eswatini, Lesotho, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Zambia, and Zimbabwe. AFS donors are the European Union, China, Switzerland, Germany, and UK.

² CPI Manual, Concepts and Methods, 2020 https://webapps.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_761444.pdf.

7. **A wide range of recommendations was put forward.** The mission underlined the importance of timely introduction of the new weights to avoid implementing “old” expenditure data when they finally are included in the CPI. At the same time, given limited resources, it is important to plan and to do the changes gradually. The NBS requested further CPI assistance on the wide scope of advised changes.

8. **To support progress in the above work areas, the mission recommended an action plan with the following priority recommendations.**

TABLE 1. Priority Recommendations

Target Date	Priority Recommendation	Responsible Institutions
July 2025	Make experimental chained short-term (month-to-month) relatives by calculating the Modified Young index and compare current and new methodology for a period of at least six months.	NBS
November 2025	Develop CPI weights based on COICOP 2018 and HBS 2024/25.	NBS
February 2026	Implement new methodology for CPI including new weight, price and index reference period and a new classification standard.	NBS

Section I. Detailed Technical Assessment and Recommendations

A. ORGANIZATION AND RESOURCES

9. The NBS of Seychelles is responsible for collecting and compiling the national CPI. The Economic Statistics Section of NBS covers statistics like CPI, Producer Price Index (PPI), Industrial Production Index, National Accounts (NA) and more. CPI staff consists of two people responsible for the central data collection, compilation, analysis, and dissemination of the index while less than 10 people are involved in the data collection in the field. The head office CPI staff are also involved with other statistics like the PPI and Employment.

10. The CPI staff are eager to learn and underlined the need for methodology training, also for the data collectors in the field. The NBS personnel working in the field have limited training in specific CPI procedures and concepts, they cover different NBS surveys and there is a need to increase CPI knowledge, especially related to data collection and topics like price concept, item replacements and item specifications etc. The head office CPI staff are also lacking experience and capacity concerning a CPI update. They were not directly involved during the last update in 2020/21.

11. The NBS is a small institution with a high turnover of staff. Currently, there is no internal documentation in place to ensure the CPI production routines and methodology in case of staff turnover. The CPI is vulnerable given few key personnel. The mission stressed the importance of documentation to ensure not only the CPI production, but also the CPI quality in general. A template for internal documentation was made and discussed during the mission.

B. SCOPE AND PURPOSE

12. The CPI of Seychelles relates to the entire territory of the country in terms of expenditure coverage and covers all income groups. The index mainly follows a resident principle which means that the expenditure of the resident households of Seychelles is included in the index. The expenditure of the residents spent abroad is excluded. The many islands of Seychelles are popular holiday destination for tourists and tourism makes out a large part of the gross domestic product (GDP) of the NA. Nonresidents like tourist expenditures are excluded from the index. In addition, non-monetary expenditures are excluded like for instance owner-occupied housing (OOH). The CPI data collection covers the main Islands of Mahe, Praslin and La Digue where as many as 98.9 percent of the population resides according to HBS 2018/19.

13. The CPI all-item index serves different purposes. The CPI is used for indexations of wages and is the main inflation indicator used for monetary policy. The NBS also has obligations related to disseminating a Harmonized Index of the Southern Africa Development Community (SADC) which does not necessarily follows identical definitions as the national index of Seychelles.

C. UPDATE OF THE CPI OF SEYCHELLES

14. The current CPI is compiled and disseminated based on weights from the HBS of 2018/19. The NBS has well-organized HBSs and has been conducted on a regular basis, normally every five to

seven years. The previous CPI update that included the 2018/19 HBS figures was implemented as of January 2021.

15. The NBS is now in the final stages of planning the HBS 2024/25. The survey is planned to be launched in June/July 2024 and will go on for a 12-month period. The survey was initially planned for early 2024 but has been delayed. Social Statistics of NBS has been running a pilot survey to evaluate questionnaires and response rates. The sample design is changed since the previous survey; they plan to use both diary reporting and prefilled forms. During the mission there was discussion to try to include the new COICOP 2018 classification in the HBS. At present, it is unclear whether that will be achieved. Ideally, the HBS should make use of the new classification standard as the COICOP is a very integral part of both HBS and CPI, and it helps to create consistency across the statistics. The mission recommended implementation of the COICOP 2018 standard in CPI regardless of the final decisions made in the HBS. If the NBS cannot implement COICOP 2018 in the upcoming CPI update, they will most likely wait another five to seven years period before making use of the new standard.

16. Given that there is currently no available expenditure data, it is important to make detailed plans of the required tasks of the upcoming CPI update. The mission plans for an implementation of an updated CPI in January 2026, but to reach such a timely target date the CPI depends heavily on HBS data. With further delays it may be more natural to introduce the new weights and the new classification standard as of January 2027. The mission stresses the importance of including the expenditure data as soon as possible. The longer the period between the weight reference period (2024/25) and the actual implementation in the CPI (estimated to 2026) the more outdated the “new” expenditure weights will be. The new COICOP 2018 standard adds complexity to the CPI update. The HBS data needs to be reclassified and back data series needs to be calculated. Users will ask for comparable data series. The mission recommended to reaggregate the current indices in the period 2021 to 2025 by using COICOP 2018 based on the current weights and the current sample of goods and services. The NBS must be aware that there may be deviations in the series comparing official series with COICOP 1999 and new series with COICOP 2018 and that the official figures in the back data period will be the 2014=100 official series and not the comparable time series with the new standard. The NBS is advised to use the detailed index series that they have and “un-chain” the 2014=100 series by using the 2020=100 figures in the back data aggregation.

17. The NBS is advised to change the index reference period to the year before the actual implementation date. If they reach implementation in January 2026, the index reference period should be 2025=100. During the last update the index reference period was not updated. With both new weights and new classification standard in the CPI, it is important to alert to users that there are breaks in the index. Updating the index reference period is an efficient way of alerting the users of breaks in the series.

18. A CPI update also means updated samples of products and outlets. To reach timely introduction of the weights it will be important to get access to preliminary figures from HBS to start identifying and pricing products and to start coding to the COICOP 2018 standard. The mission recommended using an annual overlap to link the new CPI basket to the old one.

19. The recommendations put forward by the mission are comprehensive and therefore important to plan the different steps carefully. A gradual process is important given that the recommendations made require ongoing development work that puts pressure on the CPI staff having to update CPI methodology at the same time as publishing current official figures, which is the main priority.

Recommended Actions:

- Reduce the time lag between weight and price reference period as much as possible to introduce timely expenditure data.
- Plan and execute the CPI update according to the detailed work plan made during mission.

D. INDEX CALCULATIONS

20. The NBS calculates a direct fixed basket price index where prices of current period are compared directly to a fixed price reference period of the average prices of 2020 (2020=100). The index reference period was not updated during the last CPI update in 2021 hence, instead this index is chained with a fixed linking factor (December 2020 index) on monthly basis to achieve the long-term index of 2014=100. The forward factor raises the level of the new CPI series to that of the old series thus keeping the series on the old index reference period. Even though the NBS by definition uses a chained index, in practice the index works as a fixed basket index. It was not possible to get information on whether the weights during the previous CPI update implemented in 2021 were price-updated or not.

21. The Seychelles' CPI represents a small island economy, and no regional or island-specific indices are calculated. There is a user demand to assess the differences across the islands, but it is unclear whether it is price levels or price changes that are really demanded. The prices are collected for the three main islands of Mahe, Praslin and La Digue where most of the households live. The prices from these islands are grouped together with no further stratification.

22. The mission recommended to change the index compilation method by introducing a Modified Young index which was demonstrated and discussed during the mission. A monthly chained index (i.e., previous month is used as price reference month) will provide the NBS with greater flexibility for adoption of best practices when it comes to matching samples, resampling of goods and services, treatment of missing prices, and quality adjustments. The Young index indicates that the expenditure shares should be kept as they are from the HBS, hence avoiding price-updating the weights, in line with the guidelines of the 2020 CPI manual.

23. The PPI introduced a new production system in 2023 based on month-to-month calculations. The CPI staff also cover the compilation of the PPI, hence they are at least partly familiar with the short-term methodology. The PPI system replaced Excel spreadsheets with a system based on Python open-source code. The staff feel uncomfortable with the new software given that they have limited support in NBS for the code language. The staff expressed concern about the software itself given that it was difficult to get information on how the procedure behind the system works. The staff are reluctant, at least in the short run, to implement a similar system for the CPI. The mission underlined that a new production system should not currently be a top priority for the CPI as there are many other different steps to take for the CPI update before a new production system should be addressed. The CPI calculation system is based on Excel spreadsheets. Excel is known to be prone for errors and mistakes in formulas but compared to many countries with many different regional indices, the national index of Seychelles is less complex and easier to manage in Excel.

24. Calculations at lower levels mainly follow best practices and international recommendations. The geometric mean is used at elementary aggregate (EA) level to aggregate the different varieties' prices of different outlets or markets. Prices of fresh fruit and vegetables in addition to fresh fish and petrol are measured weekly to take into account the volatility in prices. The monthly price is

mainly calculated by making a geometric average of the weekly prices with some exceptions. The NBS is advised to streamline the calculations by making use of the geometric average consistently.

Recommended Actions:

- Use short-term relatives and monthly chaining instead of fixed long-term relatives for the index compilations.
- Calculate and compare the Modified Young index with official index for a period of at least six months.
- Use the geometric average on lower levels consistently.

E. MISSING PRICES, IMPUTED PRICES, AND VARIETY REPLACEMENTS

25. The treatment of temporarily missing prices is partly based on carrying forward the last reported price. During the mission the best treatment for missing prices was discussed. Temporarily missing prices should be imputed and imputed values should be stored and flagged in the compilation system. Repeating the last reported price, imputed prices are not “neutral” and may therefore influence the results. The practice of carrying forward prices introduces normally a downward bias into the index. The recommended approach would be to impute a temporarily missing price that reflects the change rate of other similar varieties (within the same EA).

26. The NBS does not do quality adjustment in the compilations. If a variety disappears, the current procedure is to limit the number of missing prices as much as possible by finding a variety replacement that is as similar as possible to the one that is either temporarily or permanently missing from the market. There is no adjustment for different quality of the compared varieties. This procedure shows that the NBS would benefit greatly from a new compilation system based on short-term relatives making it easier to include more representative varieties. If the data collector only selects similar varieties to the ones that disappear, and not necessarily consider the more popular ones, the index loses representativity and it hampers the credibility of the CPI.

Recommended Action:

- Do not carry forward last reported price for varieties that are missing but base the imputed price on the change rates of other similar varieties.

F. DISSEMINATION

27. The NBS publishes an extensive monthly CPI bulletin. The current Seychellois index publishes indices and change rates mainly at COICOP division level, but for the food category they break it further down to class level. They also make use of a separate broader national-specific classification consisting of the aggregated groups of “Fish,” “Other food,” and “Non-food.” The main classification standard should be the COICOP, and it should include all the goods and services that are in the index. Currently, there is an exception as the COICOP aggregate of fish only includes conserved and canned fish and not fresh fish. The “Fresh fish” index is only included in the “Fish” aggregate outside the COICOP classification. In addition, the CPI bulletin consists of figures on contributions to the month-on-month changes and to year-on-year changes calculated according to good international recommendations.

28. The NBS publishes a core inflation index based on the exclusion method which is the most used method. With this method the weights and prices of those items deemed volatile are

excluded from the index to capture the underlying trend of the data. In the Seychellois case the core inflation index excludes fresh fish and energy products like fuel and electricity. The NBS also publishes the exclusion component in their monthly CPI bulletin. The mission advised that this index dissemination could be stopped as it is expected to be limited use for such a mixed measurement. The mission also questions the need for publishing quarterly indices. The CPI is a monthly indicator and if not driven by specific user needs, one should consider excluding the quarterly indices in the CPI bulletin given the limited resources available.

29. The NBS should define their official inflation measurement by the year-on-year change rate. Currently, in the CPI monthly bulletin they put more emphasis on the 12-month rolling average as the headline inflation measurement. The Seychellois CPI publishes both change rates from the same month previous years (i.e., the year-on-year change rates as well as the rolling 12-month average). With the latter practice, each month, a rolling average of the last 12 months is calculated and compared to the average of the same periods in previous year. Hence, this measurement covers a broader period and smoothens the development over time. A headline inflation measurement should not adjust or smoothen the development. A 12-month rolling average is more suited as an analytical data series than an official inflation measurement. In line with good international practice, the official inflation rate should therefore be measured by the year-on-year change rates, and this should be underlined in the monthly CPI bulletin to avoid any confusion in actual inflation rates.

30. There is very limited information available on the methodology used in the Seychellois index. To increase transparency, trust and credibility of the CPI, methodological documentation should be made available for users both on the current methodology, but also on the methodological changes when those are made in the CPI.

Recommended Actions:

- Include all EA indices of the CPI in the COICOP classification.
- Remove quarterly figures and the exclusion component from the very extensive monthly CPI bulletin.
- Underline in the monthly CPI bulletin that the official inflation rate should be defined by the year-on-year change rates.
- Make methodological notes on the CPI available for users.

G. OTHER DISCUSSIONS AND RECOMMENDATIONS

31. In the CPI of Seychelles, only actual rentals are covered (i.e., imputed rentals are not). The Seychelles is a country where most households own their own dwelling. According to the HBS 2018/19 over 70 percent of the Seychellois households are homeowners. Given the high share of homeowners, a measure of owner-occupied housing (OOH) should be considered to acknowledge that there are costs related to owning your own home. Given the wide scope of changes set forward, the implementation of the OOH in the CPI will have lower priority.

32. Like in many other countries, the rental survey in the CPI of Seychelles struggles with high non-response. The NBS approaches the tenants to collect rent. The rental market of Seychelles is heterogeneous as there are many different types of landlords, for instance there is a high share of private households acting like landlords. Currently, the rental survey is split into two subsamples where they collect rents from the same household samples every second month. One suggestion that was discussed to preserve monthly changes and at the same time reduce the response burden, was to use a larger

sample that is split into even smaller subsamples resulting in even more seldom re-contact. The monthly rent change obtained is the geometric average of the total change rate. If for instance, one splits the sample into six subsamples, the monthly change is the sixth root of the sum of the sample rent of current period to the corresponding sample rent of previous period. Replacing dwellings that are no longer on the market is difficult. The NBS was advised to establish a larger sample based on the incoming results of the HBS and make a list of back-up rented units in case of need for replacements.

33. Data collection frequency varies across different durables, non-durables, and services.

Some semi-durable goods are measured less frequently than monthly, for instance clothing which is measured on a quarterly basis. The NBS is recommended to make some checks on regular intervals of the plausibility of the prices. If prices show stronger fluctuation than expected, an increased price collection frequency should be pursued.

34. In general, the CPI of Seychelles does not collect discount prices. The mission was told that most promotions and sales activity are linked to varieties on their way out of the market and the quality of the varieties being prices might have deteriorated. In these situations, it makes sense to avoid dumped prices often also linked to low sales volumes. However, if there are promotions, for instance in a supermarket, centrally displayed to attract people and are likely to have high volumes, these discount prices should be measured in the index. The CPI should measure the actual prices of varieties that the households buy. Discounts should be recorded provided that the quality does not change and that it's assumed that they are linked to high sales. This is an example of an area where some training could have been provided to the data collectors.

Recommended Actions:

- Increase the sample of rented dwellings and use several subsamples to reduce the response burden of the tenants, also create a back-up list for replacements.
- Make checks of prices of products that are collected less frequently than monthly whether the data collection frequency is still valid.
- Include sales prices if linked to high sales volumes.

H. OFFICIALS MET DURING THE MISSION

Name	Institution
Mrs. Li Fa Cheung Kai Suet, Chief Executive Officer	NBS
Mrs. Kirsten Arnephy, Senior Statistician, Prices unit	NBS
Ms. Rebeka Labiche, Statistician, Prices unit	NBS
Ms Virginie Hoareau, Statistician, National Accounts	NBS
Mr Burny Payet, Statistician, National Accounts	NBS
Ms Neela Ernesta, Statistician, National Accounts	NBS
Mr Kevin Bistoquet, Counterpart to the CEO	NBS
Tania Pouponneau, Statistician, Social Statistics	NBS
Ryan Madeleine, Statistician, Social Statistics	NBS
Mr. Naadir Hassan, Minister of Finance, National Planning and Trade of Seychelles	Ministry of Finance, National Planning and Trade of Seychelles