Technical Note

Methodology for the compilation of the Construction Price Index

(i) Introduction

A Construction Price Index measures the change in the level of construction prices. The construction industry is very broad and highly diversified with considerable variations from one type of construction to another. This makes it difficult to derive generalized indices that would be applicable to the industry as a whole. Hence, separate indices for the different types of construction need to be compiled. At present, Statistics Mauritius publishes an index that covers residential buildings only.

(ii) Types of Construction Price Indices

Different approaches to index number compilation are used depending on the purpose for which the index is required. There are two main types of construction price indices:

*The Output Price Index*
In this approach, specific projects representative of the various categories of construction works are selected as models and construction firms are surveyed and asked to provide estimates of the prevailing market prices for each of the projects. As such, the output price indices respond to the changes in prices of materials used and cost of labour, as well as changes in overhead costs and profits.

*The Input Price Index*
The index is based on prices of a representative selection of basic inputs (labour, plant, materials and transport) that go into the construction work. Hence, the input price index measures the change in the cost of resources to the contractor, and not the change in the price that the client pays.

The office opted for the input price index which, though more limiting than the output price index, is simpler and less expensive to construct and maintain.

(iii) Selection of representative dwelling

Since it would have been too time-consuming and costly to include all major types of residential dwellings, it was decided to restrict the index to a model dwelling, representing the most common type of dwelling in 2007. This model dwelling was determined on the basis of the 2000 Housing Census data and developments assumed to have taken place during the period 2000 to 2007. The drawings of the prototype model dwelling were provided by the Mauritius Housing Company Ltd. A description of the model is given at paragraph (viii) below.
(iv) **Weighting scheme**

The quantity survey work to determine the weighting pattern for the index was entrusted to a private Quantity Surveyor following established procedures.

Any given construction consists of an assembly of a certain number of stages or work categories. Sixteen stages or broad work categories were identified and detailed costs of inputs in terms of labour, plant, materials and transport that go into the construction of the selected model were calculated under each of the 16 work categories. The weights have been worked out in such a way that they can be presented in terms of inputs as well as work categories. For publication purposes, weights and sub-indices are shown not only for the 16 work categories, but also for the 4 broad input categories of labour, plant, materials and transport, the “materials” category being further sub-divided into 17 sub-categories.

Changes in the weight structure from 2001 to 2009 are given at the end of this technical note. It is noted that there has been some reclassification within work categories while new ones have been identified. Also within work categories there has been some changes in the product mix as well as the introduction of some new products.

(v) **Data collection**

The data needed for the computation of the index are collected every month from a sample of 50 outlets in 8 regions of the island. Prices are collected in respect of some 109 items, representative of all items that go into the computation of the index.

(vi) **Calculation of the Construction Price Index**

The Construction Price Index is a weighted average of price relatives of individual items, based on the modified Laspeyres formula:

\[
I_t = \frac{\sum W_i \left( \frac{P_{it}}{P_{io}} \right)}{\sum W_i} \times 100
\]

where
- \( I_t \) = index for current period \( t \)
- \( P_{io} \) = price of item \( i \) at base period 0
- \( P_{it} \) = price of item \( i \) at current period \( t \)
- \( W_i \) = weight of item \( i \)

The base period is the 2nd quarter of 2009.
(vii) Uses

a) Construction price indices give an indication of the change in the level of prices of construction works. As such, they are used as deflators for the measurement of real growth in the construction sector.

b) They are also useful for evaluating cost fluctuations in contracts regarding construction works and for renegotiating owner-tenant agreements.

(viii) Description of model dwelling

The model used is a single storey (ground floor) detached house of 138 square metres (1,485 square feet) in floor area measured at plinth level to the external face of the external walls. The overall area is inclusive of 18.55 square metres (200 square feet) in respect of a garage.

It comprises three bedrooms, a living-dining room, a kitchen, two toilets, a utility room, a bathroom, a verandah and an attached garage. The building has concrete block walls, reinforced concrete flat roof, internal flush plywood doors, aluminium openings for windows and entrance door, screeded floor and roof, tiling to floor and walls of w.c. and bathroom and kitchen worktop; the ceilings and walls are rendered and painted both internally and externally. Plumbing, sanitary installation and electrical installation are included as well as drainage which is to be connected to the sewerage system.

Provision has been made, in the form of more substantial foundations and of stub columns on the roof, for converting the single into a two-storey house eventually. Site works are restricted to spreading and leveling surplus excavated material around the site.

The index excludes the cost of the building permit and the draughtman’s fee.

It is assumed that although the house is not constructed by a contractor, the client has recourse to the services of a foreman.