



The Impact of Economic Crisis for the Construction Cost of a Residential House in Sri Lanka - 2022



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Construction industry plays an important role in the economy since it provides demand for the production of goods and services from other related industries. Activities of the construction are also vital to the achievement of national socio-economic development goals of providing shelter, infrastructure and employment. Output from the construction industry is a major and integral part of the national output, accounting for a sizeable proportion in the Gross Domestic Product (GDP) of both developed and underdeveloped countries. The construction industry is a major consideration to the development of economy in Sri Lanka as well. When consider about the economic crisis, this situation is starting from 2019 had an unprecedented effect on the Sri Lankan economy. The Easter bombings in 2019, the impact of the COVID-19 pandemic and short-sighted political decisions are basic causes to the economic crisis in Sri Lanka (Silva, 2021). This economic crisis changed the people's livelihood to an unexpected extent. Unprecedented levels of inflation, the almost complete depletion of foreign exchange reserves, a shortage of medical supplies, and an increase in the cost of essential commodities are the result of the economic crisis. However, construction industry also faces significant challenges and difficulties with the current economic crisis in Sri Lanka. Therefore, it is a vital to recognize the challengers and overcome the issues.

The construction work can be categorized into several portions. Those are modern housing, semi-permanent housing, all housing, non-residential building, irrigation, road projects, water projects and other civil projects (CIDA, June, 2022). This article is **based on modern housing** and it presents the construction cost analysis of a residential house situated in Malabe, Western province, Sri Lanka.

This house includes 7 bed rooms, 5 bath rooms, living area, pantry area and kitchen.

Aim

To identify the current building rates of a residential house based on a previous project data.

Objectives

- 1.To review the previous building rates of the residential buildings.
- 2.To explore the price changes in material, cost and labor.
- 3.To identify the current building rates of the residential building.

The construction sector plays a main role in developing the economy in most countries. Cost is one of the primary constraints on construction projects. Construction costs form part of the overall costs incurred during the development of a built asset such as a building. Very broadly, construction costs will be those costs incurred by the actual construction works themselves, and on some projects may be determined by the value of the contract with the main contractor. There are some major factors that affects the construction cost.

Analysis

As the very first step, the total area of the building was calculaed. Further, the floor area of each floor was measured separately.

Floor	Unit	Area
Ground	sq. ft.	3960
First	sq. ft.	1840
Total Area	sq. ft.	Rs. 5,800

- I.The cost of the construction material
- II.Labor wage rates
- III.Duration of the construction
- IV.Quality of the project
- V.Construction site and the location
- VI.Size & type of the project

However cost overrun is a general issue in the construction sector, with nine out of ten construction projects experiencing it (Musarat, et al., 2020). Two of the most significant variables among others that contribute to high construction cost include the cost of supplies and price fluctuations (Buba, 1993). In Sri Lanka one of the most important elements that affect cost overruns is inflation, which has a significant impact on how prices for building materials change over the course of a project. The cost of construction materials, particularly iron and steel, has increased. Steel prices increased by approximately 60%. The costs of the other main building materials also appeared to be rising quickly in the meantime. The abnormal price fluctuations for building supplies challenge the construction industry as well as the common society. Due to the unusual price changes of building materials, the cost variation of many projects is to the contract one-third of the overall cost (Huan & Jianhua, 2013). Construction industry is at a high risk with the current situation in Sri Lanka. Because the inflation rate is rising day by day. Therefore, the cost for the construction is rapidly increasing. With this situation, experts in construction industry cannot identify exact figure as a rate for sq. ft.

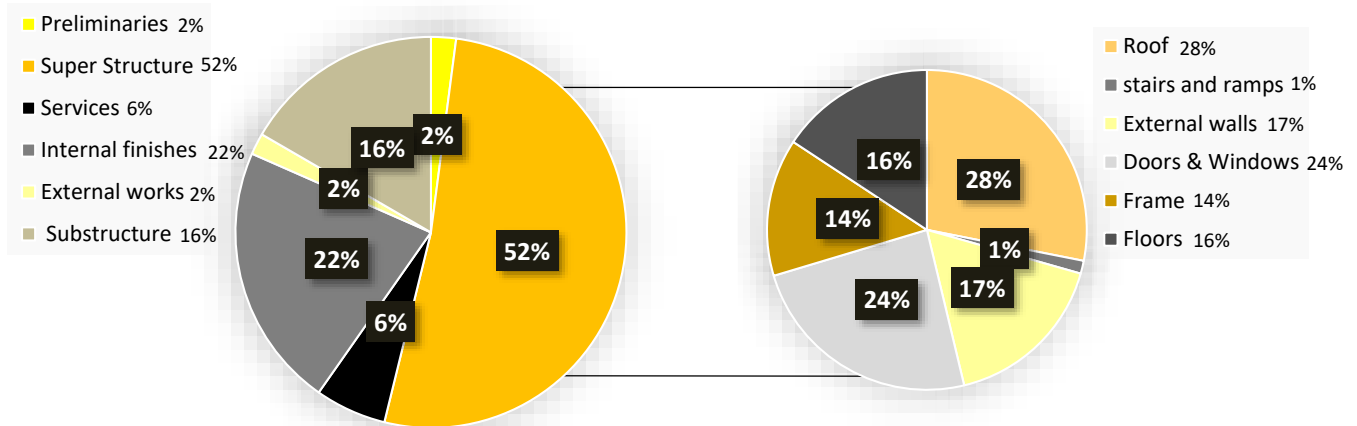
Then the BoQ amount was caluculated accordingly.

BoQ Amount	Rs. 29,761,249.06
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Then the BoQ amount was divide by the total floor area to calculate the rate per 1 sq. ft.

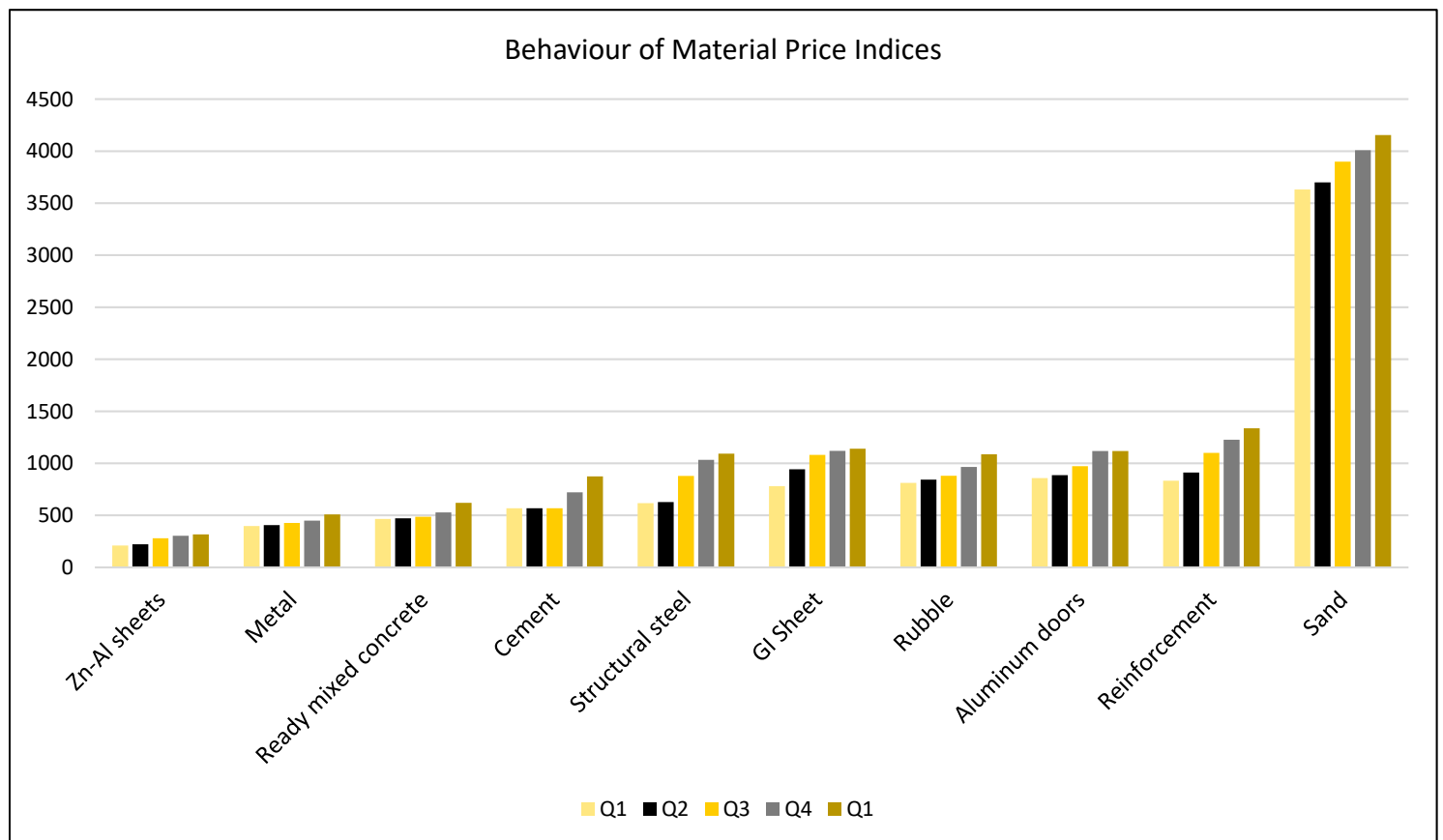
Rate per 1 sq. ft. = Rs. 5,131.25

Element	Percentage	Percentage from Super Structure	Rate per 1 sq. ft.
Super Structure	52%		Rs. 2,656.40
Roof	15%	28%	Rs. 746.63
stairs and ramps	1%	1%	Rs. 34.65
External walls	9%	17%	Rs. 447.37
Doors & Windows	12%	24%	Rs. 640.51
Frame	7%	14%	Rs. 369.33
Floors	8%	16%	Rs. 417.92
Services	6%		Rs. 302.57
Internal finishes	22%		Rs. 1,121.59
External works	2%		Rs. 90.77
Substructure	17%		Rs. 853.90
Preliminaries	2%		Rs. 106.03
Total	100%		Rs. 5,131.25

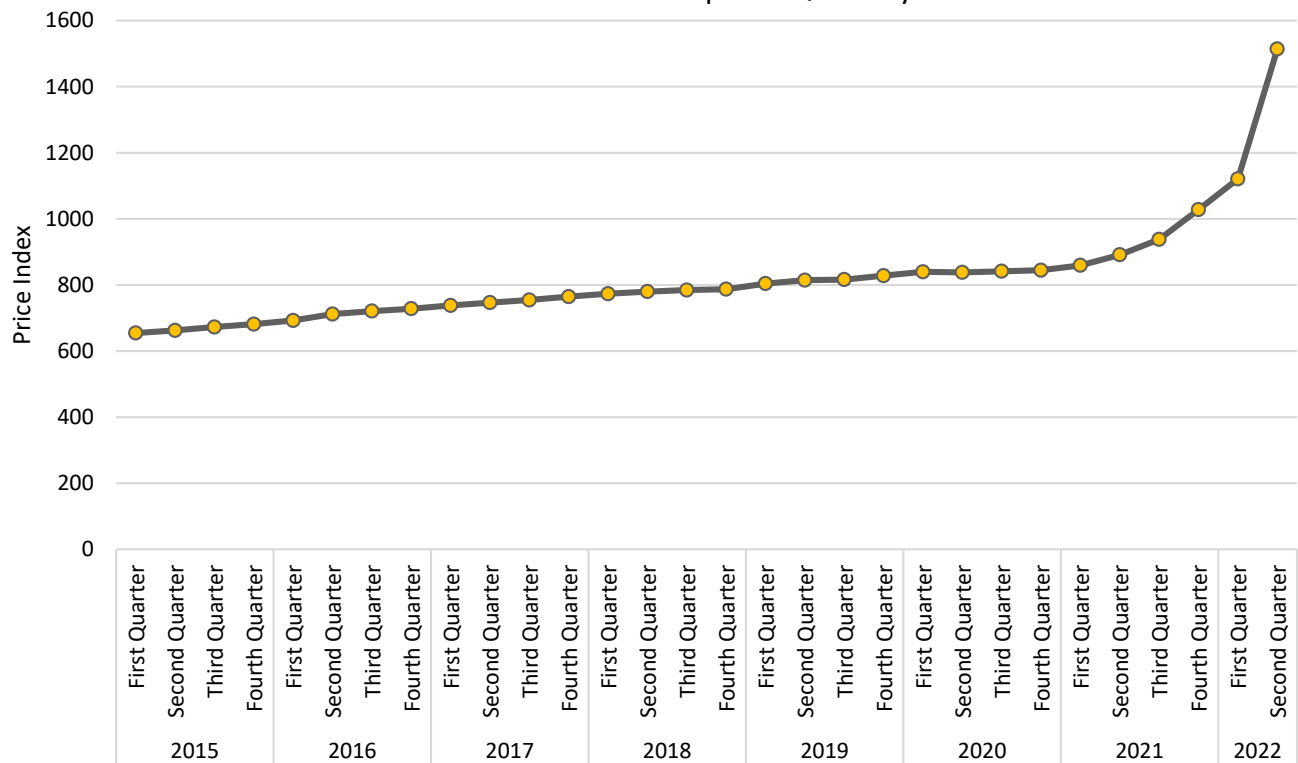


The above pie chart illustrates the proportions of total construction cost of a residential building held by six main categories. According to the graph, superstructure, which has the largest proportion, accounted for 52% of the total construction cost. Then, the superstructure was categorized in to six parts as roof, stairs and ramp, external walls, doors and windows, frame and floors. In superstructure, doors and windows accounted for 24% which is the largest proportion.

The following graph illustrates the behavior of the price indices of main construction materials from the 1st quarter in 2021 to the 1st quarter in 2022.



Cost Indices of Modern House
of Construction Work Computed Quarterly



This graph indicates the quarterly changes in price indices of labor & commonly used building materials. Prices of most of the building materials continue to increase up to the year 2022. Significant increases are shown in cement, reinforcement, aluminum, asbestos sheets, metal and etc. Furthermore, slight increases are shown in each material like bricks, sand, rubble and etc.

$$\text{Growth in price index} = \frac{(\text{current index} - \text{base index})}{\text{Base index}}$$

Current index = 1513.9

Base index = 891.3

$$= \frac{(1513.9 - 891.3)}{891.3} \times 100\%$$

$$= 69.853\%$$

$$\approx 70\%$$

Element	Percentage	Percentage from Super Structure	Rate per 1 sq.ft
Super Structure	51.8%		Rs. 4,515.87
Roof	14.6%	28%	Rs. 1,269.28
stairs and ramps	0.7%	1%	Rs. 58.90
External walls	8.7%	17%	Rs. 760.53
Doors & Windows	12.5%	24%	Rs. 1,088.86
Frame	7.2%	14%	Rs. 627.85
Floors	8.1%	16%	Rs. 710.46
Services	5.9%		Rs. 514.36
Internal finishes	21.9%		Rs. 1,906.70
External works	1.8%		Rs. 154.31
Substructure	16.6%		Rs. 1,451.62
Preliminaries	2.1%		Rs. 180.26
Total	100%		Rs. 8,723.13

The previous square feet rate of the residential house is Rs. 5,131.25. Through the analysis, it was found that current square feet rate of this house has increased from about 70% due to the current inflation and economic crisis. Therefore, the current square feet rate of this residential house is about Rs. 8,723.13.

Summary

Construction has evolved into a pillar of the national economy as the construction industry in our country has slowly expanded. Building material is an essential component of the building engineering field since it serves as the material basis for all building production operations, including architectural design, building structure, construction, and building economy. The project is greatly impacted by changes in the cost of building materials, so it is important to manage these aspects. As a result of the current economic crisis in Sri Lanka, the construction cost has been changed drastically. This case study overviews the current squarefeet rate of the selected residential building which has been changed due to the price increasement of the construction material. The analysis was done based on the information collected from the contractors BoQ and CIDA bulletin 2022. Generally the current squarefeet rate has been changed from about 70% compare to the date which the BoQ was prepared (2021).

Limitations

There are several limitations in this study.

- There are only one case was studied.
- This is limited to the residential housing.
- This rate analysis is totally depending on contractors BoQ.

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