

QS1010

Introduction to Construction Industry

Coursework

**The Role of the Construction Industry
in the National Economy**

Student Name(s)	Reg. No.
Hasbi H.M.M	232629H
Jathusa T	232639M
Karunarathna K.V.V	232643U
Weerasinghe W.A.C.T	232683P
DE Silva S.A.G.K	232698P
Siriwardana H.M.R.S	232721H

Module Lecturers : Prof. Yasangika Sandanayake
: Ch. QS. Prof. B.A.K.S. Perera
: Dr. Kapila Devapriya
: Mr. Yasith Sandaruwan
: Ms. Erandi Illeperuma
: Ms. Piyumi Thennakoon

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Department of Building Economics
University of Moratuwa

Coursework Brief and Feedback Form	
Degree programme title	Degree of Bachelor of Science Honours in Quantity Surveying
Module number and title	QS1010 – Introduction to Construction Industry
Lecturer(s) name(s)	Prof. Yasangika Sandanayake Ch. QS. Prof. B.A.K.S. Perera Dr. Kapila Devapriya Mr. Yasith Sandaruwan Ms. Erandi Illeperuma Ms. Piyumi Thennakoon
Moderator(s) name(s)	Dr. Menaha Thayaparan
Course work title	The Role of the Construction Industry in the National Economy
Set date	11 th May 2024
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Date of submission	22 nd June 2024
Dates of presentations	22 nd June 2024 & 29 th June 2024
Student declaration	
<i>We confirm that the works submitted for this assignment are our own work</i>	

Student names / Signatures (Signatures not needed for Moodle Submissions)			

Stamp for date receipt of the assignment (applicable only for hard-copy submission)

Topic
The Role of the Construction Industry in the National Economy

Objectives
<ul style="list-style-type: none"> ▪ To enhance knowledge on the characteristics of the construction industry, its contribution to national economy and role of the government in construction. ▪ To improve presentation, analytical and creativity skills of the students. ▪ To promote teamwork among students.

Background
<p>The construction industry plays a pivotal role in driving economic growth and development in countries around the world. In Sri Lanka, the construction sector has historically been a significant contributor to GDP, employment generation, and infrastructure development. However, like many other countries, Sri Lanka has faced economic challenges in recent years, including periods of crisis and downturn. The economic crisis in Sri Lanka has had far-reaching impacts on various sectors, including construction.</p>
Tasks

<p>Task 1: Contribution of the Construction Industry to the Economic Growth</p> <p>Students are required to review the contribution of the construction industry to the economic growth of a country highlighting its direct and indirect impacts on GDP, employment, and other economic indicators.</p>
<p>Task 2: Impact of Economic Crisis on the Construction Industry in Sri Lanka</p> <p>Students are required refer to recent economic crisis in Sri Lanka and recognise how has the construction industry been affected by the economic crisis.</p>
<p>Task 3: Government Strategies to Revive the Construction Sector</p> <p>Students are required to analyses the: (a) strategies implemented, and (b) strategies to be implemented (by referring to global similar case studies) by the Sri Lankan government to revive the construction industry during the economic downturn.</p>

Methodology

- Students shall work in groups with a maximum of five (05) members each.
- Students are required to carry out a literature survey/search and collect the essential materials/contents by reviewing the reliable/quality sources such as official web sites, journal papers, conference articles, newspaper articles, magazines, TV news and discussion programs, and other sources. You shall produce the evidence of the sources as annexures in a separate folder along with your submission.
- Following submissions should be done to the LMS.

Submission	Format	Deadline Date (on/before)
Report	PDF Version	22 nd June 2024
Presentation	PDF Version	22 nd June 2024
Referred sources	Separate Folder (PDF, e-reports of all referred literature resources)	22 nd June 2024

- Furthermore, students are required to prepare for following assessments.

Assessment	Date
Interim Viva	01 st June 2024
Report	22 nd June 2024
Presentation (2 days)	22 nd June 2024 & 29 th June 2024

Interim Viva

- Each group will be interviewed for 20 minutes in the interim viva.
- Student shall upload all gathered resources (**up to 2 days before the Interim Viva**) to conduct Tasks 01,02 and 03 as a Folder to the Moodle.

- Students are required to have a sound knowledge on gathered and referred literature resources.

Report

- The word limitation for the report will be between 3,000 – 4,000 words.
- The report will include,
 - I. Duly filled CW brief
 - II. An introduction
 - III. The text, preferably in appropriate sections (literature review should state citations)
 - IV. Conclusions and Recommendations
 - V. References in accordance with APA referencing system.

Presentation

- Each group is required to prepare a presentation on their findings using MS Power Point.
- Each group is given a maximum duration of 10 minutes to present their findings and with follow up Q&A for 10 minutes.
- The presentation needs to comprise the followings:
 - a. Introduction - A brief introduction to the subject areas in focus, with its importance along with a brief structure of the presentation.
 - b. Body of the presentation (in appropriate sections in accordance with the tasks given).
 - c. References as per APA referencing style.

Assessment Criteria

FEEDBACK SHEET – INTERIM VIVA

Interim Viva Evaluation	Group Basis		Individual Basis		Total
	Group coordination and Teamwork	Preparedness for the Report submissions and Presentation	Submission of the relevant resources	Knowledge and Comprehensions of answers referring to the uploaded resources	
Maximum marks	25	25	10	40	100

Comments on report

Assessment Criteria

FEEDBACK SHEET - REPORT SUBMISSION

Report Evaluation	Group Basis							
	Presentation	Introduction to the Report	Task 01	Task 02	Task 03	Conclusion and Recommendation	Report writing and Reference	Total
Maximum marks	05	10	20	20	25	10	10	100

Comments on report

Assessment Criteria

FEEDBACK SHEET – PRESENTATION

Presentation Evaluation	Individual Basis					Group Basis				Total
	Knowledge and Comprehension	Confidence of talking in front of the audience	Use of appropriate voice	Presentation without reading from notes.	Professional attire	Creativity	Group Coordination	Time Management	Q & A	
Maximum marks	20	10	10	10	05	10	10	10	15	100
Student (s) names (s) / Reg. No.										

Comments on presentation

SUMMARY

Reg. No.	Student name	Interim Viva (10%)	Report (50%)	Presentation (40%)	Total CW marks (100%)

Note: Late course works are subjected to a penalty of five (05) marks for the first delayed 24 hours. Thereafter course work submissions will not be accepted and zero marks will be given.

Moderated by (name/s)	Dr. Menaha Thayaparan		
Signature	MT	Date	21.05.2024
Assessed by (name/s) (Examiner/s / Lecturer/s)			
Signature		Date	

Plagiarism, Cheating and Collusion

Plagiarism, cheating or collusion is regarded as a serious breach of the academic standards.

Students must carefully read the Academic Rules on Plagiarism, Cheating and Collusion.

RULES WILL BE STRICTLY ENFORCED

Acknowledgement

First of all, we wish to extend our heartfelt gratitude to our lecturers, Prof. Yasangika Sandanayake, Ch.QS.Prof.B.A.K.S.Perera, and Dr.Kapila Devapriya for unwavering support and guidance throughout the completion of this report. We also like to express our deep and sincere thanks to our project work lecturers, Mr.Yasith Sandaruwan, Mr.Erandi Illeperuma, and Ms.Piyumi Thennakoon for giving us guidance and strength to hurdle all the obstacles in making this report. And our heartfelt thanks to everyone who give support from every aspect. This report would not have reached its current state without their continuous support.

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1. Introduction

The construction industry has a strong connection with most of the other economic activities of a country. So, the construction industry plays a massive role in national economic growth. As a developing country, the construction industry in Sri Lanka has a robust contribution to Sri Lanka's GDP growth. But because of the present economic crisis, it is facing notable headwinds due to a lot of reasons. Due to the construction industry's huge role in the economy, Sri Lankan government implemented numerous strategies to revive it in many ways. But still, it is in danger, and there are a lot of strategies to be implemented.

Firstly, this report provides an analysis of how the construction industry contributes to the economic growth of a country through how it directly and indirectly impacts GDP, employment, infrastructure development, trade balance, real estate market, and industrial production in Sri Lanka. And then this offers a detailed examination about how the construction industry has been impacted by the current economic crisis in Sri Lanka by four main factors: insolvency, cost increases, lack of investment and unemployment. Finally, this supplies a detailed scrutiny about what are the strategies implemented by the Sri Lankan government to rejuvenate the construction industry during the economic falloff. And also, this furnishes a critical analysis regarding what are the strategies to be implemented by referring to global case studies.

So according to this report, you can learn about more things related to the robust relationship between the construction industry and national economic growth and how they have survived from each other's downturns. And also, you can get a good idea about how other countries revive their construction sector from downturns and how we can apply them to our own.

2. Contribution of construction industry to the economic growth

Construction industry is where buildings and structures come to life. Our economy heavily depends on the construction industry, which also make major contributions to its expansion and improvement. The industry has a significant impact on many different areas of the economy. We are expecting to examine the role that construction sector plays in Sri Lanka in stimulating the economy and ways in which it is growing, focusing on six specifics economic indicators.

2.1 Impact on Gross Domestic Product

Gross Domestic Product (GDP) is one of the major when it comes to evaluating indicators of economic performance. It does measure the total value of every good and service which produced in a country in certain period. It is used to compare the economic performance of different countries.

How does the construction industry directly impact GDP?

Gross Domestic Product is a monetary indicator of market values of all goods and services in a country. Construction sector notably influences a country's total GDP contributing to employment and economic growth. Construction projects serve as drivers of social and economic development, creating investment opportunities and supporting national goals. In construction industry GDP directly impact on value added GDP, employment and Gross fixed capital formation.

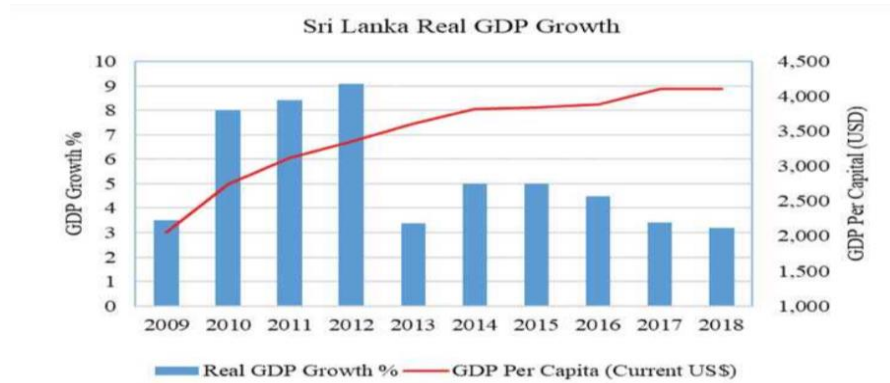


Figure 1 Contribution of construction-related Sri Lanka GDP Growth

The value-added method is one of the three methods to determine national income. The other two methods are the expenditure method and income method. The construction industry contributes to GDP through the value added from construction activities, they are infrastructure, residential and commercial projects. In developing countries, the construction industry represents larger part of GDP, due to rapid urbanization and infrastructure development. In developed countries, the construction industry generally contributes a smaller percentage to GDP, reflecting mature infrastructure.

How does the construction industry indirectly impact GDP?

There are numerous impacts of GDP in construction industry. Such as increasing housing supply by building new homes, infrastructure development, real estate and housing, developing new urban areas, attracting investments from construction of infrastructure, commercial and residential buildings. These factors collectively stimulate broader activity and contribute to sustained growth.

2.2 Impact on employment

Employment is a key economic driver and is an important measuring indicator of economic growth. According to the International Labor Organization's definition, unemployment is defined as people who are in working age without work, available for works and actively seeking for job opportunities.

How does the construction industry directly impact employment?

Construction industry is the main part of economic growth, particularly through its impact on employment. The direct impacts on employment are job creation, diverse opportunity

and training and skill development. The construction industry creates a lots of work opportunities like engineer, project managers, quantity surveyors, architects, masons, labors and electricians. For updating new technologies and modern buildings, the industry invests to workshops and skill development projects.

How does the construction industry indirectly impact employment?

The indirect impact of employment in the construction industry on economic growth is adoption of new construction technologies and innovations, urban development, government revenue, improve the efficiency of other sectors, creating job for educators and trainers and leading to job creation by attracting new investment. These factors collectively enhance overall economic performance and growth.

2.3 Impact on infrastructure development

Infrastructure development is one of the keyways the construction industry boosts the economy. The construction of roads, bridges, airports and other public facilities improves the countries transportation and connectivity, attract foreign investment and boost the economy.

How does the construction industry directly impact infrastructure development?

The direct impact of infrastructure development improves productivity, create jobs, boosts tourism, well developed infrastructure and urbanization and development. High quality infrastructure provides direct positives impacts such as higher efficiency, increased safety and decreased environmental impact.



Figure 2 Infrastructure Development- Sri Lanka Port City Project

How does the construction industry indirectly impact infrastructure development?

The indirect impact of infrastructure development is boosting related industries, enhancing productivity, supporting urbanization and stimulating regional growth. Infrastructure development helps urbanization by providing essential services like transportation, water and waste management. The construction of infrastructure boosts related industries such as steel, cement and equipment manufacturing.

2.4 Impact on the Trade Balance

The difference in value between a country's imports and exports over a specific time period is known as the trade of balance.

How does the construction industry directly impact the trade balance?

Export and import main inputs in the construction industry, such as raw materials, prefabricated materials, machinery and equipment, can directly impacts the trade balance. In Sri Lanka among the 16 categories construction related commodities, steel, cement, electrical items, machinery and ceramic products are the major 5 categories of imports. Steel ranks first among theses.

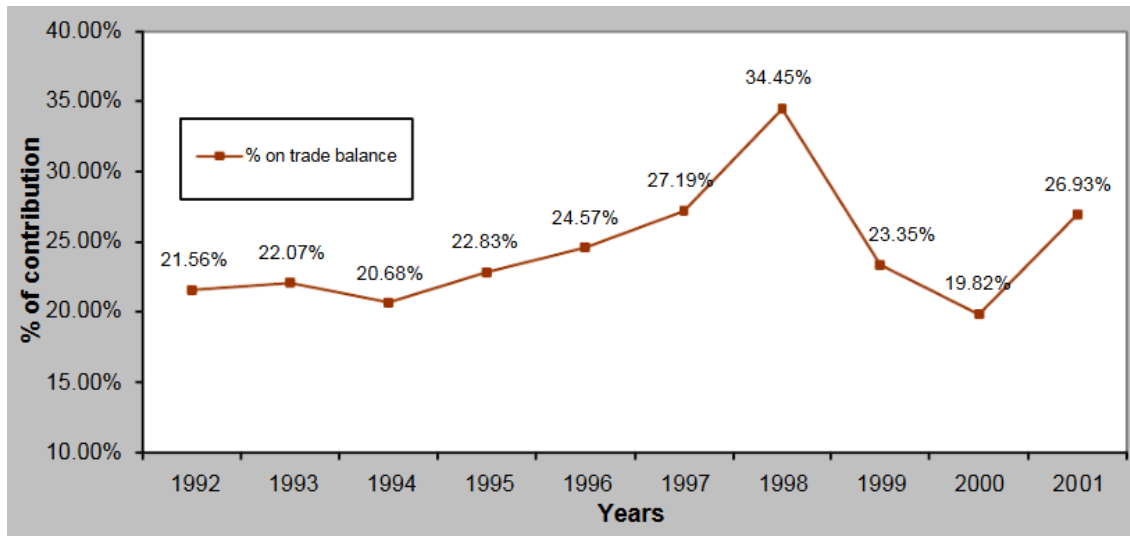


Figure 3 Contribution of Construction-Related Commodities to Trade Balance

Some countries with mature construction technology export construction services. Sri Lanka has seen contracts with various foreign construction companies, such as China Harbour Engineering, Taisei Corporation, China State Construction Engineering, and Mitsubishi Corporation.

How the construction industry indirectly impacts the trade balance?

Boosting upstream industries by driving a demand for various materials, equipment, and machinery, contributes to economic stability by job creating, adding value to GDP, and developing infrastructure, can increase the export rate.

2.5 Impact on the Real Estate Market

Real estate market is a complex of measures taken to find buyers or tenants for real property.

How does the construction industry directly impact the real estate market?

The real estate market is dependent on the construction industry. When there is a new project in the real estate market it will require new construction projects to be embarked to provide houses and office buildings for those who wish to purchase or rent on them. When there are a lot of construction developments happening on some area, it usually means that entrepreneurs and property holders are assured about the future and like to

invest in new properties. The real estate market can often be damaged when the construction industry is doing inefficiently, as people are unlikely to want to buy or rent a property. This is because poor construction industry means poor economy and when the economy is fragile people lose their confidence about their financial future, and so they are less likely to want to make an extended commitment like buying or renting a property.

When the new construction is going on some area especially infrastructure projects, such as highways, dams, and bridges can enhance the nearby property values.

How the construction industry indirectly impacts the real estate market?

The construction industry decreases the unemployment rate by generating jobs and stimulating other industries like manufacturing, transportation, and quarrying. A higher employment rate means people who are like to buy or rent properties are also high.

Construction projects often aim for urbanization. Driving a demand for urban renewal makes healthy environment for the real estate market.

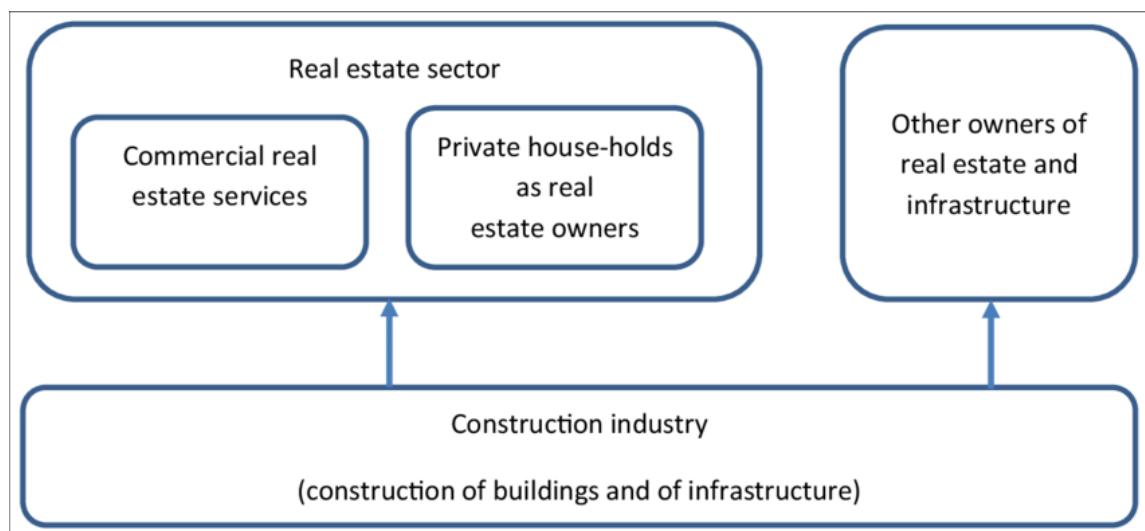


Figure 4 Relationship between Construction Industry and the Real Estate Market

2.6 Impact on Industrial Production

Industrial production is a measure the output of business integrated in industrial sector of the economy. In Sri Lanka, the largest ratio of the industrial sector is comprised of manufacturing businesses. Apart from that, the construction industry also had a prominent footprint in the industrial sector, with roughly 10% of Sri Lanka's entire economic output.

How does the construction industry directly impact industrial production?

Not only as a significant industrial sector but also by boosting other industries, especially manufacturing industry, the construction industry contributes to industrial production. Construction projects often required substantial quantity of raw materials such as steel, timber, cement, bricks, glass, ceramic products and prefabricated materials such as laminated timber, precast concrete, and modular steel, from the manufacturing industry. And also, construction industry driving a demand for manufacturing equipment such as bulldozers, cranes, compactors, jackhammers, concrete mixers and excavators.

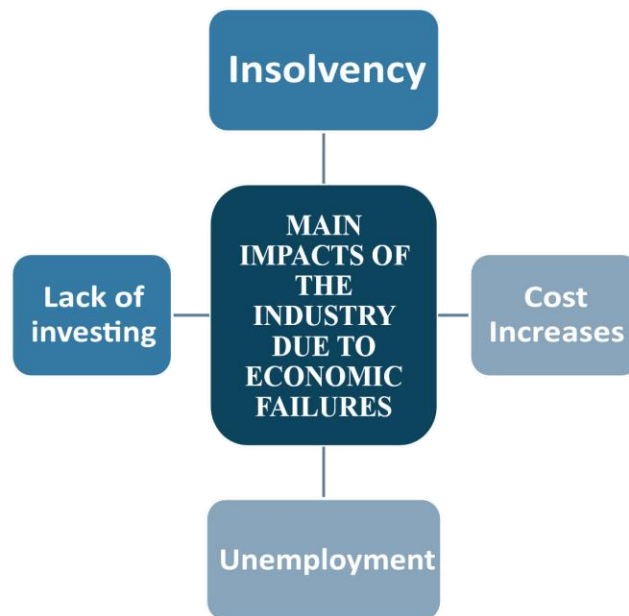
Also, implementation of new technologies and innovations such as BIM, 3D printing, drones, robotics and automation, and artificial intelligence drives invention in the related industries.

How does the construction industry indirectly impact industrial production?

Increase consumer spending by creating vary variety of jobs and developing infrastructure, can indirectly boost industrial production.

3. Impact of economic crisis on construction industry in Sri Lanka.

The construction industry is a major and most vulnerable industry in Sri Lankan context which is accounting for a notable share of GDP growth. Whether local or international riskiness is same. The economic downturn recently happened and COVID – 19 pandemics directly attacked the industry with more than half a million job losses. It has been spreading out all over the world by giving huge impact to the world economy. Sri Lanka is also fallen to the economic crisis and many industries were seriously affected by its direct impact. According to that Construction Industry has been identified to be one of the most affected industries by the COVID-19 pandemic. In addition, many large-scale construction firms headed up to either pause or execute projects they were working on. Susantha Liyanaarachchi, Head of the National Construction Association of Sri Lanka, said, “even though numerous projects have started during recent past governments, due to inability to complete the finance processes, the whole sector is in a great crisis”.



Insolvency	Project cancellations and delays	Due to the fiscal crisis of Sri Lanka significant number of projects cancelled and delayed. Sri Lankan government decided to suspend numerous state-sponsored projects. Due to inflation rises projects couldn't continue. In the private sector, companies started to temporarily stop ongoing projects. And some projects permanently stopped due to financing challenges.
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		<ul style="list-style-type: none"> ❖ Port city project has slowed its pace noticeably. ❖ In its meeting held on September 2023 the Cabinet took actions to cancel 1.5 billion worth Colombo Light Rail Transit project due to economic instability.
	Operational challenges	Rising service charges like drawing plans, surveying lands in industry caused these operational challenges mainly. That added an extra financial burden to construction firms in both public and private sectors.
	Budget overruns	Because of the crisis the cost of materials increased and estimated budgets weren't enough to continue ongoing projects anymore.
	Quality maintenance	In response to the economic pandemic some projects had to encounter design changes or sometimes scope reductions to maintain the quality. Concerning quality has led them to pay additional design fees and renegotiation fees. Due to additional quality maintaining costs, project suspensions happened.
Cost Increases	Supply chain interruption	Improper arrangement of supply chains due to high-cost increases caused delays in construction projects. And when supplying construction materials district to district, need to pay wages and fulfilling basic needs was a huge issue that contractors faced during covid 19 period. Clients had to have extra storage facilities and to extend Labour contract. In material distributing so many challenges came up due to disrupted supply systems.

	Inflation	Due to crisis impacts the cost of crucial materials like steel and cement significantly increased. Not only materials, costs of services also elevated. Increasing cost of living caused high wage demands of labours.
	Currency depreciation	Depreciation of Sri Lankan Rupee made the way to high increasing cost of materials. Most construction projects rely on imported materials. So, the extra cost was driven up. As a result of it, cost of domestic materials also elevated dramatically.

	Material shortage	Due to unbearable cost, it was difficult to find suitable materials for projects. And material shortage made the way to cost increases. Because of lacking essential elements some construction firms headed to use low quality materials.
	Import and transport restrictions	Trade restrictions and logistic challenges led to the downturn of industry because country hadn't enough foreign currency reserves. Due to importing restrictions construction firms were unable to import technological machineries and raw materials that needed to construction industry. ❖ Cement industry was one of the critical sectors faced risks when importing raw materials like gypsum.
unemployment	Payment delays	Because of cash flow problems in the industry there were significant wage delays in both private and government sector. That made employees come up with protests. Inability to pay salaries

		affected sudden cancellations of ongoing projects.
	Labour cost	Industry engages with high intense labor interactions across various skill levels. Because of elevation of living costs labours demanded high wages. As a result, labor cost increased dramatically.
	Workforce shortage	Due to economic instability, skilled labours started to emigrate, and people forced to stay at home during COVID – 19 pandemics. That directly led the way to brain drain. Without having skillful workforce, projects couldn't continue the constructions.
Lack of investors	Decrease demand for services	The economic uncertainty caused to reduce the demand for buying and constructing buildings in Sri Lanka. Contractors had to face bankruptcies because without demand there won't be any profit.
	Interest rates	Economic downturn has made the banks elevate their interest rates. Its influence forced low level contractors to execute ongoing projects. Numerous constructors depend on bank loans most of the time.
	Reduce funding and investments	Large, scaled projects always depend on foreign funds and investments. During period of crisis all foreign

4. Government strategies to revive the construction industry.

Strategies implemented by the Sri Lankan government to revive the construction industry during the economic downturn.

4.1 Minimizing construction cost

Following the economic crisis, the Sri Lankan government is implementing several steps to reduce construction costs.

- ❖ Reduction of imported construction materials by up to 30% by increasing local production of construction industry.
- ❖ Streamlining project approval procedures to cut down on time lags and overhead. Encouraging the use of locally produced building materials will reduce reliance on imports and the effects of exchange rate volatility.
- ❖ Promoting innovation in building techniques to attain cost effectiveness can switch to more environmentally friendly materials.
- ❖ Paying unpaid contractors to boost industry cash flow and bolster public trust.
- ❖ Setting important infrastructure projects as priorities to guarantee effective resource distribution.

(Daily FT, 2023)

Lean construction method was a major implement of Japanese construction firms. This helps to reduce transportation costs and decrease the wasting rates of material usage and mainly to implement proper labour interactions.

- Taisei corporation was using prefabricated elements for applying high rise buildings to reduce cost of labours and reduce the wastage significantly.
- Obayashi corporation in Japan has developed their own strategies to reduce their material utilization and labour intense because they used to focus on just-in-time delivery construction projects.

Sri Lanka can be modifying these techniques in the following ways for review and application

- Review
 - Identify waste
 - Compare to successful implementations
 - Include relevant parties
- Modify lean methods
 - Prefabrication – low-tech, locally focused techniques for smaller projects.
 - Just in time delivery – collaboration with local suppliers
 - Improved labor communication – regular meetings, cross-training, takt boards.
 - Standardization – increase productivity and decrease rework

4.2 Public private partnerships

Public-private partnerships are thought to be a useful instrument for helping Sri Lanka's construction sector emerge from the financial crisis.

- ❖ Development of investment zones with private sector participation.
- ❖ With limited public money, the government should use the private sector to support infrastructure projects.
- ❖ The private sector can provide project management and efficiency know-how which could result in quicker project completion and cheaper project costs.
- ❖ During the economic slump, PPPs could be utilized to renovate existing infrastructure, which may be more practical than starting from scratch.

(Daily FT, 2023)

Here Sri Lanka has already implemented PPP projects in key sector

“Like in power sector AES Kelanitissa 163 MW, Heladhanavi Puttalam 100 MW project. In port sector, Sri Lanka has implemented PPP projects like South Asia Gateway Terminals, Colombo Port Expansion Project.”

Due to economic downturn of countries, they mainly focused their attention to develop private-public partnerships for revive their construction firms. By partnerships both government and private investors could obtain more improvements in their ongoing projects. There are plenty of examples in global construction sector:

- Australia’s WestConnex project is a huge, scaled infrastructure project which built to reduce traffic flow and to low the travelling time inside the country. The important part is that projects is financed by both government and private investors. It enriched Sydney’s transport system.
- American Recovery and Reinvestment Act was a huge step that they started to come up through the 2008 economic crisis and that response elevated their project constructing acceleration. PPP helped to share the risk between both parties.

Sri Lanka can revive its construction industry through PPPs by:

- Focusing on critical infrastructure projects revenue streams
- Building a clear legal framework and government unit to manage PPPs
- Attracting investors with a stable environment, streamlined approvals, and a good credit rating
- Partnering with private firms for expertise and innovation.
- Educating the public and training officials on PPPs

4.3 Establishment of a committee with legal support

The Sri Lankan government established a construction industry revitalization committee to address the challenges faced by the following the economic crisis. While specific resolutions haven't been announced yet, the committee is likely looking into:

- ❖ Cost effective dispute resolution mechanism.
- ❖ Identifying gaps in existing contracts and recommending VAT improvements.
- ❖ Improve collaboration between industry stakeholders
- ❖ Increasing abundance material

The government of Pakistan has reduced their industrial corruption rate from strict policies and rules. Main aim of that is to increase foreign Investments. Still, they are having investments from China and Gulf countries. These policies also will help to reduce the corruption In Sri Lanka. Such as asking for commission from investors.

For reduce that:

- Promote ethical behaviors among employees and officials.
- Provide reliable medias to people to get correct ideas about current situations in country.
- Industries should be independent from politics. (Government projects should be open tendered)

Sri Lanka can fight corruption to revive construction by:

- Implementing stricter anti-corruption laws and enforcing them.
- Promoting ethics and transparency through codes of conduct and open information.
- Ensuring fair, competitive bidding for projects free from political influence.

These steps, combined with PPP strategies, will make Sri Lanka more attractive to foreign investors, boosting the construction industry.

4.4 Promotion of green building practices

Environmental sustainability and government measures have propelled Sri Lanka's green building industry forward recent years. Here's some points how green building projects can benefit the construction industry during the economic downturn:

- ❖ Lower operating costs because green buildings are made to use less energy and water.
- ❖ Enhanced resilience green buildings are more resilient to harsh weather events and other climate-related threats because they are frequently built using sturdy, locally sourced materials.
- ❖ Environmentally concerned investors and tenants are becoming more and more interested in green buildings, which can help bring much needed foreign cash to Sri Lanka's construction sector.

EX:

- Logistics Park, Colombo
- Clear point Residencies, Rajagiriya
- Cinnamon Bey, Beruwala
- MAS Intimates Thurulie, Thulhiriya

Singapore government focus on sustainability in construction projects. Their aim is to 80 % percent of buildings to be green mark Certified in 2030 as part of their Singapore green plan 2030. Still end of 2022, 55% of buildings are green mark certified. Water And energy efficiency is the main aim of these project. In Sri Lanka also have green technology added buildings, such as clear point, Kandalama resort. These projects also Conserve energy and absorb carbon in air.

To promote this concept:

- **Train professionals:** launch programs to educate architects, engineers, and construction workers on green building practices
- **Support green projects:** offer financial incentives to developers and building owners who pursue green building certification like “Green Mark”

- **Mandate green standards:** implement a green building rating system, requiring all new buildings to meet minimum green standards.

These steps will create a skilled workforce, encourage green development, and ensure a more sustainable future for Sri Lanka's construction industry.

4.5 Technology adoption

Adapting to the Technology then it's Very easy to the construct buildings. advanced technologies help to protect our time and money. After the economic crisis the government used new technology for their construction. Here's a glimpse into the technology adoption scenario:

- ❖ Building information modeling (BIM) - throughout the construction lifecycle, 3D modeling, and collaboration are made possible by BIM, which is the most extensively utilized technology.
- ❖ Drones – using drones to survey, map and track progress improves data collecting and safety.
- ❖ Other technologies – a small number of businesses are testing or implementing other technologies including 3D printing, virtual reality (VR), and augmented reality (AR).

(Sarahrudge, 2023)

Adapting to technology plays a major role to rebuild the construction sector from their failures. It requires significant effort to apply technological implements for ongoing projects. Technology adoption caused to reduce labour interaction mostly.

- Large construction firms such as Skanska and Bechtel corporation use highly improved drones to improve their quality maintenance and monitor project areas.
- Buildots company employees use AI and high-level computer vision technological supports for mapping and monitoring project areas.
- Doxol company usually uses high powered robot technology to ease their projects and reduce constructing timeline. By LiDAR sensors they are able to scan their sites.

Sri Lanka's construction industry can embrace technology by:

- Training workers on drones, AI, robotics, and LIDAR.
- Offering incentives for companies to adopt new technologies.
- Using technology to improve efficiency, control quality, and boost safety.

This will make the industry more competitive and revive it for the future.

5. Conclusion

Conclusion The construction industry is vital to the economy in any country. In Sri Lanka, the construction industry contributes a significant percentage to the GDP of the country and is considered to be one of the leading drivers of economic development. This report has highlighted several key areas where the construction industry significantly stands up in the national economy.

According to our investigation on the report, anyone who is interested in this sector can get a better idea about how the construction industry contributes to the national economy by directly and indirectly impacting GDP, employment, infrastructure development, trade balance, the real estate market, and industrial production, and also anyone can get useful information about how these economic indicators impact each other.

Secondly, by referring to the recent economic crisis in Sri Lanka, we discussed how the construction industry has been affected by the economic crisis by concerning the major problems that arose during the Pasku attack in 2019, the Corona pandemic period, and also the Sri Lankan protest series in 2022, commonly known as Aragalaya. Our detailed examination about these matters is very useful for future generations who would like to know why the construction industry downturned like this when it is one of our major sectors in the country.

Finally, analyzing the strategies implemented and to be implemented by the Sri Lankan government to revive the construction industry from these hurdles, we explored how our construction industry still has a huge chance of recovering and only needs special concern from the government. This analysis is extremely valuable for us, not only for our stakeholders but also for every Sri Lankan who is studying about these matters. And also, for the future generation who would like to do something for our mother Sri Lanka.

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7. Contribution

Task 1

- a) Jathusa T
- b) Karunarathna K.V.V

Task 2

- a) Hasbi H.M.M
- b) Weerasinghe W.A.C.T

Task 3

- a) De. Silva S.A.G.K
- b) Siriwardana H.M.R.S