A Study on Workforce Satisfaction in Construction Sector –

Case of L&T

A Doctoral Dissertation Submitted in Partial Fulfillment of the requirements for the award of the Degree of

DOCTOR OF PHILOSOPHY

IN

MANAGEMENT

By

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DECLARATION

I, Chivukula Vasudev, hereby declare that this thesis entitled "A Study on Workforce Satisfaction in Construction Sector – Case of L&T" in fulfilment of the requirements for the award of Degree of Doctor of Philosophy in Management Studies, is the outcome of an original study, free of plagiarism, undertaken by me, under the supervision of Prof. P. Jyothi, Professor, School of Management Studies, University of Hyderabad.

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Below are the details of Publications, Conferences & Coursework pursued during PhD.

A. Journal and Book Chapters Published

1. Chivukula Vasudev, (2023), "Workmen Relations in Construction Sector" – Article accepted for publication in Management Accountant Journal.
2. Chivukula Vasudev, (2018), "Human Relations in Infrastructure sector" (Excel India Publishing). – Chapter in Book.

B. Conferences and Workshops

1. Participated in International Conference on "Infrastructure Finance Development" organized by Indira Gandhi National Tribal University Amarkantak M.P. (2015).
2. "Awareness of Labour Laws for Information Technology and Enabled Services", conducted by Labour Department at Hyderabad on 8th August 2014.

Further, the student has passed the following courses towards fulfilment of the coursework requirement for PhD:

Course Code	Name	Credits	Pass/Fail
1. MS 826	Research Methodology	3	Pass
2. MS 801	Quantitative Methods	3	Pass

3. Self-Study	HR Issues in Infrastructure and Construction Works	3	Pass
4. Self-Study	Strategic HRM	3	Pass

Research Supervisor | Dean, School of Management Studies

(Prof. P. Jyothi) | (Prof. V. Mary Jessica)

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CHIVUKULA VASUDEV

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1.1 Background

1.1.1 Infrastructure - Definitions

According to the World Bank, “The term infrastructure is a broader term for several activities attributed to as “social over-head capital” by renowned development economists such as Paul Rosenstein-Rodan, Ragnar Nurkse and Albert Hirschman. The activities comprise technical features namely economies of scale and economic features namely spill overs from users to non-users, like:

- Public-service corporation – telecommunications, piped water supply, sewerage and sanitation utilities, solid waste disposal unit, piped gas, power and electrical grids
- Public works and facilities – construction of roadways and major canal, bridges and dam work for the purpose of irrigation and drainage
- Other transportation sector – urban transport, urban and interurban railways, airports, ports and waterways.”

In compliance with the India Infrastructure Sector, 2021, “Infrastructure is in general explained as the physical structure of facilities by which goods and services are given to the public. The connections to the economy are several and intricate, in view of the fact that it has an impact on production and consumption levels in a forthright manner, and constitutes negative and positive externalities, and entails undue flow of expenditure.

Infrastructure imparts a vital contribution towards the economic development, both by enhancing productivity and facilitating amenities which uplifts the quality of life. The enabled services give rise to production development in many ways:

- Infrastructure services are referred as intermediate inputs in production and any decline in these input product costs increases the profitability of production, therefore leading to high output levels, income and/or generation of employment.
- They boost the productivity of other factors which include other capital and labour. Infrastructure is hence illustrated as an “unpaid factor of

production", as its accessibility directs to enhance obtainable other capital and labour."

1.1.2 Infrastructure and Economic Development

Investment in infrastructure has a big impact on quality of life, employment creation, and economic growth. Governments must consequently carefully consider their investment priorities. India has faced difficulties with this. Such investment is driven by preconceived predispositions, political motivations, or a rudimentary experiential grasp of the impact of infrastructure in the lack of a systematic framework to facilitate decision-making. It is crucial to adopt an evidence-based and systematic approach in order to solve India's employment crisis as well as to catalyse growth. (INFRASTRUCTURE PRIORITIES FOR JOB CREATION IN INDIA, 2019).

"Expanding investment in infrastructure can play an important counter cyclical role. Projects and programmes are to be reviewed in the area of infrastructure development, including pure public private partnerships, to ensure that their implementation is expedited and does not suffer from the fund crunch."

Manmohan Singh (cited in news articles from October 2008)

The relationship between economic development and infrastructure does not exist in a vacuum. It is a constant process, and if we are to achieve our stated goals of creating a self-accelerating process of economic development, progress in infrastructure must come before, alongside, and after progress in development.

Framework of the investment has a significant role on the population of any country with reference to standard of life, creation of employment, rise of economy etc. It is very much necessary to have evidence grounded and systematic method not only for the continuous development but also to address employment issues.

Augmenting the investments in the area of infrastructure paves way for counter cyclical role. In order to prevent the shortage of funds, the projects and programmes are to be reviewed periodically with reference to infrastructure development and public private partnership.

The association between infrastructure and economic growth is continuous process and it is necessary to move along with progress in infrastructure in order to achieve desired results to have a process of self-acceleration in economic growth.

The projects of infrastructure need to take into account the various factors viz. geography site conditions, existing infrastructure, physical environments, communities etc. including the requirement of the stake holder. The construction of the project may be taken up in various stages so as to make changes in terms of design and economic viability since, the construction projects occur in different situations with great risk content. Various projects like residential units' buildings, health units, highway roads, industrial and oil and gas units may be different, but the risk pattern is always present according to the project. According to the location of the project viz. Open seas or underground construction, the work is considered aggressive and challenging and will involve the integrated Engineering Services as per the requirement viz. Civil/Electrical/Mechanical/Chemical/Metallurgical etc. This will further take the support of sub-contracting arrangements to neutralize insurance risks, scheduling of work, logistic requirement, adhering to various Government rules, thus contributing significantly to the project costs. Competition in the market environment of the construction industry affects schedule, project cost etc.

Figure 1 New Investments of Infrastructure in India

Sub-Sectors	New Investment (US$ billion)				
	FY17	FY18	FY19	FY20	FY21
Roads	43.043	68.302	41.405	16.51	27.222
Railways	45.89	22.269	32.032	13.325	1.703
Power Distribution	5.824	1.235	12.623	0.494	2.249
Power	21.138	13.572	24.934	16.679	13.039
Real Estate	14.69	19.305	17.407	17.342	12.558
Manufacturing	44.746	41.392	87.269	23.114	35.113
Mining	6.747	9.477	13.156	8.736	8.125

Source: Dolat Capital Construction and Infrastructure September 2020

1.1.3 Indian Infrastructure Sector

The Indian infrastructure sector is yet to be develop in comparison to other market countries. India's infrastructure plays an important role for economic advancement. Thus, it is apparent that since the past few years, the Indian Government is allocating major funds to modernize the old infrastructure so as to become a self-sufficient economy with a major share in worldwide exports. In line with this a project namely, National Infrastructure Pipeline was floated in 2019 with an eye to invest 111 trillion Indian Rupees during the period 2020 and

2025 in order to build clean energy infrastructure, additional roads, railways and urban projects. (India Infrastructure Sector, 2021)

Infrastructure plays an important role for domestic and international commerce and agricultural and industrial production. The main components of infrastructure in any organization or a nation include safe drinking water, health and education system, communication and transportation, sewage and a strong financial institution.

Source: The India Infrastructure Sector Market - Mordor Intelligence Report (2023)

The twelfth Five Year Plan has allocated funds more than double the funds of the eleventh five-year plan with a projection of 55.75 lakh crores keeping the infrastructure development in the 11th five-year plan in view. Also, the 12th five-year plan has supported public private partnership, thus raising the private investment from 37% to 48% in the twelfth five-year plan.

Due to a 30% shortage in investment from the public and private sectors, the first two years of the twelfth five-year plan did not go smoothly. The decline in private sector investment affected the first three years of the twelfth five -year plan.

The year 2014-2015 also did have impressive investments as stated by the Economic Survey of 2014-15. The Gross Fixed Capital formation rate growth had crashed from the peak of 24% to around zero in the year 2014-15 last quarter. The main reason for the nose diving of investment was stalling of projects. Due to the high rate of stalling of private sector projects, the investment was adversely affected. The stalled projects belonging to infrastructure and manufacturing units badly affected the balance sheets of corporate and private sector banks resulting in decline of future private investments. The Economic Survey of 2014-15 has stated that public investment may be roped in to attract private sector investment. Also, elaborate arrangements may be made to strengthen the public private participation model to encourage private investments in the infrastructure. The Union Budget of 2015-16 too highlighted the need to strengthen PPP mode for investment in the infrastructure sector.

In 2015, the Planning Commission, which had nearly 60 years of experience serving the country, was replaced by NITI Aayog, which placed a strong emphasis on a "Bottom Up" strategy in order to foresee the principles of cooperative federalism, minimal government, and maximum governance.

NITI Aayog term stands for National Institution for Transforming India. In order to build a strong economy on a global platform, NITI Aayog has been established as it serves as a booster for economic growth of the country.

The NITI Aayog has three pronged documents namely.

a) 3-year Active Agenda

b) 7-year Mid Term Strategy Paper

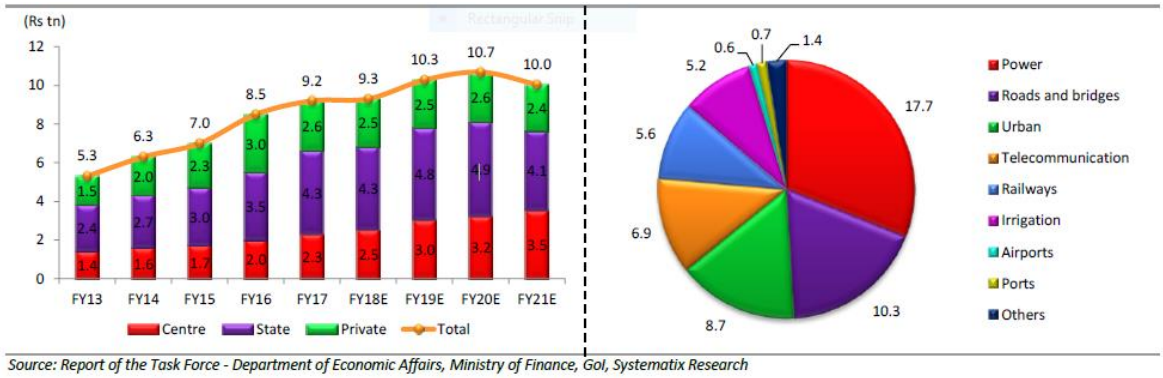
c) 15-year Vision Document

The 65-year-old Planning Commission has been superseded by NITI Aayog, an effective and futuristic goal-oriented organization. The other initiatives by NITI Aayog include - Aspirational District Programme, SDG India Index, Atal Innovation Mission, Composite Water Management Index, SATH Project, District Hospital Index, School Education Quality Index, e-AMIT portal, Good Governance Index, Methanol Economy Programme, India Innovation Index, Women Transforming India Awards, Women Entrepreneurship Platform (WEP), Good Governance Index, Agriculture Marketing and Farmer Friendly Reform Index.

Thus, NITI Aayog is expected to bridge the gap in national building through infrastructure by means of effective, transparent, accountable and innovative governance system. (byjusexamprep.com)

Figure 2 Investment trends in Indian Infrastructure Sector for the FY 13-19

Figure 3 Indian infrastructure investment - Sector wise share



Source: Report of the Task Force - Department of Economic Affairs, Ministry of Finance, GoI, Systematix Research

1.1.4 Strategic Investment Research Unit's (SIRU) analysis of the Indian infrastructure sector's growth

The Indian economy's main engine is the infrastructure industry. The Indian government pays close attention to this sector since it is essential to the overall growth of the nation and helps to ensure that exceptional infrastructure is built there on time. Highways, bridges, dams, and urban infrastructure are all built in the infrastructure industry. To ensure that India has top-notch infrastructure and give it a new sense of identity, the Indian government is striving to inspire a strong

push through law. For instance, India is engaged in major infrastructure and industrial projects with a $1.3 trillion budget.

Foreign direct investment (FDI) in the construction development (townships, housing, built-up infrastructure, and construction development projects) and construction (infrastructure) activity sectors totalled $ 26.17 billion and $ 26.30 billion, respectively, between April 2000 and December 2021, according to the Department for Promotion of Industry and Internal Trade (DPIIT). Inflows of FDI were 81.72 billion dollars in the fiscal year (FY) 2021, of which operations related to infrastructure accounted for little more than 13%. India's infrastructure is projected to increase at a compound annual growth rate (CAGR) of about 7% during the projection period.

In addition to 2,500 km of access control highways, 9,000 km of economic corridors, 2,000 km of seashore and land port roads, and 2,000 km of strategic highways, it would be chosen to develop a number of highways. The National Highways Authority of India (NHAI) sees an increase in revenue as a result of the FASTag system's encouragement of greater highway commercialisation. Before 2024, it was anticipated that more than 6,000 km of roads would be

monetized across at least 12 lots of bundles. Government funding totalling INR 1,963,943 crore has been allocated for road infrastructure.

The government-sponsored National Investment and Infrastructure Fund (NIIF) received $100 million from the international Asian Development Bank (ADB) in 2020. India needs foreign investments to repair its ports, airports, and roadways in order to spur economic growth. Infrastructure is one of the sectors that draws the highest FDI from abroad. Between the fiscal years (FY) 2000 and (FY) 2019, $25.5 billion was expected to be invested on townships, development projects, and housing. The "Smart Cities Mission" and "Housing for All" initiatives have benefited from these measures. Saudi Arabia intends to invest up to $100 billion in India in the fields of energy, infrastructure, petrochemicals, mining, and agriculture.

Figure 4 The Top 10 states on the basis of Infra spending.

FY20RE (Rs bn)	Infra spend	FY16-20 spend CAGR		Fiscal deficit	Capital Outlay	Capital Outlay/ GFD	Infra spend/ GFD
		Infra	Non-Infra				
Uttar Pradesh	622	5%	7%	504	790	157%	123%
Maharashtra	337	19%	19%	786	463	59%	43%
Karnataka	280	19%	-7%	388	369	95%	72%
Madhya Pradesh	235	13%	22%	327	292	89%	72%
Gujarat	223	6%	-6%	271	272	100%	83%
Odisha	201	9%	5%	182	237	130%	110%
Telangana	67	-14%	40%	219	132	60%	30%
Tamil Nadu	238	13%	16%	551	312	57%	43%
Andhra Pradesh	72	-13%	33%	405	128	32%	18%
Rajasthan	144	-7%	-7%	322	177	55%	45%
All States and UTs	**3,944**	**11%**	**16%**	**6,524**	**5,308**	**81%**	**60%**

Source: Systematix Research, RBI

Figure 5 GFD (Gross Fiscal Deficit) breakdown in the top 10 states

FY20RE (Rs bn)	Revenue Deficit/ (Surplus)	Capital Outlay	Gross Fiscal Deficit (GFD)	Revenue Deficit/GFD	GFD as % of State revenues		
					FY19	FY20	FY21P
Uttar Pradesh	-263	790	504	-52%	11%	14%	13%
Maharashtra	314	463	786	40%	8%	25%	16%
Karnataka	-3	369	388	-1%	23%	22%	26%
Madhya Pradesh	27	292	327	8%	14%	22%	35%
Gujarat	-11	272	271	-4%	19%	18%	21%
Odisha	-62	237	182	-34%	10%	16%	14%
Telangana	-1	132	219	0%	27%	20%	23%
Tamil Nadu	251	312	551	46%	27%	29%	27%
Andhra Pradesh	266	128	405	66%	31%	37%	30%
Rajasthan	280	177	322	87%	25%	21%	20%
All States and UTs	1,367	5,308	6,524	21%	18%	22%	19%

Source: Systematix Research, RBI

Initiatives:

In November 2021, with the goal of enhancing bilateral collaboration and concentrating on regional infrastructure development projects, a new quadrilateral economic conference was established by four countries namely the United States, the UAE, India and Israel. In November 2021, India officially began the "Infrastructure for the Resilient Island States" plan, making a substantial improvement to other climate-vulnerable nations worldwide. For instance, information about disaster-related issues and infrastructure resilience to climate change was provided. It assisted in developing a system to help nations improve their capabilities and methods for developing infrastructure in light of risk and financial circumstances.

India is likely to undergo a fast infrastructure growth process because of the prioritization received by the infrastructure sector from the government for holistic economic development. For the infrastructure sector, Gati Shakti is one comprehensive "productivity" booster strategy. This initiative will help to eliminate the lengthy delays brought on by the large number of permissions and the slow clearance processing. Additionally, given the limitless opportunities, involving private businesses in national infrastructure projects could help India improve its infrastructure to competitive levels on the global stage. Government initiatives like the National Infrastructure Pipeline, which saw the completion of about 217 projects under the infrastructure ministries, expedited the speed of road construction in the fiscal year (FY) 2022. The National Monetization Pipeline, the Bharatmala Pariyojana, and updates to the Hybrid Annuity Model (HAM) are a few of the new initiatives. The National Highway Authority of India (NHAI) also established a Guinness World Record by constructing 75 km of continuous bituminous concrete road in one lane in less than five days. In September 2021, Indian government proposed road projects to spend $ 13.48 billion building

Jammu and Kashmir's road infrastructure. From 7 in 2014 to 11 in 2021, the region's national highway network had grown.

The infrastructure industry is the focus of the Indian government's efforts. In order to ensure sustained nationwide development, India is planning to invest $ 1.4 trillion between 2019 and 2023 in infrastructure. Several projects for the construction of gas pipelines, gas infrastructure, and industrial development have been underway from 2019. Between 2018 and 2030, the government has proposed spending $750 billion on railway infrastructure. The Indian infrastructure industry has exhibited amazing progress, breaking records and contributing to the expansion of economic activity in India despite the sufferings the country endured during the pandemic.

1.2. Construction Sector in India

1.2.1.a History

Construction of civil works received roughly 50% from the overall capital budget in the first five-year plan. The government vigorously participated in the development of these services from 1970 to the mid-1980s, and in the

construction works, a majority of them, during this time were executed by firms owned by the state with assistance from government agencies.

In the public sector, National Industrial Development Corporation (NIDC), the first recognised professional consulting business, was established in 1954. In the years that followed, an extensive list of architectural, design, and construction companies were founded in both the public and private sectors. These companies include Indian Railways Construction Limited (IRCON), National Buildings Construction Corporation (NBCC), Rail India Transportation and Engineering Services (RITES), Engineers India Limited (EIL), and M N Dastur and Co., Hindustan Construction Company (HCC), Ansals, among others.

Over the last 50 years, the Indian construction sector has benefited from over 40% of development investments. Construction Industry is an employment source to around 16% of the nation's working population. In India, the construction industry employs more than 30 million people and generates more than $200 billion in assets.

It contributed 78% to gross capital creation and greater than 5% to the GDP of the country. From $1,436 billion in 1999–2000, state and federal government capital spending will reach $8,021 billion in 2011–12.

The contribution of the Indian construction industry to total GCF (gross capital formation) decreased from 60% in 1970–1971 to 34% in 1990–1991 dollars. Subsequently, it rose to 48% in 1993–1994 and continued at 44% in 1999–2000. Construction sector's contribution to GDP and capital formation has grown in the twenty-first century.

In 2004–2005, the GDP from Construction at Factor Cost (at Current Prices) increased from $1,162.38 billion to $1.745 billion, or 12.02% of the total GDP.

The main reason for this is because, in spite of increased efforts to include the private sector in infrastructure development through P3s and other agreements like BOTs (build-operate-transfer), private sector investment has not expanded to the levels that were anticipated.

1.2.1.b Current Scenario

In the corporate sector, 200 companies are involved in the building industry in our country. In addition to these companies, 120,000 class A contractors are

registered with numerous government construction authorities. Numerous small contractors compete for modest projects or serve as subcontractors for larger or more established firms. From 214519 million in 2000–01 to 428854 million in 2004–05, the construction industry's total sales have increased.

The construction sector in India is a key metric of the development of the nation since it creates investment opportunities in a variety of related businesses. The contribution of the construction sector to the national GDP in 2011–12 was around 8.2%, or $670,778 crores (US$ 131 billion) at factor cost. The sector is divided into small and medium-sized contractors that carry out the work in the field as subcontractors as well as a select few sizeable businesses that are involved in construction activities across all segments. There were little over 500 manufacturing companies in India producing construction equipment in total in 2011. More than 49.5 million people are employed in the labor-intensive economy, which also includes indirect jobs.

Construction is anticipated to make a substantial contribution to economic expansion and to the creation of structures that enhance productivity and quality of life. The term "economic development" has been used frequently in 20th-

century economics. Other words used to describe economic progress include modernization, westernisation, and particularly industrialization. Environment and economic development are closely related. Government initiatives work to attain broad economic objectives including stability of prices, increased employment, and sustainable development, and partly this work entails adhering to financial and economic policies as well as trade and tax laws.

With an annual growth rate of 7-8%, our country is one of the fastest growing construction markets worldwide. India's economy will be significantly boosted by being the third-largest market in the world by 2025. The Indian construction sector employs a total of greater than 30 million people which generates assets valued at more than 200 billion.

The capital investment in building accounts for 4% and 12% of the Gross National Product (GNP) and between 40% and 60% of the total gross plan outlay. In India, the number of people employed directly in construction sector improved from 3.5 million in 1981 to 4 million in 1991 to 15 million by 2001. It represents roughly 27% of all labour hours compared to 29% for all other manufacturing

and production businesses. If linked businesses of construction are also considered, their numbers will also significantly rise.

Construction has historically been a significant source of export revenue, competing well with the software sector. Its market share in the global construction industry was around 2% in 1981, but it is now less than 1%. According to estimates, India's entire foreign debt up to this point may be eliminated if it can grow its market share to around 5% of the global construction market.

With greater planning, administration, and political will on the part of the nation, a 5% aim is quite attainable. With its considerably larger human, technological and material resource base, India might undoubtedly make a mark at the global level with the sincerity and dedication of all those involved in the construction sector, including policymakers, government bureaucrats, entrepreneurs, construction managers, and researchers. Nearly 20% to 50% of projects with a budget of Rs. 20 million or more fall short of their predetermined deadlines and budgetary constraints. More than 10% of projects have their average cost

overruns exceed 100 percent with some extreme cases of cost overruns of more than 200 to 500 percent.

In India, construction has traditionally been a labor-intensive industry, but on the global market, it has evolved into a high-tech, automated, and sophisticated sector. A fundamental shift in mind set and attitudes is necessary at all relevant levels for India to compete on the global market.

An organized & extensive network of Industrial Training Institutes (ITls) has been set up all over the country for different types of industries such as manufacturing, production, and processing.

There are numerous government and semi-government organisations, including municipal committees, corporations, area development authorities, urban and rural planning and development agencies, town and country planning boards, the mining and forestry departments, safety inspectors, the fire department, the labour department, the director of industries, the local police and administration, the sales tax, the income tax, and the excise departments, and numerous other public departments that are involved in controlling the issue of clearance certificates at every site. The construction manager generally deals with at least 22 different

inspectors and prepares a minimum of two dozen various returns yearly and quarterly and also deals with a large number of agencies for compliances at a regular construction site.

Generally, the construction activities are carried out with mobilization and other monetary and non-monetary advances prearranged by the owner. Interestingly, a small amount is actually required as capital investment to set up a construction firm. Also, the prerequisite of experience for getting registration almost does not exist. Hence, almost anyone who can arrange a small amount of funding can enter the construction industry even without any skill or specialized knowledge & experience. But, a greater share of such firms do not have any dedication towards the profession neither do they have the persistence to gain the required management skills. Their only drive to enter into the construction occupation is making quick earnings with no concern for ethics or quality. It is, thus, not shocking that as per data, construction companies top the list of business failures and insolvencies.

Therefore, it is not surprising that one of the least competitive and productive sectors in India is the building business. In accordance with the adage "More inspections, poorer quality of product," the quality index is also subpar.

The majority of seasonal and migrant workers in the construction industry are paid piece rates. Since agriculture is their main focus, they prioritise it over everything else at specific times of year and under specific climatic conditions. They work intermittently for brief periods of time as construction labourers the rest of the year; quite frequently, the families are the unit of employment. Since they do not see their work in the construction industry as one career option, they are less dedicated to it and lack the aptitude and drive to learn and advance their chosen trade's necessary knowledge and abilities. The piece rate payment method also encourages employees to give in extensive hours and take significant risks at the expense of their safety and health. Additionally, the labour often resides close to the worksite where housing and sanitary facilities are provided on a regular basis, as per contractual provisions and labour laws. There are medical services, insurance, or pension or provident fund benefits available. However, in

comparison to other industries, the employment structure and working conditions in construction are generally strenuous and rudimentary.

Since the early days, construction has been mostly a contracting industry, with a very high concentration of small businesses. According to reports, India had three million licenced contractors there in 1987. By the turn of the century, the number went up manifold. The amount would be staggeringly high if labour and unregistered contractors were factored in. It is true that hiring a contractor is far easier than hiring a trained, skilled, and efficient mason in the Indian context.

1.2.2 LEGAL FRAMEWORK IN CONSTRUCTION SECTOR

The Constitution of India provides strength to Labour Laws. Labour subject is in Concurrent List whereby both Union Government and State Government are competent to frame laws, rules, regulations, guidelines, set required procedures, issue notifications, circulars and fix Wages of various category of workers from to time in India. The Article 246(1) of Constitution of India prescribes that Parliament of India has exclusive powers in respect of making laws in any matter as enumerated in List-I in Schedule – VI of the Constitution of India. Workmen who are employed in foreign countries shall be governed by the law of the land where the workmen are engaged in employment.

In India, there are numerous Labour Laws that are applicable and implemented in Construction Sector. Each and every enactment has a specific objective to deal with the matters connected therewith and incidental thereto in order to ensure Welfare, Safety and Health of workers and to protect from any sort of oppressiveness from Employer. Usually, the economic background of Workforce is weak and is not fit enough to bargain competently. The Labour Laws shall endeavor to facilitate workers in the Organization. In case of any unfortunate

event of resorting to any industrial dispute, Labour laws comes to the rescue of Workforce to ensure welfare and social security i.e. insurance.

A few of the prominent aspects of legal framework are discussed hereunder as applicable to Infrastructure Industry:

Constitution of India:

Articles 16, 19, 23 and 24 of Chapter III, Articles 39, 41, 42, 43, 43A and 54 of Chapter IV of Constitution of India deals with dignity of human labour and safeguards the interest of labour. Entry No.24 of the VII Schedule of the Constitution of India deals with Welfare aspects such as conditions of work, Compensation to workers, Provident funds, Maternity benefits and liability of employers. Entry No.23 deals another important element namely, Social Security, Employment, Unemployment and Social Insurance. Entry 22 deals with labour and industrial disputes.

Thus, the strength of Labour Laws stems from Constitution of India in protecting Fundamental Rights at workplace, complying with equality before law, and equal pay for equal work.

Welfare Laws:

Construction Sector often faces Productivity Challenges. There is an essential need to do an act of balancing between the Organizational economic prosperity and wellbeing of workforce and families of workforce. The higher the dignity of labour the higher would be the productivity. Conditions of work, and safety aspects in occupational hazards and welfare are widely covered under Entry No.24 of the Constitution of India.

A few of the prominent Welfare laws include the following:

The Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act 1996

The Contract Labour (Regulation and Abolition) Act 1970

The Mines Act 1952

The Factories Act 1948

Industrial Relations:

Industrial Relations play a paramount role in ensuring higher productivity, better wages and wholesome progress in a win-win manner to both the Employers and the Workforce.

A few of the enactments help in dealing with the Industrial Relations:

Industrial Disputes Act 1947

Trade Union Act 1926

The Industrial Employment (Standing Orders) Act 1946

Wages:

Wages take centre stage in any bargaining and conditions of work thereof. Employer and Workers engage in negotiations for mutually beneficial terms and conditions. Employers are bound by the Minimum Wages prescribed under the Minimum Wages Act 1948. India is a federal system of Governance. The Central Government of India and respective State Governments shall fix appropriate minimum rates of wages.

A few of the Wage related enactments are as follows:

The Payment of Wages Act 1936

The Minimum Wages Act 1948

The Equal Remuneration Act 1976

The Payment of Bonus Act 1965

Social Benefits:

The Directive Principles of State Policy bestows an obligation on the Government of India to ensure social security benefits to Employees. The Employers shall be governed by the relevant enactments in complying with the Social Security Benefits.

A few of the enactments in connection with the Social Benefits include the following:

The Employee's Compensation Act 1923

The Employees' State Insurance Act 1948

The Employees' Provident Funds & Miscellaneous Provisions Act 1952

The Payment of Gratuity Act 1972

The Maternity Benefit Act 1961

Labour Codes:

Thanks to the relentless efforts of Government of India in terms of Reform, Transform and Perform initiatives. Change is constant in the evolving challenging business environment. With the advancement of technology, the world is becoming borderless highly connected galaxy of nations with varied practices. The International Labour Organization and the United Nations play a crucial role in better work practices. In the path of consistent progress, a few of the Labour Codes have been enacted, though not yet notified as on the date of publication of this thesis:

Labour Code on Wages

Labour Code on Social Security and Welfare

Labour Code on Safety and Working Conditions

Labour Code on Industrial Relations

Registration and Licenses:

Construction site need to be registered and appropriate license must be obtained by the Employer. The following are the significant laws that deal with Statutory Registration and Licenses:

The Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act 1996

The Contract Labour (Regulation and Abolition) Act 1970

The Employees' Provident Funds & Miscellaneous Provisions Act 1952

The Employees' State Insurance Act 1948

The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act 1979.

Wherever Batching Plant, Hot Mix Plant, Fabrication Units, Precast elements etc. are intended to be established at Construction Sites, registration under the Factories Act 1948 and necessary prior clearances from Pollution Control Board, complying with Environment laws as may be applicable needs to be adhered to.

Thus, a robust legal framework is in place in India to ensure higher productivity for the benefit of the Organizations and reasonable emoluments for the benefit of workers and their families. The conduct of Organizations is reflected through their Corporate Governance compliances with respect to various Labour Statutes. Government of India recognises and appreciates the Best Management Company in respect of labour matters and confers awards on the occasion of May 1st every year, which is considered as International Labour day.

1.2.3 Future Challenges

In the last few decades, the Indian economy has made significant strides. The majority of the infrastructure sector advanced, but not really to the necessary degree to raise growth rates to the range of 8% to 10%. The demands of the construction industry have been emphasised by the Union Government.

Massive investment is anticipated in this industry given the current focus on building physical infrastructure. During the eleventh five-year plan era, the Planning Commission of India has predicted that infrastructure investment will be needed to the extent of around 14,500 billion or US$320 billion.

This is a very important criterion. Budgetary resources might not be sufficient to raise the necessary sum of money. The technique of Public Private Partnerships (PPP) is ideal for locating the resources. Improved construction management is necessary to make the most use of available resources and to increase output and efficiency.

By 2050, India's population is projected to reach 1.7 billion, which will put a great deal of strain on the country's citizens, according to the findings. The underdeveloped labour force and project-specific schedule and expense overruns may be to blame for India's construction industry's inefficiencies.

Source: Public Information released by the Planning Commission of India, the Ministry of Statistics and Programme Implementation, as well as the authors original works.

1.3 Public Private Partnership (PPP)

1.3.1 Definition

PPPs are defined by the DEA (Department of Economic Affairs) as "a systematic arrangement between a government owned entity or government or statutory entity towards one side and a private sector entity towards the other side, for the allocation of public assets and/or related services for public welfare, by means of investments being directed by and/or management initiated by the private sector organisation for a stipulated period of time, where there exists a consideration for the public welfare."

The PPP has been broadly defined by the Indian Planning Commission as "a method of carrying out government schemes/programs in collaboration with the private sector entity." PPP opens a door for private business participation in the development, financing, planning, execution, and maintenance of public sector projects and programmes. The development of the infrastructure has also benefited from Greenfield investment, which has helped the Indian economy be strengthened. An investment in a start-up business that often requires a substantial

capital outlay and begins on an abandoned property in a greenfield is often referred to as a Greenfield Investment.

In a PPP, a private (non-government-based) entity and a public (government-based) entity are strategically linked, and the private entity arranges the service facilities that are typically given by the public firm upon the acceptance of a variety of terms and conditions that are in effect from the beginning.

Traditionally, the engagement of private businesses has been restricted to specific planning, design or construction agreements charging a certain amount of fee on the basis of service - derived from the requirements of public agency. Broadening the capacity of the private firms permits the public firms to fit into private sector financial, technical and management resources in different approaches to attain specific objectives set by public sector agencies namely expanding internal workforce, substantial cost and schedule reliability, innovation based technological applications, specialized proficiency or private capital availability. The privately held partner may increase its commercial potential while taking into account the expanded or newly found obligations and risks. PPPs make privileges

possible by delegating responsibilities to the private or public entity that is best suited to oversee the activity that would provide pertinent results. With these partnerships, this is achieved by carefully allocating the specific roles, risks, and lucrative rewards in order to facilitate incentives to the highest level of work performance.

Private sector involvement with respect to infrastructure can be comprehensive ranging from short-term service-based contracts at full-length to being fully privatized (disinvestment). Disinvestments and service contracts are usually not considered as PPPs in the Indian context. As a result, an Indian infrastructure PPP is just a temporary agreement for the services provided in conjunction with the private firms; it does not, however, include fully private sector control of power and ownership.

PPPs can be based on various compositions and contractually binding formats. Nonetheless, all the PPPs comprise of 3 important features:

a. A contractual accord specifying the roles and duties of the parties involved.

b. Judiciously sharing of risk between the private and the public sector partners

c. Enable private party with financial rewards in proportionate with the accomplishment of pre-determined output level.

1.3.2 Characteristics of PPP

• Genuine risk transfer: All risks associated with planning, construction, financing, and operation are passed to the private company. The transfer of demand risk is based on the ability of the private sector to affect usage.

• Output-based specifications, which place more emphasis on service type and performance standards than asset configuration or manner of service delivery, are required by contracts.

- Private entity is encouraged to use innovation in the design, development, operation, and funding of its outputs.

Payment for Performance Revenue/Payment to private entity is subject to performance in relation to specific and quantified criteria stipulated in the contract. Whole life asset performance: Private entity takes responsibility

and assumes risk for the performance of the asset and delivery of service over a long term.

1.3.3 Need for PPP

- Financial factors

  - Insufficient resources - relying on reduced government financing

- The best possible transfer of risk to the organisation that can manage it

  - Design – Financing – Construction - Operations and Maintenance are all known and controllable from a commercial standpoint.

  - Changes in scope, poor designs, delays, cost overruns, revenue leaks, and hefty maintenance costs

- Responsibility shifting - increased efficiency - Technology that is appropriate, creative design approaches, project management, better collection techniques, and costing life cycle

- Improved bankability through thorough project planning; an incentive providing entire life solutions rather than just asset generation; The emphasis is shifted to service delivery, which is integrated with

construction, quality is measured, and remuneration is connected to service delivery

- Programme acceleration and time-bound execution

In a PPP, the Government is responsible for allocating the resources, but the private sector—both for-profit and non-profit organizations—delivers the services. This sort of collaboration entails the sharing of resources required to accomplish a task while maintaining mutual respect for one another's individuality. All of the partners would come to a clear knowledge of their respective roles and duties through negotiations.

PPP includes the partners splitting the risk and rewards. Prior to completing the contract, it is crucial to identify all of the generic risks. A key confidence-building strategy is the government's promise to share the risks with the private partner. The windfall is to be split equally between the public and private sectors if the actual output or returns surpass those anticipated at the outset of the project.

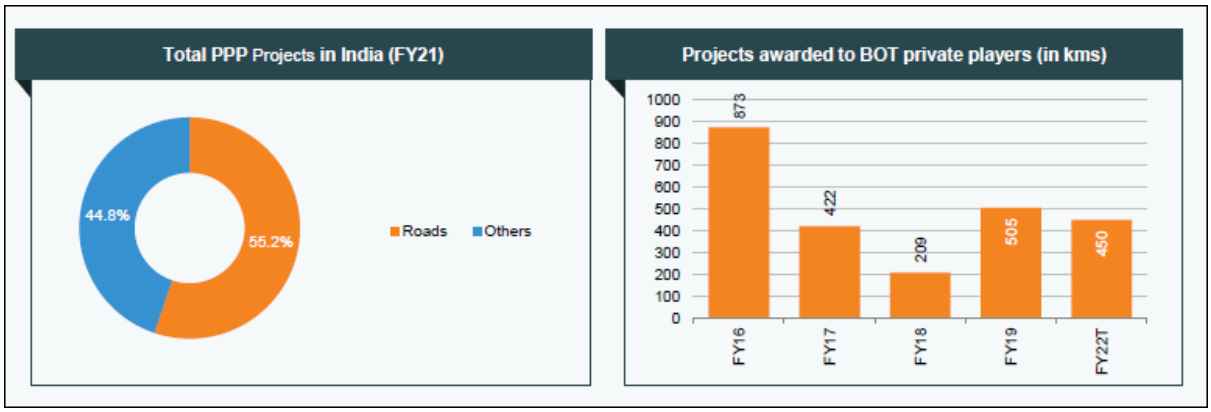
In order to create a successful PPP that can be sustained and repeated, it takes several years of planning and institutional building.

1.3.4. Role of Public-Private Partnerships in infrastructure deficit

Any nation's physical infrastructure is a major factor in deciding how economically developed it will be. India lacks the necessary infrastructure due to its size both geographically and economically. The lack of proper infrastructure in the nation leads to congested highways, crowded airports, poor healthcare and educational facilities, etc. Inadequate infrastructure leads to low productivity, growth restrictions, unemployment, etc. According to the World Economic Forum, the world needs to invest at least USD 40 trillion, or USD 2 trillion year, on infrastructure over the next 20 years. This raises the issue of inadequate infrastructure in India. Prior to 1991, the government was in charge of and oversaw all infrastructure projects. However, with the introduction of new economic reforms and the Industrial Policy of 1991, private participation was emphasised and promoted. The definition of "infrastructure" has also undergone periodic revisions to allow the private sector to benefit from financial incentives and concessionary taxes as the project is being completed. Partnerships between the public and commercial sectors are attempting to close these infrastructure gaps. The government has made some progress in getting the private sector to

step in and fill these gaps. In order to procure, identify, and build public-private partnerships, the Ministry of Economic Affairs has asked the World Bank for recommendations on the best course of action. Because of its existing financial constraints and mounting obligations, the government is unable to address the infrastructure gap solely through its own efforts. Public-private partnerships enable improved project execution by utilising the private sector's efficiency and technology while judiciously and strategically allocating risks and resources. India has recently risen to the position of third-largest destination for PPPs worldwide. India now has almost ten years of experience working with PPPs, albeit the level of success attained in the projects differs from state to state. While some states' programmes have a solid framework, others' projects are poorly conceptualised and don't deliver the expected results. The telecommunications sector has seen the most success with public-private partnerships, then airports and highways. In terms of the overall percentage of public-private partnerships, road projects make up 36% and ports make up 56%. The states of Madhya Pradesh, Tamil Nadu, Karnataka, and Gujarat have demonstrated success in these programmes.

Figure 6 Expansion in private participation



Note-PPP- Public Private Partnership, BOT- Build-Operate-Transfer

Source: MoRTH, Dept of Economic Affairs, News Articles (www.ibef.org)

1.3.5 Role of Government in PPP

The essential duty to establish ground rules belongs to the government. The government should outline a clear division of labour amongst the public and private sectors, identify each other's respective responsibilities and assist in creating a stable and open climate in which private sector participants can thrive. For better accountability, it is crucial to keep operational and management responsibilities distinct from decision-making and regulation. Participation from

the private sector will, by itself, contribute to the consolidation of this division by lowering the role of the government in daily affairs. (IIM, September 2007, p. 4)

1.3.6 Models of PPP

- Among the partnership models which are frequently used are Build-Operate-Transfer (BOT), Build-Own-Operate (BOO), Build-Operate-Lease-Transfer (BOLT), Design-Build-Operate-Transfer (DBFOT), Lease-Develop-Operate (LDO), Operate-Maintain-Transfer (OMT), etc.
- All these models differ on the basis of their amount of investment, ownership control, risk sharing, level of technical cooperation, duration, and finance, among other factors.
- BOT: It's a traditional PPP model where the private partner is in control of the facility's design, construction, operation (during the agreed period), and transfer in return to the public sector.

  Any project's private partner is obligated to offer the funding as well as undertake construction & maintenance duties.

  The public sector will consent to a commercial sector partner collecting user fees.

The national highway projects that NHAI leased out under the PPP form serve as a crucial demonstration of the BOT paradigm.

- BOO: Under this approach, the newly constructed facility will be owned by a private partner. Public partner consents to 'buy' the goods & services generated from the project under mutually agreed terms and conditions.
- BOOT: This is a variation of BOT, in which, the project is passed to the Government or to the private operator at the end of the agreed-upon period. This model is employed in the building of ports & motorways.
- BOLT: Through this model, the government grants a concession to the private business in constructing a facility maybe, designing it as well, owning the facility, leasing the facility to the public firms, and then transfer ownership of the facility to the government at the conclusion of the lease period.
- DBFO: This model is designed in such a way that the private partner is entirely responsible for the project's design, building, financing, and operation throughout the concession period.

- LDO: In this investment model, the public sector organisation or the government owns the recently constructed infrastructure facility and gets payments as per the lease agreement with the private promoter. It is usually followed in the development of airport facilities.

1.4 Larsen &Toubro Limited – A brief profile

1.4.1 Larsen &Toubro Construction Company Background:

Larsen & Toubro Construction is a division of the well-known Indian technology, engineering, manufacturing, construction, and financial services conglomerate Larsen & Toubro (L&T), which has operations all over the world. L&T aims to address crucial requirements in important sectors – Infrastructure, Hydrocarbon, Process Industries, Defence and Power – for its customer base situated in more than 30 countries all around the world. The company is actively engrossed in core major impact-oriented sectors of the economic system and integrated competencies assess the complete ambit of 'design to deliver'. Consequently, it has substantial dependency on the government authority and private sector capital expenditure. Over and above 8 decades of an efficient, customer-centric outlook and a consistent expedition for top-notch quality, it has an unmatchable prowess

in the areas of Engineering, Manufacturing, Infrastructure Projects, Construction and Technology.

Henning Holck-Larsen and Soren Kristian Toubro , two Danish engineers, came on the Indian seashore as representatives of FL Smidth & Co A/S, Copenhagen, Denmark, and founded L&T in 1938 in Mumbai, formerly known as Bombay. The high esteem, faith and conviction on one another was remarkable that at the initial stages the firm was initiated purely on the basis of verbal understanding; no document was drafted, and it was in the end of 1940 that they certainly endorsed their partnership firm.

Larsen & Toubro Businesses

Larsen & Toubro businesses have well defined despite interdependent efficiencies, directing towards various fragments of infrastructure and industry. The company performs projects throughout the complete range of infrastructural projects on a pre-integrated basis, with solitary source accountability, acquiring revolutionary design engineering, the ultramodern construction methodologies and a worldwide supply network chain. Automation, digitalization and the capacity to organize large-scale, skilled

personnel facilitates to comply with the rigid targets; meticulous standards and deliver with enhanced speediness on a large scale.

Larsen & Toubro business verticals include-

1. Infrastructure for transportation
2. Power, Transmission and Distribution
3. Buildings and Factories
4. Water & Effluent Treatment
5. Heavy Civil Infrastructure
6. Railways
7. Minerals & Metals
8. L&T Geostructure
9. L&T Smartworld
10. Heavy Engineering
11. Defence Engineering

Subsidiaries, Joint Ventures & Associates –

1. Financial Services
2. Realty Development

3. L&T Hydrocarbon Engineering
4. MHPS JVs (Boilers and Turbine MFG)
5. Infrastructure SPVs (BOTs)
6. Other Manufacturing and Fabrication subsidiaries
7. IT & Technology Services
8. Services and other subsidiaries & Associates

Products-

1. Hydrocarbon: Offshore, onshore
2. Power: Electrostatic precipitator, power equipment manufacturing, EPC for thermal power plant
3. Developmental Projects: Metro, power, roads/transmission line
4. Infrastructure: Heavy civil infra, buildings and factories, water & effluent treatment, metal & material handling, transportation infra, power transmission & distribution
5. Financial Services: Asset management, wholesale finance, rural lending, housing finance

6. Heavy Engineering: Nuclear power plant, process plant equipment, equipment piping centre & forgings
7. IT & IS: Technology services, Information technology
8. Defence Engineering: Defence, shipbuilding, aerospace
9. Others: Geostructure, realty, smart world & communication, industrial products & machinery,

Source**:** Systematix India Infrastructure Sector Report (2021)

Key Performance Indicators (For the year ended 2021-22)

PAT growth- 28%

EBITDA growth – 11.6%

Revenue growth -16%

Consolidated ROE –17%

FCF (Rs bn) – 192

Standalone Debt/Equity – 0.8

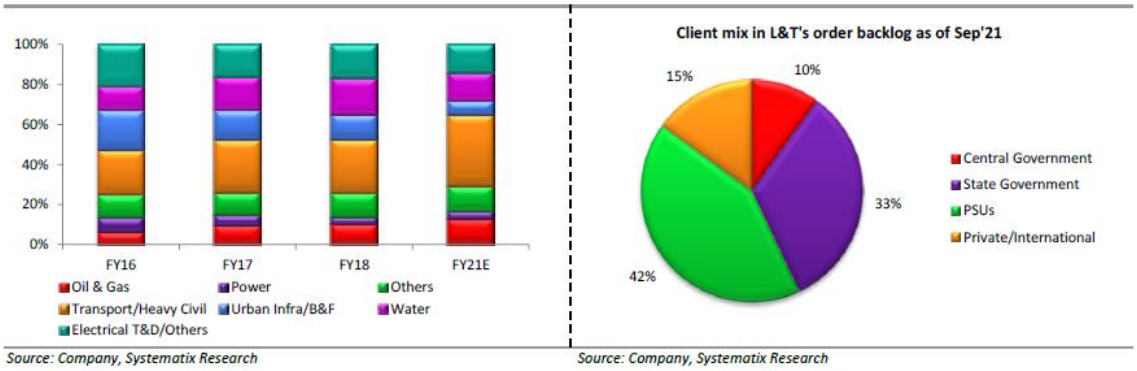
Order inflow (Rs Cr)- 192,997

At the close of September 2021, Larsen &Toubro's order book split up was around 33% from the state government, 10% from the central government, 42%

from the public sector units whereas the residual comprises of private sector or international clientele. Hitherto, 31% of the projects were capitalized partly or to a large extent by bilateral/multilateral financial agencies.

Source: Systematix India Infrastructure Sector Report (2021)

Figure 7 L&T's presence across various infrastructure elements *Figure 8 Client wise share of L&T*



Source: Company, Systematix Research *Source: Company, Systematix Research*

Figure 9 Crucial indicators of L&T

INITIATING COVERAGE

Sector: Infrastructure	**Rating: BUY**
CMP: Rs 1,866	**Target Price: Rs 2,287**

Stock Info

Sensex/Nifty	58,117/ 17,325
Bloomberg	LT IN
Equity shares (mn)	1,405
52-wk High/Low	Rs 1,983/ Rs 1,155
Face value	Rs 2
M-Cap	Rs 2,621bn/ USD 34.6bn
3-m Avg traded value	USD 56mn

Financial Snapshot (Rs bn)

Y/E Mar	FY22E	FY23E	FY24E
Revenue	1,626	1,896	2,110
EBITDA	197	240	269
PAT	100	132	150
EPS (Rs)	71.0	93.6	107.0
RoE %	12.5	14.9	15.2
RoCE %	8.3	9.1	9.3
P/E (x)	26.3	19.9	17.4
P/BV (x)	3.1	2.8	2.5

Shareholding pattern (%)

	Sep'21	Jun'21	Mar'21
Promoter	-	-	-
–Pledged	-	-	-
FII	22.9	22.9	22.0
DII	33.1	32.8	33.2
Others	44.0	44.4	44.8

Stock Performance (1-year)

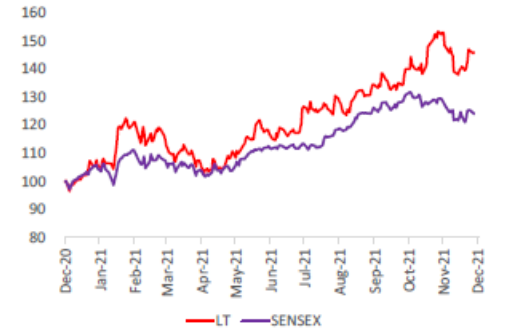
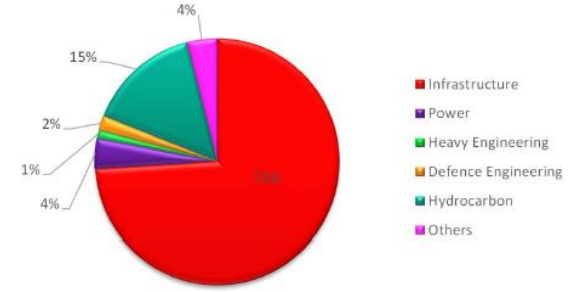
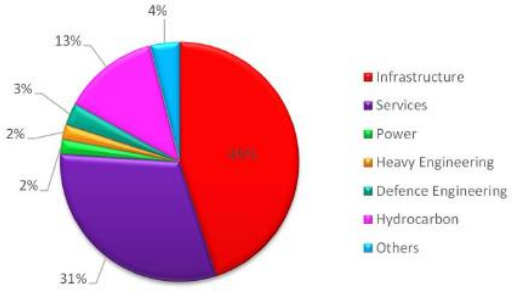


Figure 10 Order book value by different verticals of L&T for Sep'21



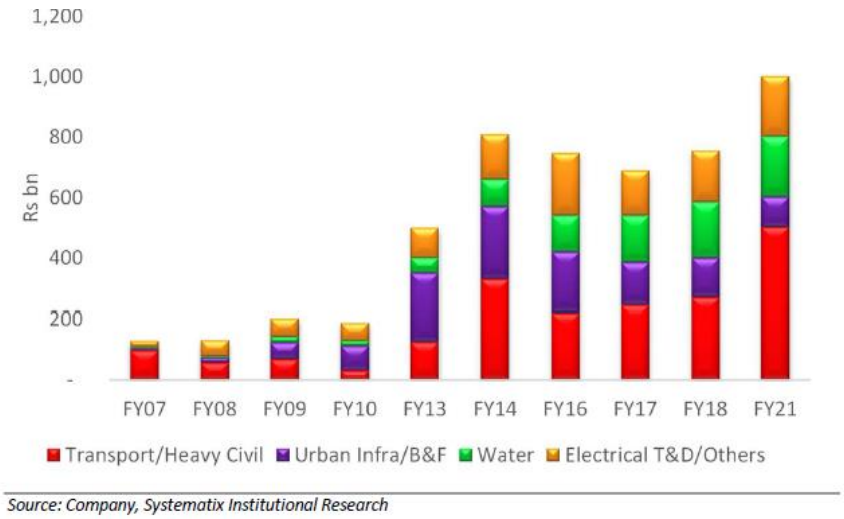
Source: Company, Systematix Institutional Research

Figure 11 Revenue share by L&T verticals for FY21



Source: Company, Systematix Institutional Research

Figure 12 L&T Key drivers of order growth in Infrastructure segment over years



Source: Company, Systematix Institutional Research

1.4.2 Larsen & Toubro HR Policy

It regards that the people are the initial forces in driving the vision of the company.

It undertakes a commitment towards:

- Building highly efficient personnel with prompt learning and holding digital approach
- Facilitation of rigorous assignments and enhancing uninterrupted learning progress
- Promoting a congenial working environment of creativity, increasing entrepreneurial skills and strong empowerment
- Embracing distinctiveness and inclusivity

- Development of a culture comprising of solicitude, wellbeing, conviction and cooperation
- Empower workforce to perceive their potential to the fullest
- Endure to be opted as preferential employer by choice

1.4.3 Corporate Environment, Health & Safety (EHS) Policy

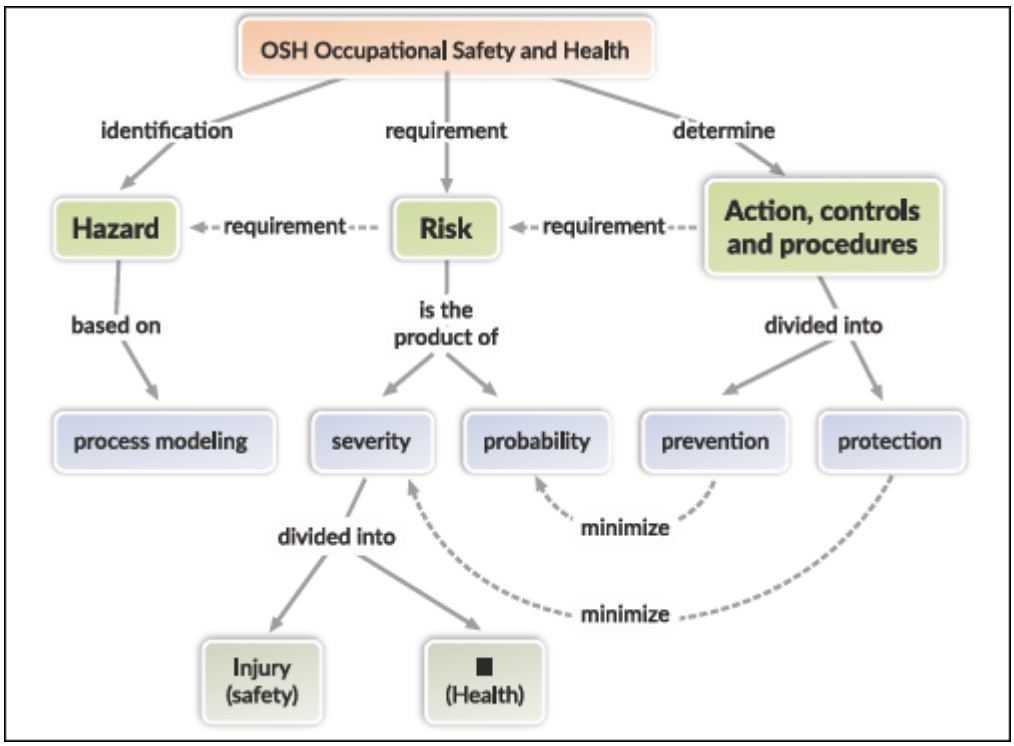
The company is highly committed towards safeguarding the safety and wellness of its working employees, other stakeholders and protecting the environmental surroundings.

To accomplish the above-mentioned commitment, the firm ensures to do as follows:

- Implementation of suitable EHS necessities over all type of processes, from the outset of tendency, design, planning, recruiting and processing, production, executing, operating and maintaining in order to coordinate with their specific business purposes.
- To comply with all pertinent legal and other conformity obligations, regardless of the stipulations of the administration authorities in the country of business operation.

- Take prudent decisions for welfare of the workmen, particularly to their surroundings, to continuously improve morale, retention rate and as a result enhance productivity.
- Conduct structured and efficient training, broaden resources for constructive EHS performance.
- Restrain detrimental impact on the environment, safety perils at workplace and occupational health.
- Preservation of natural resources, reduce waste generation, ecological emissions and minimize greenhouse gas footprint.
- To strengthen communication, consultation and constructive collaboration with all its stakeholders in the firm.
- Initiate SMART EHS goals to perpetually curtail EHS threats by eradicating hazards or replacing with innocuous equipment, raw material, procedures and assessment performance in order to attain constant advancement.

Figure 13 Components comprising for a accomplishing Safety Management System at the construction site



The safety and measures at various construction places take place by adhering to the OSHA (Occupational Safety and Health Administration) Standards. Few elements of OSHA are given below which come under 29 CFR 1926.

OSHA subpart	Related Activity mentioned against the sub part
E	Personal protective Equipment (PPE)
F	Fire protection
H	Material handling and storage
J	Welding and Cutting operations
K	Electrical
L	Scaffolding
M	Fall protection
P	Excavation
R	Steel erection
T	Demolition
Z	Toxic and hazardous substances

Figure 14 OSHA 29 CFR standards pertaining to numerous construction activities at site place

1.4.4 Sustainability Policy

The Company is diligent to pursue continual progression by incorporating environment, social and governance (ESG) standards with its line of businesses.

Guiding Principles

Approaching this, L&T ensures the following –

- To integrate environment and social concerns in its business activities and plan of actions and fortify a culture of sustainable development.

- To actively involve with its stakeholders to establish sustainability approaches with short term and long-term targets.
- Preserve and build up limited resources and impart towards a greener, cleaner and decently sustainable planet.
- Encouragement in developing of eco-friendly portfolio of businesses, thereby aiding to energy-efficient economy.
- Alleviate all risk factors to sustainability goals including climate perils in its line of business operations and services.
- Adhering to highest norms of governance and good stewardship in all its business practices and in the obligations with various stakeholders.
- Maintain protected and healthy workspace for all its members of the workforce across all the locations.
- Ensuring provision for equal opportunities to all of the working employees for growth and development on the basis of calibre and overall performance.
- Network with communities in projected focus areas, to enrich standard of living.

- Safeguarding the reporting of business performance is in accordance with appropriate national and international structure of framework and standards together with Sustainable Development Goals (SDGs).

1.4.5 Quality Policy

Larsen & Toubro is highly driven in order to achieve and endure notable business virtue as a result of a value driven aspiring perspective so as to approach adequate client satisfaction.

It shall strive forward to sustain stewardship across all its line of businesses by:

- Fabricating and plan to build projects, systems & platforms, assembling products and cater services to meet up specified needs of customers within set forth time schedules.
- It believes in continuous learning by setting high standards wherein the industry benchmarks are at par and thus providing superior value to clientele in terms of finest quality, delivering on time and within a decent budget.
- Attaining operational superiority by leveraging digitalization, pioneering and sustainable practices in all of its business operations.

- Efficiently achieving Quality Management Systems as specified by global benchmarks to continuously upgrade the processes, products and services.
- Developing dynamic leaders who can embrace and foster a culture of excellency in business activities in conducive to obtain business goals through entrepreneurialism, effective teamwork and modernization.
- Assuring to gather significant employee morale and motivating force by fabricating and empowering them by means of training, learning and competence enrichment.
- Enhancing long-term relationships with its stakeholders, strategic business partners and customers based upon shared goals for strengthening value creation.
- Reducing the perils associated to processes, businesses, products and services by constantly determining, evaluating and mitigating risks.

1.4.6 Policy for protecting of women's rights at workplace

L&T strongly stands for a belief that all the employees working in the firm must have an opportunity to work in a safe and healthy environment which is free from sexual misconduct.

The essential rights of women in respect of gender equality and protection against sexual harassment at workplace are provided under the Indian Constitution in Articles 14 & 15 respectively. In accordance with Article 21 of the Indian Constitution, a woman also has the right to life, which includes the right to a safe environment which is free from any form of harassment.

International conventions such as the Convention on the Elimination of all Forms of Discrimination and Violence Against Women Forces, which has been formally endorsed by the Government of India, recognise the right to protection from sexual misconduct and the right to work while maintaining the utmost dignity as universal human rights. Additionally, the Indian Supreme Court had put up the key principles to deal with the subject of sexual harassment. Thus, The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, ("Act"), which was published in the Indian Gazette on April 22, 2013, and The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Rules, 2013, ("Rules"), which were published in the Indian Gazette on December 9, 2013, were ratified by the Government of India (GoI).

Objective

L&T is honestly committed to treating every employee with the utmost respect and decency. The Policy includes the following goals in order to improve L&T's strong commitment and create a secure workplace free from any sexual harassment forms thereof:

To assist an action plan for the resolution and redress of allegations of sexual harassment. To define the word "sexual harassment." To design the "standard guidelines" for reporting incidents of sexual harassment at work.

Applicability

Because this policy is based on Indian legislation, it applies to all L&T establishments located throughout India, as well as to all L&T workers, regardless of level, designation, or rank, across all departments, functions, and operations. The personnel who are arriving at L&T's locations in India should be aware of this policy. The joint ventures and unlisted subsidiaries must comply to this policy and the Act. The businesses listed under the L&T group will each have a unique policy and guarantee compliance with the Act.

Equal Opportunity Policy

L&T has pledged for facilitating equal opportunities in terms of employment and enhance growth, and to build a comprehensive working environment.

Guiding Principles

Approaching this, L&T ensures the following –

- Treat each and everyone with utmost respect and dignity. This encompasses all the employees and workers, contractors and their working employees, suppliers, vendors, clientele and their representatives, people in the associated communities in which it operates and the engagement team.
- Assure zero tolerance levels towards any kind of harassment, bullying and misconduct that is prejudicial or exploits any individual or group in its workspace inclusive of zero tolerance towards sexual harassment.
- Embrace a substantial framework to engage, attract and retain talent acquisition of all genders, nationalities and capabilities.
- Ensuring to provide employment opportunities on the basis of merit and performance without any sort of bias based upon gender, marital status,

sexual orientation, disability, nationality, caste, colour, faith, age, pregnancy & maternity, race, socio-economic status, religion, ethnicity, religious or political views.

- Facilitate equal opportunities with reference to learning, recruitment, promotion, separation, employee benefits and other crucial aspects of employment relationship based completely on merit, capability, achievements and appropriate educational qualifications for the respective job.
- To enable, contingent upon job requirements and merit, impartial and fair-minded opportunity to all persons which includes those with disabilities, although taking them into consideration for positions wherein they can be adequately employed and take relevant measures so as to ensure a productive working environment for persons with disabilities to execute and be skilful in their assigned roles.
- To boost and nurture our working partners in adopting the aforesaid guiding principles.

1.4.7 CSR (Corporate Social Responsibility) Policy and its Framework

CSR Philosophy

Larsen & Toubro Ltd cultivates values of compassion, dependability, and ongoing learning despite the fact of meeting the expectations of all stakeholders and society. Being an accountable Corporate Citizen, the firm safeguards with regard to inclusive progression by empowering communities and further advancing the expansion.

In harmony with the Companies (Corporate Social Responsibility) Rules, 2014 (CSR Rules) (as amended from time to time) and the section 135 of the Companies Act 2013 (Act) , the Company's CSR Policy framework offers specific channels for pledging a variety of projects aimed towards the welfare of the society.

CSR Themes

Within the ambit of its CSR initiative, L&T focuses primarily on "Building India's Social Infrastructure," which also includes the following verticals:

Water - Initiatives including those that provide clean drinking water, water conservation, and water purification, are just a few examples.

Education – Includes but not limited to, providing infrastructure to support educational institutions, carrying out educational courses, and supporting students talent at various levels.

Health services - Includes and is not limited to, using community health clinics, dialysis facilities, mobile medical vans, general and specialised health care camps, numerous outreach initiatives, centres for the aged and disabled, and HIV/AIDS programme support.

Skill development – It can refer to a variety of activities, including but not limited to building skills, empowering women in priority areas, supporting ITIs, facilitating support for people with disabilities (through vocational training and infrastructure support), enabling employability skills at project sites, and CSTIs. establishing training facilities.

Duly considered, the governance & technical know-how would be the key factors encompassing all these dimensions.

Source: Larsen & Toubro Limited Company's website

1.4.8 PRACTICAL OBSERVATIONS AT SITE

The L&T construction adopts very good practices at construction sites right from mobilisation onwards and till the successful handing over of the projects to the principal employer. Though certain enactments such as BOCW and labour acts etc prescribe certain mandatory requirements to be complied with, it is observed that L & T construction is a pioneer in taking various initiatives far exceeding the statutory requirements and procedures thereof.

To share a few observations at construction site, the following may please be noted:

a. Workmen Induction – Usually, the workmen hail from different states in Indian and come for work at construction site. The workmen are taken care in an exclusive accommodation. The induction process is done in a systematic manner by verifying the identity of the worker, linking the Aadhar card with government data bank, examining medical fitness, suitability for specific trade such as electrical, welding, height work, concreting etc. Once the worker is screened with regard to valid identity card and fitness of medical test, eyesight etc, the worker is put through

another induction process in EHS, i.e. Environment, Health and Safety. A documentary video and audio shall be run through for the awareness of the workmen in batches giving very practical examples as to what exactly happens at construction sites. Such documentary film is invariably produced in multiple language and is applied as per the local language requirement. Once the safety induction is completed, the workers are registered in specific database namely, workmen induction management system. A distinctive token number is allocated to each worker and an identity card for particular site is issued thereafter. Thus, the workmen are set to engaged in the construction work process.

b. PPE – PPE stands for Personal Protective Equipment. After successful completion of the induction process, the workmen are issued PPE free of cost and necessary safety briefing is done by the engineer in charge at site. An interactive platform is enabled amongst the workmen to share the work aspects among themselves so that each and every worker performs at worksite in a collective manner, with lot of synergy. As a good work

practice, safety marshals keep monitoring the PPE availability, Practice of PPE norms at site. Each construction activity has its own risk associated and thereby requiring specific attention all the time and everywhere as most of the construction works are hazardous in nature.

c. Pep Talk - Everyday in the morning, prior to the commencement of the day's work, the workers are given pep talk by respective engineer in charge in respect of safety behaviour, the required presence of mind at site, right attitude at workplace and coordinating effectively and taking care of each other at site. The pep talk also include detailing about usage of specific tools and tackles with abundant caution as to the inherent risks associated in handling. In respect of works at height, areas of excavation, cut-out openings and any such potential hazardous spots, the workers are given additional orientation repeatedly. The behaviour training is also important as one time instruction to the workers may not work many times. Hence, the behavioural attitude of the worker is very important to cope up with the safety challenges at construction site. It is a good practice to note that the

management strives hard to ensure that every worker goes home safe after the work every day.

d. Accommodation – The workers are provided accommodation at site free of cost. Electricity and water are also provided free of cost. Usually, workmen join the site from a particular village as a group in batches and shares the accommodation provided. It is a good practice to observe that the said accommodations are very spacious in nature, duly ventilated with proper cross ventilation and lighting.

e. Cooking – The workers are provided cooking facilities by way of kitchen earmarked to particular accommodations at site. Generally, workmen gangs include an expert cook who takes care of food preparation for that particular batch. As a good work practice, the cooking facility is not provided inside the living rooms, but at a near distance to the said accommodation.

f. Drinking Water - Drinking water is provided free of cost and each and every labour colony is equipped with Reverse Osmosis (RO) facility and water is made available 24/7. The quality and safety personnel keep monitoring the quality of the water, consumption levels and the sufficiency of the water for the benefit of the workers.

g. Washroom Facilities - Washroom Facilities are provide in the same vicinity of the labour camps in a close proximity to the respective accommodations. The washrooms are well connected with internal water pipelines and water is available all the time with proper drainage outlet and compliance with environmental aspects. It is a good practice to observe that the waste water is contained and recycled as a matter of conserving natural resources for the next generation.

h. Dining Facilities – Dining facility is also made available at site with proper infrastructure namely chairs and tables inlet and outlet water facility, lighting and cross ventilation. All the accommodation, washrooms, kitchen

facility and the dining area are well protected so that the workmen are not put into any inconvenience during rainy season.

i. Transportation – The workmen are provided with transportation free of cost in case the location of specific work is away from the labour camp. Each and every worker is verified for PPE and security identity before transporting to the work location by bus. The vehicles are kept neat and clean and usually no standing is allowed in the bus. Some of the projects are very sensitive from the security perspective and hence, display of site identity card is mandatory while entering into site location.

j. Biometric – As explained earlier, the workmen are allocated a distinctive token number and their attendance is registered through biometric machines before proceeding to work. The biometric machine crosschecks the identity of the worker with that of the records available at the Time Office. The said biometric machines shall be under the control of

respective administrative staff at site. It is observed that L&T addresses promptly any sort of issue with regard to worker's attendance.

k. Materials – Specific activity at construction site requires certain tools and materials. With the direction of the supervisor, worker collects the required tools and materials from the Store and carries the same over to the work location. It is a very good practice to observe that such inter-carting of tools and materials from Stores to the designated work location is done very safely and under constant watch as some of the tools/materials tend to be occupational hazards. It is observed that in respect of certain inflammable materials, such as gas cylinder, paints etc, proper safety measure is in place under supervision and control appropriately.

l. Rest Facilities – At the construction site, the workmen are provided with suitable space for taking lunch, wherein, sufficient drinking water storage facility is made available. It is a good practice to note that the management provides ORS, buttermilk and lemon water to the workmen especially

during summers so that workers don't get dehydrated. The physical fitness of the workmen at site is very important to ensure constant work progress.

m. First Aid and Medical Facilities – The First aid boxes are made available at conspicuous space at every site. A qualified medical doctor is available at the site all the time to render any sort of medical support to the workmen. Every day, the first aiders and medical team visit labour camp to find out the wellbeing of workmen. Proper registers and records are maintained for every workmen detailing the workmen health status. In case of any sickness, the workmen are provided medical support free of cost and shall be referred to external hospitals in case the situation warrants accordingly.

n. Recreation – The workmen are provided recreational facilities at site including volleyball, badminton and cricket courts. The required sports kits are also provided free of cost. It is a good practice to observe that the managerial personnel do interact with the workers and engage themselves in recreation activities with workmen. Such initiatives enhance sense of

belonging amongst the workmen who stay alone and who are away from their families at labour camps.

o. World Importance – Certain important internationally signified observations are followed at site, namely International Labour Day on May 1st, World Environment Day on June 5th, World Trauma Day on October 17th and International Yoga Day on June 21st etc. It is a good practice to observe that principal employers, and the main contractors along with the local stakeholders such as police, municipal and labour department authorities do engage actively and share Feel Good Factors with the workmen.

p. COVID Preventive Care – The full team of the company was on their toes to render necessary confidence and support workmen who were confined to specific labor camps during pandemic lockdown. Officials from the management visited everyday and interacted with the workers. The families of workmen were anxious to know about the wellbeing of each

other's as the workers who were away from their villages and no means of travel available during lockdown. It is a good practice to observe that the management provided additional communication devices for the benefit of the workers and also ensured that the essential such as fresh vegetables, provisions etc are made available at labor camp itself with special arrangement through the local authorities. Even the prices of vegetables and provisions were made affordable to the workmen. To prevent spread of COVID virus, abundant precautions were ensured and world class housekeeping was done regularly. Vaccinations of dose 1 and dose 2 were provided free of cost to the workmen at site. It is good to note that with the timely and concerted efforts of the management, the workmen maintained healthy physique and never got into any such pandemic problem, rather contributed for essential emergency construction works.

All the above mentioned good work practices go a long way in ensuring good workmen relations at construction sites. Of course, the safety and welfare of workmen enhances productivity manifold for the larger benefit of the organization, principal employer and the nation.

1.4.9 Larsen & Toubro - PPP Model

The Public-Private-Partnership (PPP) model of economic growth in India, which calls for the expansion of infrastructure projects by privately held entities in collaboration with the federal and state governments, was pioneered by Larsen & Toubro Infrastructure growth Projects Limited (L&T IDPL). A significant Indian conglomerate with global holdings in engineering, manufacturing, technology, construction, and financial services, L&T Group includes L&T IDPL as a subsidiary.

L&T IDPL business vertical ventured into challenging business areas of road expansion, mechanised bridge construction, Hyderabad Metro Rail, and the Kudgi Power Transmission Line project in the Karnataka region through a very competitive bidding process. L&T IDPL has finished major infrastructure projects in important sectors like bridges, ports, urban infrastructure, water supply, airports, and hydel electricity since its founding in 1995. According to the number of lane kilometres covered by concession agreements approved by the Central and State Government bodies, the aforementioned company is India's most extensive road developer.

L&T IDPL has established substantiated expertise in financial closure, operations & maintenance, project management, viability assessment & portfolio management of infrastructure assets in diversified areas due to its substantial experience working with government authorities, multilateral trade agencies, corporate enterprises, and national and international financial institutions over the past two decades.

In addition to its project holdings, L&T IDPL equipped 9.7 MW Wind Energy Generators (WEGs) in the Tamil Nadu districts of Udumalpet and Tirunelveli in the middle of the March of 2010. The energy that is generated is used for confined purposes. Due to the above-mentioned wind turbines' reduction in carbon emissions, the WEGs are ideally suited for 16,128 CER (Carbon Emission Reduction) certificates year up to 2022.

Massive financial investments were made in L&T IDPL Group by the Canada Pension Plan Investment Board (CPPIB) in two tranches, among which the first one was made in December 2014 and the next one was issued in December 2015. The aforementioned is the first straight private investment made in conjunction with a Canadian pension fund in a company that develops infrastructure in India.

Chapter 2

Review of literature

This chapter includes a discussion on the theoretical context of the present study. The studies discussed have been considered based on several aspects related to the field of human resource management and infrastructure with special reference to public private partnership from national and international authors in order to determine the research gaps of the study. The review of literature is also highlighting the relationship between various aspects in the construction sector affecting the workers and their job satisfaction levels. Since the focus of the study is around establishing the relationships between among those aspects, the review of literature is also highlighted under those different headings.

2.1 Infrastructure and Construction Sector

Infrastructure – Prof. Rosentein Rodyn believed that the term infrastructure was developed in the military during the World War II. In the initial stages of Marshall’s Plan, the word was adopted more broadly as an alternative of "Social overhead capital" in order to avoid misunderstanding with hospitals, schools, and

other similar welfare institutions. Experts from the World Bank define it as the fundamental public utility service required by the economy's sectors that produce goods. (S. Murty, 2002)

Construction Management

A method of project delivery where a construction manager is used to organise and guide workers, supplies, and equipment during the design and construction of a project in order to achieve the designer's goals. According to the Construction Management Association of America (CMAA), a professional service that employs efficient management techniques to the conceptualization, design, and execution of a project with the aim of regulating time, cost, and quality.

The management of a project's construction elements, such as the choice of building materials, construction techniques, and architectural detailing methods, does not deal with how occupant needs are determined or how a plan is developed to make a project support corporate business objectives. A construction manager handles the needs of the project, not the tenants or the business. (“Construction Drawings” Encyclopedia of Management, p. 148

According to Abdel-Wahab and Vogl (2011), the construction sector is project-based. In order to better understand how virtues and values are facilitated during the period of operation and use of completed projects and constructed facilities, or the post-construction process (Cooke Davies, 2002; Zhan and Pan, 2018; Zwikael and Smyrk, 2012), projects allow for the integration of both tangible and intangible inputs into the construction process (Vogl and Abdel Wahab, 2015).

Chris Harty and Roine Leiringer (2017) have proclaimed construction management as the perceived research area across the globe with an evolving academic community. It was developed majorly in activities of “research consultancy” to furthermore drawing focus on academic research funding and contribute in economics, social sciences and business management. Recent dynamics of construction management research (CMR) are changing within university institutions and national economies Increasing significance on national and international level rankings have led towards increase in strain on academics individually and the community at large. Four prospective futures for CMR are listed, drawing attention towards scenario development the possible scenarios: convergence, retrenchment, disappearance and hybridization.

The construction industry in New Zealand is similar to many nations consisting of a few large and many small as well as micro companies. By mid 2020s, it emphasizes to attain a 20 percent increase in the levels of productivity for which it requires to analyse in what way the industry functions and aspects of buy-in from the respective stakeholders. Seadon and Tookey (2018) have investigated a set of devices in order to enhance efficiency in construction industry and establish an application schedule. The authors adopt an approach of systems by considering the nature of construction and whole life cycle of a construction right from designing to its windup. They found that productivity is a cohesive model through which enhances in process productivity are carried out by workmanship and high-quality resources, which is suitable for client and contractor and is highly sustainable over a period of time. The interviews and workshops resulted in ten nodal points and 19 vital levers which were emphasized and further developed to check the progress and enable information for corrective actions. A few levers in agreement equipped crucially more advances. Modelling actual responses to processing stimuli in the real world is a very valuable component. This prompted important stakeholders to quantify the implications of their

decisions made during a project. In order to improve productivity, this study offers drivers, a plan for implementation, and indicator levels that take advantage of nodal points.

In construction industry, according to the study of (Kumar et al., 2020) the prequalification of a contractor is used as a measuring indicator in terms of capability of the contractor and in selection of efficient contractors for attaining successful project completion. The research study focuses that contractor capability and risk management are essential for project success and have a satisfying correlation. Nonetheless, reviews advise that risks are not regarded during prequalification and the prequalified contractors also exhibit poor performance leading to failure in projects. This gives rise to the research gap thereupon the research analyses the contractor's role in accordance to the capability levels with respect to risk management in projects. The analysis in the study uses a case study of risk management having different contractors in comparison to two identical undergoing projects. The study disclosed that the potential of a contractor evaluated during prequalification is an attribute of the firm; although the required potential for a project in order to mitigate risks and

carry out work is also an attribute. Risk materialization, leads to reduction in the potential of contractor and thereby increasing capability that is essential for risk mitigation of a project. This additionally creates a scarcity in resources generating contractors' unsatisfactory performance. Thus, the criterion of prequalification is suggested to be decided taking into account the scenario of risks for projects and contractors in order to shortlist qualified contractors which increases the possibility for attaining success of projects.

Zhan et al.'s (2020) study focused on financing of construction projects. They observed that despite rising investments over the years, project productivity remained consistently poor, leading them to theorise that there was an "investment-in-failure" paradox between project productivity and investment. The authors concentrated on developing a methodical framework for evaluation in order to understand the obvious paradox in the Hong Kong building industry. In order to reframe and put up a two-stage framework for assessing the productivity of construction projects, they evaluated the theories of system, production, principal-agent, and project success evaluation. Further, it examined a series of qualitative mixed-methods designs using case studies, senior industry

experts, and three actual, practical building projects. Evaluating three system borders construction project productivity were identified namely timeframe, stakeholder, and parameter. To indicate the efficiency of site and utilization effectiveness, a two-staged construction project productivity assessment framework was developed. After thorough assessment, it was established that the "investment-in-failure" paradox with current assessment approaches is majorly linked with the barely defined boundaries of construction project productivity. Quantitative research is further required in order to formulate development of two staged theoretical evaluation of construction project productivity. The construction project productivity conceptualization and two-staged framework of assessment fosters the industry stakeholders to strategize long term enhancement. The main purpose of the study signifies the value to expand system boundaries of construction project productivity in order to account for its systemic worth and maintain the paradigm towards outcome-oriented and value focused.

Ola lekan (Oshodi et al., 2020)have critically emphasized that given the importance of predicting construction production and the favourable correlation between it and economic growth, it has been urged that infrastructure investment

be increased. Nevertheless, there is a perceived global problem with the tendency for construction production to vary over time. Enormous modifications in terms of volume in construction output have a negative impact viz., liquidation and job losses in construction companies. Further many evidences have indicated that construction output modelling enables information about clear understanding of these changes. In order to conduct a systematic review of studies an interpretivist epistemological lens is adopted followed by a thematic analysis. It was found that the interest rate is most predominantly, a contributing factor of construction output. And it is also observed that quite less information is acclaimed on the factors stimulating the growth in terms of volume in investment to maintain construction works. Additionally, research is needed to determine whether non-linear methodologies may be used to represent construction output effectively.

In order to increase supply chain resilience (SCR) with regard to industrialised construction (IC), which is measured by SCR, it is crucial to look at the correlational effects of supply chain vulnerabilities (SCV) and supply chain capabilities (SCC). To analyse these effects of correlations on vulnerabilities and capacities meant for the SCR, the study focuses on developing a model. The

empirical research method used an expert-led opinion survey. Four hypotheses were developed and then further investigated for roughly 20 capability-vulnerability linkages using partial least squares to process the acquired data as structural equation modelling. (Ekanayake et al., 2022) found that seven out of the 20 statistical relationships tested as significant. In accordance, "resourcefulness" could considerably resist production based SCV. On the basis of findings concerning to help practitioners belonging to the industry , "enablers-results framework" in attaining SCR of IC was established.

This is believed to be the first structured evaluation methodology that assesses the effects of SCC and SCV correlation while concentrating on SCR in construction. The study also adds value by presenting a prototype that illustrates ways in which different SCV and SCC affect SCR and deployment of crucial SCC at the appropriate levels.

The COVID-19 had been unanticipated, stern and extended consequences on several construction projects along with many other industries which has emerged as a critical effect on manufacturing, supplying materials, human resource availability and other crucial factors which adversely affect the process of

construction. There is a dearth of extensive research and interpretation of the contractual implications and panacea related with the COVID-19 pandemic. (Khalef, Ali, et al., 2022) studied the contractual understanding of COVID-19 under the auspices of American Institute of Architects (AIA) A-201-2017 as a widely used contract form in the United States of America; identified the related contractual panacea for COVID-19; and compared how the aforementioned two issues are managed under the Federation of International Construction Engineers (FIDIC) Red Book 2017, adopted by World Bank establishing guidelines and recommendations for contractors, owners, contract administrators, and project managers to use in planning, managing, and reducing the contractual implications of the pandemic; examining the pertinent legal principles and doctrines; and bolstering the research steps and full research results with the use of legal experts on COVID-19-related issues.

Kiran Mahasuar (2022) has examined the impact of the COVID pandemic on a short-term basis on a strategically significant sector, the Indian construction industry. The study has employed an approach which is an event study to factually study the performance of market and provide response trends during the COVID-

19 pandemic. The study has found that due to pandemic, the sector has been negatively impacted with respect to investors' response during COVID-19. Furthermore, after analysing empirically it was found that the particular construction sector has been adversely affected more vis-à-vis other identical industries. Additionally, the study highlighted few broader suggestions and proposes a process of framework with vital strategies for concerning stakeholders in order to steadily recover from post-COVID.

There is growing evidence of literature works on construction and infrastructure in India. The economic significance of this sector is also accentuated in view of the fact that it contributes to the country's GDP around 8% and is the second-largest receiver of foreign direct investment (FDI) in India with a cumulative FDI ranging from between March 2000 and April 2020 summing to US$25.66 Billion (KPMG 2018). Additionally, according to Prakasan (2020) this sector is known to be a predominant source of employment and employs workforce of approximately 51 million, comprising around 12% of country's total working population**.**

2.2 Labour and relating aspects

Labor - Capital, land and production constitute the three fundamental factors of labor. Labor is different than capital and production wherein it deals with human labor services instead of money or the property. Thus, labor can be termed as payment of money for human labor services provided.

Ancient Labor to Industrialization

The work in the factory forms the vital process of industrialization varying from domestic small-scale units to large scale specialized production. Hence, Adam Smith (1723-1790) described specialization process with the example of the pin factory. In the present time, a piece of work goes through various stages till it comes out as a final product.

Smith has well understood the crucial role of specialization but the role of machines was not given their due acknowledgment. In the 18th century, the mechanization with the support of steam engine had improved productivity, and thus industrialization began.

Labor Organization

In Europe, the 18th century saw the beginning of labor unity or organization in Europe. The skilled worker played a key role between owner and unskilled labor in the labor union activities. Europe for the period ranging from 1850 to 1900 saw the rise of living standards of workers whether unionized or not.

New Modes of Production, Labor Savings and Globalization

The labor union activities were adversely affected during the 1960s period. Mechanization and displacement of labor during 1970 was followed by foreign labor available at low rates in the 1980s. The automobile industry witnessed the migration of cheap labor. Adding to this globalization began, where the North America Free Trade Agreement saw the markets of Mexico, Canada and the US open up in the year 1994. Thus, the labor unions were weakened.

In the year 1991, Robert Reich's book "The Work of Nations" had anticipated increasing globalization. Stanley Aronowitz in his book "How Class Works" (2003) mentions labor struggles with respect to working hours, working conditions and overtime payment imposed by the capitalist. The US saw the wide difference of opinion due to different groups' viz. immigrant v/s native, black v/s white, male v/s female etc. as described by Aronowitz.

Whether or not a workforce is unionised, formal activities undertaken by an organisation to bargain and negotiate with it are referred to as labour relations. (Encyclopedia of Management)

Labor Agreements refers to the formal contracts amongst the enterprise and also its labor unions. (Encyclopedia of Management)

The availability of workers with the necessary skills to satisfy the firm's labour demand is referred to as the labour supply. (Encyclopedia of Management)

A written subcontractor guaranteeing fulfilment of his or her contract and payment of all labour, materials, equipment, and service bills related to the subcontract agreement is known as a "subcontractor bond," which is presented to the prime or main contractor by the subcontractor. (“Subjectivism” Encyclopedia of Management, p. 635)

Division of Labour

The ‘division of labour’ can be defined as the division of a task or job into smaller units, each of which is carried out by a different worker. In addition to the division of labour that takes place within the reasonable bounds of a single industry, the manufacturing division of labour, this also includes the segregation of

employments or various professions within the boundaries of the entire society or social division of labour. (Groenewegen, P. 2008)

Product-based division of labour and process-based division of labour are the two categories into which the division of labour is divided. It is referred to as product-based division of labour if a worker develops expertise in the production process of a single good or service. For instance, a village cobbler. Supposing that a worker gets specialized in carrying out one or two of the various processes associated with the production of a product, it is known as process-based division of labour. For example, a worker who is engaged in working with a large shoe factory.

Division of labour has several advantages: (a) it enhances the labour efficiency, (b) it results in the prospects of discoveries and innovations, (c) it is time-saving for workers ("Division of Labour" Encyclopedia of Economics and Commerce, p.137)

Labor-Management Relations

Labor-management relations is the study of interlinkage between workers and the employers in manufacturing societies, and also includes the norms and guidelines

that administer employment relationships. It is concerned with one of the various subareas within the bounds of the extensive field of industrial relations. Labor-management relations focuses on the functions performed by the particular workers, employers, labor organizations, and government authorities in initiating and supervising employment relationships.

There are three distinctive ideological or philosophical viewpoints have catered normative foundations for significant research on labor-management relations; the Marxist, pluralist, and consensus-based behavioral models of organizations.

Marxist's view labor and management as disembodied by a fundamental conflict of interests determined from the larger class tussle in the capitalist society. Research following this viewpoint consequently has concentrated on the strategy approaches adopted by the state and by employers to take in charge of behavior of the worker and to elicit surplus value (Hyman, 1975), and on the responses of the workers and labor organizations (Montgomery, 1979).

Marxists often redefine the term "labor-management relations" as the study of "the labor process" (Braverman, 1947).

Pluralists share the Marxist perspective that there exists an intrinsic conflicting interest between workers and the employers; although, they perceive the conflict not either as all-enclosing nor as confined to relationships of the employment in a capitalist society. Alternately, employment relationships are intrinsically composed of mixed-motive in their nature: workers and employers possess both conflicting and common interests.

An extensive category of researchers from diversified disciplinary fields take part in research with respect to labor-management relations within the confines of pluralist paradigm.

Particularly those who view organizations as general cooperative systems, consider third approach for studying the labor-management relations that can be discovered to the initial studies of scientific management and human relations, and subsequently of organizational behavior. Advocates to the *consensus-based paradigm* do not view intrinsic economic, class, or structural conflicting interests segregating workers and the managers. At times conflicts may arise in working organizations, efficacious management of structural and interpersonal relations should enable integration of the goals set by the individuals and organizations.

(Argyris, 1964). Almost all empirical and theoretical research in range of this paradigm outlines on psychological or socio-psychological theories and research approaches. The aspects often assessed by the working concern with regard to this paradigm are group behavior, employee motivation and job attitudes, organizational development and change, and organizational culture, and leadership, a more relevant branch to this subject area inspects the human personnel and policies on human resource management and organizational practices. (Heneman et al., 1980)

Practically, policies of labor-management relations are laid down through a mix of regulations imposed by the government, labor-management negotiations, workforce, employers and human resource management policies. Despite of how well they are created, their content and form is determined by economic and technological constraints of the surroundings and by the expectations, values and workers preferences. Though the diversified range of policies included in a quintessential labor-management relationship differs beyond settings and over time, it usually would comprise of wages and any other forms of compensation to the work, hours of work, working conditions, rights to take part in important

decisions, and rights in protection of individuals from the discriminatory treatment or prejudiced actions. The rules can be in a form of unwritten agreements, unratified company policies, legally enforceable individual or collective employment contracts, or common or civil laws. Methods for imposing labor-management policies can be taken in the form of private rights to adjudication, self-help by appealing to the officials of higher management, voluntary dismissal, strikes or other types of collective pressure, or solicit to public judicial or the executive authorization. (Labor-Management Relations, Kochan pp.275- 276,1976)

Labor Economics: It is that part of economics which deals with the labor force as a segment in production. Complete quality and quantity of the labor force is embedded in labor force, pay fixation, pay structure and variation of pay.

In Classical Economics, labour played a significant role. Adam Smith described labour as an ultimate source or the exact measure of wealth. Ricardo and Marx have suggested ‘labour theory value’ as the sole source of value and resulting in profit of capitalists.

Marx labour theory of value states that labour which produces value has to be necessarily homogenous or abstract labour. The statement got its strength from the general exchange of commodities as equivalent values. Further, Aristotle made his point that exchange and equality go hand in hand, and commensurability always comes with equality. Bailey has always stressed against the existence of absolute value. During 1920s, Rubin supported the Marx theory of abstract labour.

The level of skills required and intensity of labour are the two various kinds of heterogeneous labour to homogenous labour as per Marx. He made a point that different kinds of skilled labour count as multiples of simple, unskilled labour. Much of the discussion took place on the aspect of Marx theory where the requirement of homogenous abstract labour and the method of decreasing various heterogeneous labour to homogenous abstract labour.

The Sraffian theory suggests that the role of labour is much less vital than the Marxian theory. Labour is considered as one term without any importance as the responsible source of value and profit. (Moseley, 2011)

U.S. Federal Labor Law: The US saw an important legal development wherein it restricts the role of labor union. The Sherman Antitrust Act 1890 was a hindrance to the labor unions. However, Clayton Antitrust Act Sec 6 (1914) excluded the labor unions from the prohibition of labor union activities. The Wagner Act (1935) or The National Labor Relations Act was a relief to the labor unions as they were permitted to strike and indulge in collective bargaining to pursue their demands.

The Minimum Wages Act and overtime pay had been enacted by the Fair Labor Standards Act (1938).

The World War II period saw the Fair Employment Act (1941) which prohibits racial discrimination. Another major turn took place vide The Taft-Hartley Act (1947) and the Labor Management Reporting Act and Disclosure Act (1959) that made to restrict the union power which was given by the National Labor Relations Act. This Act prohibits unfair labor practices by the labor unions.

Labor Institutions

In the year 1919, the International Labor Organization (ILO) came into existence primarily for the protection of labor from capitalist exploitation and to

bring the labor into one-fold. The humanitarian working conditions were given importance. The ILO being a tripartite organization representing two officials from the Government and one person from the labor union. The Declaration of Philadelphia in the year 1944 is a milestone wherein freedom of association of workers was introduced. For this act, the ILO was awarded Nobel Peace Prize in the year 1969.

("Labor", Ben Kriechel, International Encyclopedia of Social Sciences, 2nd Edition pp. 300 - 303, 2008)

Wages

The natural wage analyzed by renowned classical economists is basically the wage rate given as payment to the common, unskilled labourers. The divergence in wages for various line of works were elucidated by Smith with the divergent perils and difficulties of the occupations, the costs of possessing the required skills, the obligation and societal status belonged with them (WN,1. x.b.1).

(Wages, Antonella Stirati pp.528-529)

Wages are the remittances given for the labour services in any form. Labour is known to be the potential active factor which is holding utmost significance in all

the factors of production. The profound classical economist Adam Smith (1723-1790) termed labour as the source of all wealth.

The population of labour in a country is categorized into the groups which are as follows: (a) Skilled Workers: These comprise of aircraft pilots, engineers, doctors and other eminently trained and qualified persons. They attain education and training for a very long duration of time. (b) Semi-skilled workers: This group are consisted with the workers who are relatively educated and trained under their job category to carry out their roles. Therefore, typists, drivers and nurse come under semi-skilled workers. (c) Unskilled workers: It includes ordinary type of workers viz., porters, watchmen and sweepers.

("Wages" Encyclopedia of Economics and Commerce, p.221)

Migrant Labour refers to the workers who pursue and get involved in temporary and seasonal employment without turning into a permanent resident of the areas wherein they work. In Industrialized economies, most commonly migrant labourers in general carry out tasks relating to agriculture, but they are once in a while employed in lumbering operations, construction activities, and mining as well.

Migrant labour are broadly considered as an essential tool that has a significant impact on construction work, Nutchapongpol Kongchasing and Gritsada Sua-iam (2021) considered the obstacles which cause hindrances in construction work in Bangkok and metropolitan zones, Thailand. In order to prioritize the perceived issues, an issue list was analyzed by 162 subject experts. Thereupon, based on the subject experts opinions a questionnaire was designed considering 58 issue items. Further the questionnaires were given to 147 respondents belonging to construction contractor companies. Their responses were computed using Delphi technique. The findings showed that, the issue regarding "Foreman attained inadequacy or incompetency in trained migrant labour under relocation to other job site has positioned the first place in scores with an average of 4.56. The results indicated to provide prudent decision-making powers and simplify major concerns of migrant labours working in Thai construction Industries by enabling ultimate solution thereby accelerating competence.

Conflict

As per the general use, the term *conflict* is a disagreement or incomparability of goals. According to the conflict resolution literature, although *conflict* is

contradicted from *dispute,* with the preceding one being a long-term, deeply-rooted problem and the latter mentioned one being a short-termed, that can generally be solved through simple negotiation.

Conflicts can furthermore result from disagreements on fundamental moral values. It can include disagreements with regard to rights or denial of rights. Disputes conversely are oftentimes the differences of interests. Such kind of disputes are normally negotiable, and mostly a win-win, or integrative, solution can be well-found whereby everyone is decently satisfied and thus the dispute is resolved.

Generally, these techniques work quite well, and maximum conflicts are successfully resolved or prevented to a great extent. At times, established techniques break down and the destructive and protracted conflicts are hence developed. It is also common to observe a long-duration conflicts within organizations over topics like who will be leading, what goals are to be pursued, or how the work is to be accomplished. When the accustomed conflict resolution techniques break down at the national or international level, overt war or insurgencies is oftentimes the result.

("Conflict", Heidi Burgess, International Encyclopedia of Social Sciences, 2nd Edition pp. 70 to 71, 2008)

Conflict is a framework between established authority and the strength and talent that alone can secure that authority; between tyranny and justice. It refers to the provocation of two or more strong purposes that cannot be resolved jointly. Conflicts are not all uniformly strenuous. The conflicts that require extreme fear or threat are not resolved willingly but make the person feel anxious and helpless. Following readjustments may then be conducted more to the alleviation of anxiety than to providing the rational solutions of the real challenges. Usually conflicts are regarded as unconscious, apparently that the person is unable to identify the main source of his distress clearly. Many powerful impulses-namely hostility and fear are concerned in a conflict, the person turns anxious but fails to understand why. He is thus inefficient to put forward the rational thinking to endure on the problem.

Unions are referred to the organizations of wage earners intended to improve the working conditions and provide labourers a common voice in the procedure of contract bargaining.

Unions became apparent from the early trade associations built by the workers opposing the after effects of the industrial revolution. In the year 1790, New York City was known as the center for commerce, but hitherto an industrial city. It was also a city which was segregated on the basis of property, power and class. On one hand, during the pre-revolutionary period an affluent class of traders and financiers emerged. Basically, they were the merchant capitalists who obtained profits through import and export, purchasing commodities on a relatively cheaper price in Asia, Europe, Africa and the America and offering them on sale at a great deal in the United States; or they purchased the native-made commodities and exported them across the globe for attaining huge profits. In this process they accumulated huge wealth which they reinvested in their business operations.

On the other hand, there were several potential artisans, skilled craftsmen (which includes brick-layers, printers, blacksmiths, and carpenters) who created and manufactured various products that are essential for an early urban life. These artisans followed their age-old traditional inheritance as their occupation instead of hiring employees, the main craftsmen who is mastery at that particular skill

took on trainee (workmen) who performed the given work for a certain period of years (standardly six or seven years), gaining accommodation (a room) and receive recompense in lieu of wage or salary payments. After completion of training, these workmen become master craftsmen. Eventually, the unskilled laborers were present in order to work for earning wage. In this period of early republic, the craft workers constituted the trade associations which together consisted of the brick-layers, printers, blacksmiths, and carpenters. The above-mentioned early trade associations comprised the trainees, journeymen and masters; and thus, all of the three cluster of skilled workers experienced a unity of purpose, a common social bond and a community of an art. Nevertheless, the previously stated associations were not hitherto the trade unions. ("Unions", Graham Cassano, International Encyclopedia of Social Sciences, 2nd Edition pp.513 to 514, 2008)

The construction industry in most developing nations is regarded as the chief component towards the progressive growth in a country. (Tripathi and Jha, 2017). Yet, during this phase, better quality and higher productivity levels in the construction work remains to be a challenging aspect.(Johari & Jha, 2020)

In the construction industry, both the labor and the machines are critical components as both of them are minimum prerequisites in order to obtain enhanced productivity levels and superior quality of work within the given time and optimum utilization of available resources along with best and timely usage of material (Chitkara, 2014).

However, in the emerging economies, the usage of sophisticated technology by the construction sector is inadequate (Durdyev and Mbachu,2017; Ofori,2007) due to their exorbitant acquisition cost & need for expert level of research. Hence, the construction industry predominantly is dependent on the labor-intensive work of a trained construction workforce to attain the assigned construction activities (Durdyev and Mbachu,2017**).** However, the construction industry lacks skilled labour in the majority of developing countries. As a consequence, the obstacles revolving around the quality of output and efficiency get exacerbated because of the inaccessibility of the sophisticated technology along with the skilled labour force. This gradually delays project activity and has a negative impact on production.

As a result of this, the need for education and training that aims to improve the skill set of construction workers becomes increasingly important, particularly in light of emerging markets and developing nations.

In most developing countries, the responsible department officials have established distinct initiatives, namely skill development authorities, and made progressive adjustments in accordance with the time and demand of requirements in order to acknowledge the dearth of competent construction workers. Examples of which include the Skill Development and Entrepreneurship Ministry (MSDE) in India. The Governing Council of National Skill Development Mission (NSDM) is headed by the Honourable Prime Minister. Under the leading scheme, Pradhan Mantri Kaushal Vikas Yojana (PMKVY) nearly 1.37 crore have attained the skillset and more than 720 Pradhan Mantri Kaushal Kendras (PMKKs) have been implemented to encourage skill development infrastructure in the country. The Ministry has made significant reforms under the Apprenticeship Act 1961, MSDE initiated a scheme named National Apprenticeship Promotion Scheme (NAPS) in year 2016 to empower the sustainable model of skill development under which till date more than 7 lakh apprenticeship trainings and induction

programmes have been conducted successfully. The MSDE's vision 2025 aims to envisage transition of India to a high-skills steadiness and aids in executing optimistic results with regard to individuals, esteemed enterprises and the economy taking shape towards extensive growth. The vision outlines enabling individual economic achievements and social advancements; generating a skills marketplace that provides learner centered instruction and demand driven approach; and fostering aspiration-based employment and catalysing generation of entrepreneurship.

The Department of Skill Development Malaysia and the Ministry of Skill Development and Vocational Training in Sri Lanka (Dundar et al., 2017) and Asada et al. (2017) have established training workshops and programmes through which workers are aided with skill based certified training and after successful completion are given a value-based skill certificate. Nevertheless, it has been highlighted that in spite of these training sessions, the mystery surrounding the dearth of experienced construction workers continues to exist. (Durdyev *et al.*, 2017; Durdyev and Mbachu, 2017). This situation is made worse by the lack of proportionate levels of anticipated and improved abilities, even when workers

who have received training through the programmes are included. There may be a variety of reasons for ineffective training session implementation, including inadequate training time & a lack of supporting infrastructure for skill-based training sessions. (Agrawal and Agrawal 2017; Wang *et al.*, 2008). Such reasons probably resulted in the workforce not getting zealous with the training sessions. (Dainty et al., 2004). The construction industry in India is mostly seen as a labor-intensive business. By 2030, there will be an increase in the international labour force ranging from 2.9 billion people in 2012 to 3.5 billion people, with an approximate 60% share coming from South Asian nations, Africa, and India (McKinsey Global Institute, 2012). By the year 2022, the industry is predicted to need more than 15 million new workers (Economic Survey, 2018). As a result, the demands on this industry will be greatly alleviated by the rising level of demand for qualified workers and the fact that India has a large demographic dividend (Economic Survey, 2017). Furthermore, from the literature it was discovered that in spite of improvising the infrastructure of training programmes through skill development initiative schemes (SDIS), the difficulty of the dearth of skilled workforce, with regard to the demand, was still dogged in the

construction sector (Huang *et al.,* 2009, FICCI and KPMG,2014;). Wang *et al*. (2008) rooted the same apprehension in the United States of America's construction firms. They have identified "the lack of new craft workers interested in a training programme" as one of the main obstacle hampering the execution of craft training in the American construction business (Agrawal and Agrawal, 2017). As a result, it became abundantly clear that opening such training facilities exclusively for this industry's employees is not the workable resolution to the existing conundrum of a skilled labour shortage. Additionally, it is crucial to recognise the key factors that affect and serve as a catalyst for employees to participate in training sessions that are designed to address the challenges associated with a lack of trained labour in the construction industry.

The global labour market estimated around 3.45 billion (2021, World Bank. Labour Force Participation Rate (LFPR) in India augmented to 54.9% during the FY 2020-21 and the LFPR across the world showed a downtrend line which figured at 59% in the year 2021. (Labour and Employment Statistics, 2022). For the year ended 2022, an estimate of 2 bn workmen were engaged in informal employment activities. (World Employment and Social Outlook Trends, 2023)

Human Resource Management

These days, the term Human Resource Management (HRM) is frequently discussed among the academic circles in order to strengthen the range of regulations and practices put into force by the modern companies while managing their employees. Of late, the short form of human resources i.e., HR is widely used to indicate the Director, Manger or Personnel Department.

Miles (1965) has initially put into use the term HRM in the Harvard Business Review to distinguish the human relations school which gives importance on the executive leadership in order to tap optimal utilizations of total resources.

In totality it can be summed up as to make utilize of all the untapped resources of the company members viz skills, competencies, tacit knowledge etc. During 1980s and 1990s at a time when the industrial relations problems got reduced, a good number of firms well-found that superior management of their available resources were needed in order to meet the large number of competitive markets.

The ‘matching model’ was developed by Fombrum, et al (1984) wherein the company’s reach to its employees acquired and suited the broader strategy of business. This approach was further continued by Schuler and Jackson (1987)

which states that companies in various market segment tend to adopt various types of HRM systems. Storey (1992) has suggested that a company in a price-sensitive market vis-à-vis low skilled workers has less chance to invest massively in empowering employees with training and development.

Usually, it is seen that Personnel Management term is improved as HRM. Personnel Management was a narrow version which denotes to provide right place at a right time. Whereas, the HRM deals largely on the demand of managers including specialists. The HRM has a very wide concept and various factors are taken into account viz. job design, employee relations, type of contracts and pay systems and communication between individuals and groups etc. are covered to provide optimum results either with soft or hard approach.

Boxall and Purcell (2002); Bratton and Gould (2003) have specified that HRM has different characteristics and is widely with respect to the internal guidelines and practices of the company at micro level & does not take into account broad cultural issues like culture, politics, and the economy. However, as per business strategy and focus on performance a new theoretical sophistication is seen.

("Strategy and Human Resource Management", John Purcell University of Bath pp.467 to 468, 2011)

The research study encapsulates with regard to the healthy working environment conditions in construction projects and specifically the sub-aspect of working environment i.e., food conditions. Inspite of the fact that stressful working environment can have an adverse influence on individuals and firms' health indicators and construction project areas are situated in the most severely dangerous working environments in the modern industrial landscape, wherein the line managers role in creating such working environments is mostly obscure. Healthy working environments are particularly explored in this study as they lead to the developing of several 'behavioral' illness namely Type 2 diabetes and cardio vascular diseases, both together are known problems among the construction workers. Data collected was qualitative in nature from 80 project-based construction workmen and managers on 6 large civil engineering construction projects located in Brisbane, Australia. Iin complete agreement views were expressed by all the interviewees during the survey that managers should not influence or put any sort of restrictions on the choices of food for

construction workers on-site. Nevertheless, results in this study have clearly brought to light the examples of managers making decisions with respect to food environments, work structure and time pressures and permissive and demoralized attitudes on-site that cause influence on choices of food. The authors Keith Townsend, Rebecca Loudoun and Katherine Markwell (2016) found that limited awareness on healthy work environments in construction sites with a considerable impact of the actions of management are majorly being unknown. It put forwards suggestions with regard to more conscious management decisiveness, thereby improving the eating habits at construction sites.

M. Hazeen Fathima and C. Umarani (2022) in their study have asserted that more amount of focus must be given to HRM practices since they perform a significant part of withholding the trained and skilled manpower to obtain an enhanced competitive superiority & minimizing scarcity of skills. The study mainly aims to analyse the effect of satisfaction of engineers with regard to the impartiality in the key areas of HRM practices namely employee relations, overall performance management and compensation benefits and on their intent to continue working in the firms. The research study was initiated by using a questionnaire for 230

engineers working in the construction firms in India. The survey was carried out further with the help of quantitative analysis for data collection. The constructs associated were analysed using factor analysis. The methodology consisted of correlation & regression analysis in order to assess the relationship amongst engineers' satisfaction and level of fairness in the human resource practices and their intent to stay in the firm. The findings by the authors resulted that satisfaction with regard to the fairness of the human resource practices viz, employee relations & overall performance management are positively correlated to the engineers' intention to stay although satisfactory levels with respect to fairness in employee relation practices majorly anticipates engineers' intent on staying. The study brings forth the knowledge of enabling to examine the impact of engineers' satisfaction with fairness in human resource practices on their intent to stay in Indian construction industry, which is not much of a studied concept. Thus, the finding could enable construction firms in advancing human resource practices and relating policies so as to further boost the retention rate of construction professionals, especially of those engineers who indulge in working with the firms.

Authority

Max Weber (1978) in the first volume of Economy and Society, described authority which gave legal strength to the individuals to exercise power which can affect other individuals to follow suit even with resistance and thereby the group follows the orders.

Ralf Dahrendorf stressed the significance of authority in connection to class in his 1959 book Class and Class Conflict in Industrial Society. A particular class which carries out authority may equally take orders from others. The classless group cannot exercise authority and at the save time are not influenced by the authority viz. independent workers. Hence, class is known by the authority it got. As the industry has a vital role in day-to-day life, authority of a person can be influential in other areas which can be family too.

In the year 1974, Staley Milgram had tested and found that a person obedience to authority. Authority does not travel in the same line always and derived from social atmosphere. Authority becomes must due to attachment of individuals with authority, the wearing of uniforms bring authority, and lack of competition brings authority and absence of inconsistencies.

Philippe Aghion and Jean Tirole (1977) have drawn division among formal and real authority (a) Further development of notion of theory was gained through organizational theory (b) To be precise, the official authority being “the right to decide” and actual authority as “the effective control over decisions made”.

In political philosophy and the social sciences, the primary concept of authority is connected to power, influence, and leadership. According to Bertrand de Jouvenel, authority is more fundamental and older than the state, much like how the natural superiority of some humans over others serves as the foundation for all human organisations and technological advancements. The Encyclopaedia of the Social Sciences defines authority as "the capacity, innate or acquired, for exercising ascendancy over a group," as stated by Michels (1930, p. 319). According to Bierstedt (1954, pp. 67-81), the Authority is a relationship rather than a power. Furthermore, it is neither innate nor the result of asserting one's dominance. But authority "is a manifestation of power" in Michels' eyes (1930, p. 319); in Bierstedt's eyes (1954, pp. 79–80), "authority becomes a power phenomenon, it is sanctioned power, institutionalised power."

Modern-day uses

Bierstedt's has come out with the definition of authority as recognized or "formal power" (1950, p. 133). But Friedrich (1963) has defined authority as "the quality of a communication" that is "capable of reasoned elaboration"

Legitimacy is the core point wherein the authority is differentiated from coercion, power and force to leadership and influence. It is superior versus subordinates where the orders are issued and obeyed. Any deviation to question the order will result in the authority being in danger and the relation between the superiors and subordinates will be adversely affected. The authority becomes more powerful when the subordinates anticipate and conduct themselves before any such command or orders are passed. Further the authority can be effective by input into action where there is hierarchical roles are there viz. parent-child, teacher-pupil, employer-employee, ruler-rules etc. The system is stronger and effective, there will be less demand for men with great ability.

At last, large number of social scientists are of the view that authority is more necessary for formal positions. Finally, the more and more resources can be tapped with the help of authority.

The significance of skilled front-line managers (FLM) is pivotal for the timely accomplishment of construction projects and also enhances the firm's performance. Authors Fiona Edgar et al., (2014) attempted to examine the aspects that strengthen overall performance of workforce from the view point of knowledge workers (KWs). Despite the fact that a wide range of aspects are investigated, the involvement of FLM is predominant in nature. In the study authors used the data collection from the year 2012 which consisted of 73 KWs from New Zealand. They took into consideration a methodology which is phenomenological in order to analyse the impact of FLMs with respect to motivation in the performance of activities. Further the research followed 2 stages wherein the first stage had a paired statement exercise and the next involved a detailed interview. The study found that the encouragement and behavioural support facilitated by FLM to the KWs turned out as an essential impact on the work performances. In particular, behavioural support which included trust, added value, dignity, esteem, acknowledgement, work appreciation which enables KWs for working harder thereby resulting in high performance level increasing the efficiency. The implications focused on the development and

consistent motivation that are required by FLMs which can lead to greater effectiveness in managerial functioning are keenly noted to boost the relations that are vital for KWs. The peculiar attributes of KWs and all facets that represents constructive management are needed to be taken into account for further area of research. This indicates in determining the extensiveness of FLM.

Tarja Maki and Hannele Kerosuo (2015) in their study emphasized the usage of building information modelling (BIM) and its concerned software tools which are augmenting in the work of site managers in construction projects. The early stages usage of BIM in the tasks dealing under the supervision of site managers are inspected by scrutinizing the application of BIM in their work structure and the difficulties in the implementation of the new digital tools in place of traditional collaboration of projects. The site managers actively engaged in usage of BIM and thus were able to find its benefits in the day-to-day functioning. Nonetheless, the usage of BIM in construction activities at the sites is still considered to be confined because few managers have the potential skills to utilize BIM software tools, mobile application tools are still lacking and the content available relating to the models required for construction related work is inadequate.

Katharina N. Jeschke et al., (2021) examined regarding occupational safety and health (OSH) in their study as the measures and practices followed as a collaborative work among the workmen and managers at the construction workplaces are intended as crucial. In purview of OSH it is difficult to maintain a cordial relationship between workmen and managers as few aspects come into light regarding them. Hence, emphasizing about complaining as functioning as "boundary work" the research study analytically inspects as to how the workmen and managers communicate either in cooperation or in discernment horizons. For this in-depth interviewing were taken place in Denmark at a proposed construction between the workmen and managers. Observations were drawn based on the interview survey for the purpose of determining the usage of complaints. A methodology was adopted which comprised of "complaining" techniques: 1) Transferring the duty for the advancement of OSH 2) Safeguarding individuals in contempt of hectic workplace conditions 3) Coping tactically with condemnation and 4) Hold liable to other groups. The complaining with regard to OSH takes further to a discordance between the workmen and managers however in a secure environment leading to professional dissonance. The authors

propound for a harmonious working environment among the workmen and managers. It is extremely beneficial to engross on the verbalization and connected elements for OSH association.

Labours are considered as the primary source for project construction activities which have a considerable influence on the progression of the economy. As time passes by the construction sector is prospering as a result of umpteen opportunities wherein labour workforce has substantial contribution. Efficiency in construction projects is connected with great level of potency which constitutes to the labour force. In order to sustain labour retention, wages play a crucial role. Muhammad Ali Musarat et al., (2021) studied on the behavioural aspects of labour with respect to wages in the construction sector. They focused about rates of inflation, their influence in deviation to the wages of labours. At the preliminary stages, the percentage variation was computed to examine the behavioural patterns then later spearman correlation was applied to analyse the association between rate of inflation and labour wages. The authors found clearly that regardless of vibrant economy and a sound construction industry, yet the wages of labours eventually encountered a deterioration, which comes under the

area of concern. On the basis of the coefficient of correlation it was unveiled that various classification of labour wages are slightly and highly corresponded to the rates of inflation and can influence the cost of projects during preparation of final budget allocation. Additionally, the changes in behavioural patterns of labour wages because of inflation rates can cause considerable influence on the nation's gross domestic product (GDP) levels. Project costs are exceeded when wages of labours are not taken into consideration. The study draws the focus of stakeholders for a detailed explanation. Along with the repercussions of inflation rates on labour wages is also discussed.

Muhammad Yasir and Abdul Majid (2020) in accordance to the "AMO" framing and the resource-based theory (RBT) have studied the relation between these key functioning areas i.e., high involvement human resource management (HI HRM) practices, the innovative work behaviour (IWB) of employee and functional flexibility (FF). The authors used empirical approach which included correlation test, baron and Kenny, descriptive statistics, hierarchical regression analysis, PROCESS Macro and Sobel Test methodology on 894 sample population from manufacturing firms. They found that there was an impact directly of the HI HRM

practices on IWB and FF. Further, it was observed that flexibility intercedes positively between higly involved HRM practices and the innovative work behavior. Besides that, the 3 elements of higly involved HRM practices such as the opportunity enhancing (OE), motivation enhancing (ME) and ability enhancing (AE) HRM practices also envisioned IWB and FF. The practical implications of the study present a factual indication to testify the previous findings by remarkable researchers, along with enabling the perception of HI HRM practices thriving for FF functioning in manufacturing firms. However, the study evidently presents that there is high significance of HI HRM practices in the overall performance standards of firm yet there is dearth of past studies in this subject matter. Eventually this study studies HI HRM practices essentially as key indicator of FF dealing with the IWB.

2.3 Public Private Partnership

Public enterprises refer to the business firms that are completely or partly held by the government and productively managed by them but are regulated as commercial enterprises. In almost all the countries other than the United States, the electric-power systems, railroads and other utilities are primarily managed as

public enterprises. This type of organization has furthermore been pertained in other economic sectors.

A person who works for and is under the direction of their employer is referred to as an employee. (“Empowerment” Encyclopedia of Management, p. 237)

Employer is a term used to describe a person who hires another person to execute a task and has the authority to control how that person behaves physically while completing the task. (“Empowerment” Encyclopedia of Management, p. 237)

Public -Private Partnerships (PPPs) play a crucial role in infrastructure. In transport sector the predominant sponsors to the project are construction companies, which have revamped over the past decades. To study the growth strategies emerging from the PPP agreement, a game theory model is built conceptually on four rationalities of institution namely political, legal and scientific furthermore to economic directing economic behaviour is exhibited. The model demonstrates that the strategies pertaining are training sessions, acquisitions and step outs. The prior strategy is quite less effective when compared to the other two with reference to single project. The latter propounds the possibility of “unproductive investments’ causing an influence on quality of

infrastructure and social advantages. Roumboutsos, et.al (2017) have outlined a model which takes into account the construction firm strategies and does not consider the viewpoint of the operational phase with regard to the one with construction. In its current state, the model illustrates the aspects entailing to "unproductive investments" and market concentration and enables to articulate policy ground rules in order to curb unfavourable consequences.

The study by Sandeep G. Kudtarkar (2020) helps to interpret the scenario as to why several public private partnership (PPP) projects are not slowed down causing long-delay leading to extending the time schedule resulting in further cost overruns and at later stages even few projects get discontinued in India. In consonance with qualitative and quantitative case studies this study attempts to find reasons of partial completion of PPP projects, moral and ethical hazards, expediency, uncertainties resulting in aftermath of indecisiveness and challenges in PPP project completion. The inefficiency and unrealistic risk allocation within the stakeholders of firm and paucity of effective skills at management level in the concerned authorities distorted the complications thereby entailing in failure of several PPP based projects. Lack of active participation from developers of

private firms in future ventures consequently prevailing over the significant motive of undertaking PPP based public entity infrastructure model. The author suggests a 20-pointer frame of reference propounding conceptual policy and course of actions at different stages in a project contract for enhanced level of efficacy in implementation of PPP projects in India and other evolving nations across the globe with identical socio-demographic settings which brought economic decline in post COVID-19 pandemic scenario.

Imrana Begum and Dr. Ravi Kumar (2021) in their study emphasized the significance of development in the infrastructure industry. Viewing the importance there is a need for accumulation of funds. The GoI is in scarce of capital for the investments and expenditure in establishing a pioneer status leading to progression of infrastructure sector. Public Private Partnership (PPP) projects are rapidly increasing all over the developing economies. As per GoI, the PPP projects directs its main intend to a contract which is in a long-term duration between the concerned government entity and private sector enterprises in order to facilitate superior quality infrastructural facilities for agreed cost of projects. In PPP projects the public sector determines the whole structural aspects from the

initial stages to completion of delegated projects giving more preference to the capital funding so as to minimize the wastage of funds and make optimum utilizations of available resources. On the other hand, the private sector enterprises deal with planning of project, overall construction activities, maintaining and executing the day to day assigned tasks on scheduled time along with taking into account other key areas of concern. Hence the study focuses on the PPP framework in a competent environment of India.

From the above review of literature, the following research gaps and questions were identified:

2.4 Research Questions

- What is the association between job satisfaction and supervisors attitude towards compensation and performance evaluation?

- What is the association between job satisfaction and workmen attitude towards work?

- What is the association between job satisfaction and workmen attitude towards wages?
- What is the association between job satisfaction and workmen attitude towards welfare and safety measures?
- What is the association between job satisfaction and workmen attitude towards supervisors?

In order to address the above research questions specific objectives were framed from the construction scenario and are presented in the next chapter on research methodology.

Chapter 3

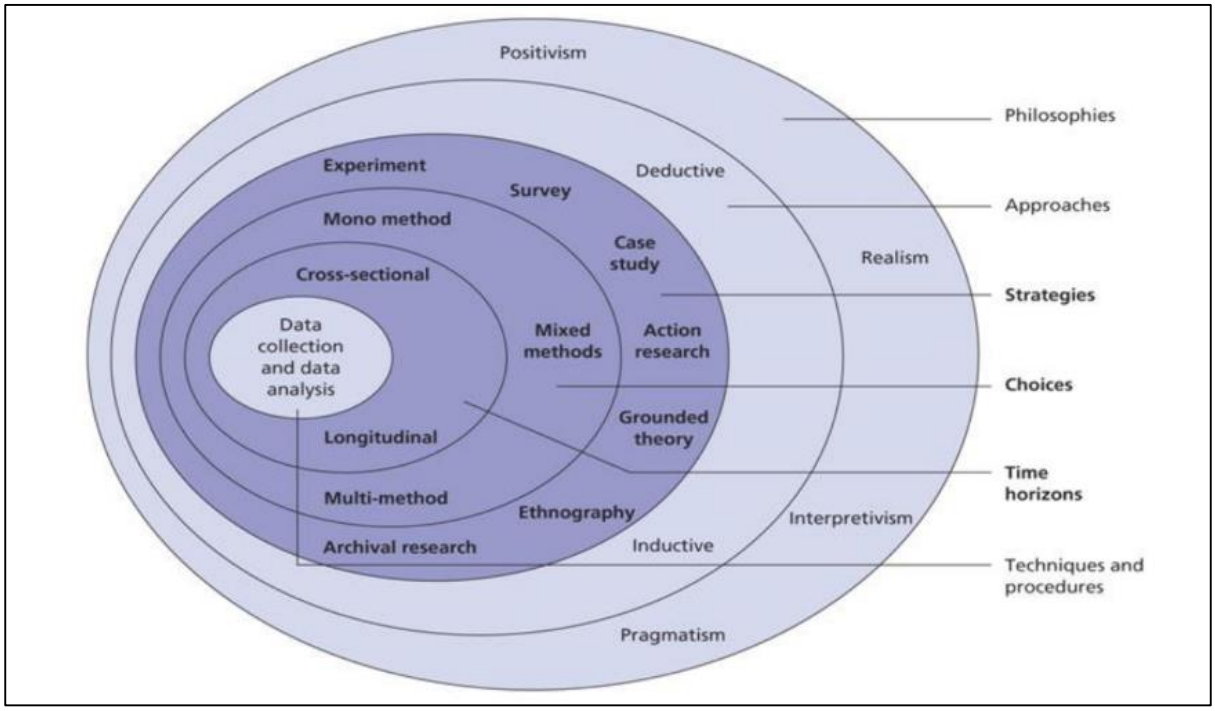
Research Methodology

This chapter entails a complete description of the research methodology and design implemented in the study. It presents the research typology or framework utilised for the present study. It also describes the sample selection and sampling techniques with reference to the present study. It also throws light upon the questionnaire development and design for the study. Lastly, it also describes the data analysis techniques and tools used for the study.

3.1 Research Typology

The methodology adopted for any research should be in congruence with the research questions for which answers are being sought. The research typology created by Saunders et al. (2012) is used to guarantee this. This research framework, popularly also known as the “onion framework” depicts the different research paradigms in which the researcher has to establish the study. The framework has six main elements which are depicted in the image below.

Figure 3.1 Research Typology – Saunders et.al (2012)



The six key elements wherein a researcher has to take decision are: Philosophies, Approaches, Strategies, Choices, Time Horizons and Techniques & procedures.

In this chapter, each of these elements will be discussed.

3.1.a Research Philosophies

According to Burrell and Morgan (1979), research philosophy is a core set of assumptions and ideas that forms the basis for knowledge generation. The study is determined to be appropriately positioned in the positivistic paradigm based on a comparative comprehension of the key research philosophies.

3.1.b Research Approaches

The hypothetico-deductive research methodology was used for the current study (Figure 3.1). Deduction, according to Bryman (2012), is the process of developing a deeper understanding of the known elements of a particular area (in the context of the present research, the job satisfaction and attitude towards various work-related variables) and deriving hypotheses from them before operationalizing them to produce measurement.

3.1.c. Research Strategy

Researchers can select from a range of research methodologies, such as experiments, archival research, surveys, case studies, action research, ethnography, narrative inquiry, and grounded theory, depending on the type of study they are conducting. Since the current study is mostly descriptive in nature, the survey method was chosen as the research methodology.

3.1.d Research Methodology

The decision on the research methodology for a study is determined by and influenced by both the research philosophy and research approach.

The current study uses a deductive methodology and a positivist viewpoint. A mixed, qualitative, or quantitative methodology can be used; each of these has certain features that set it apart and affect how it is used to various studies.

The difference between quantitative and qualitative studies was clearly brought out by Sanders et al (2012) as follows.

Table 3.1 Quantitative vs Qualitative Research Methods

	Quantitative	Qualitative
Research philosophy	Positivism	Interpretivism
Research objective	Examines relationships between variables	Studies participants' meanings and relationships between them.
Research approach	Predominantly deductive	Predominantly inductive
Research strategy	Experimental and survey research	Case study, grounded theory, ethnography, narrative inquiry, action research.
Researcher's position	Independent from respondents	Plays a more active role

Source: Sanders et.al (2012)

The technique chosen for the present study is "mono-method quantitative research" since it is regarded appropriate for answering the current research questions after taking the research philosophy, approach, and questions into consideration.

3.1.e Time Zone

Depending on the problems they focus on, the majority of empirical research studies are either cross-sectional or longitudinal. While longitudinal studies collect data from respondents throughout time, cross-sectional research only does it at a single point in time.

The direction of causality cannot be determined and is a crucial limitation of cross-sectional designs because they lack a time order and can only analyse interactions between variables (Jiang et al., 2013). Even though the current study recognises the benefits of longitudinal design, it nonetheless uses a cross-sectional design because of time and data limitations.

3.2 Research objectives

3.2.1 Broad Research Objective

The broad objective of the present study is:

- To examine the relationship between job satisfaction and workmen's attitude towards work related aspects.

From the broad objective the following specific objectives were formulated

3.2.2 Specific Research Objectives

- To study the association between job satisfaction and supervisors attitude towards compensation and performance evaluation
- To examine the association between job satisfaction and workmen attitude towards work
- To identify the association between job satisfaction and workmen attitude towards wages
- To study the association between job satisfaction and workmen attitude towards welfare and safety measures

- To understand the association between job satisfaction and workmen attitude towards supervisors

3.3 Research Hypothesis

The following hypothesis were developed as part of the study :

- **Hypothesis 1:** There is a positive association between job satisfaction and supervisors attitude towards compensation and performance evaluation.
- **Hypothesis 2:** There is a positive association between job satisfaction and workmen attitude towards work.
- **Hypothesis 3:** There is a positive association between job satisfaction and workmen attitude towards wages.
- **Hypothesis 4:** There is a positive association between job satisfaction and workmen attitude towards welfare and safety measures.
- **Hypothesis 5:** There is a positive association between job satisfaction and workmen attitude towards supervisors.

3.4 Tools for data collection

Two separate questionnaires were prepared for workers and supervisors separately to examine the relationship between job satisfaction and attitude towards work related aspects.

For this study, a structured questionnaire with closed-ended questions was deemed appropriate because it allowed the researcher to tailor the questionnaire's length as per the needs and guaranteed uniformity of responses because each respondent encountered the same set of questions (Saunders et al., 2012). The researcher conducted the survey to ensure better control over the data collection procedure.

The questionnaire for workers was developed using scales from the following papers: Petkovska, Bojazdiev et al (2017), Mustafi, Kamal and Hossain (2014) and Chandrasekharan, Prabhu (2020) and other relevant secondary sources.

The questionnaire for supervisors was developed using scales from the following papers: Ling, Ning, Chang, Zhang, (2018), Chandrasekharan, Prabhu (2020) and other relevant secondary sources.

The questionnaires are appended in the annexures.

The questionnaires for supervisors elicited data on demographic details, work experience related aspects, supervisors' attitude towards HR related aspects experiencing in the organization. These aspects were related to job satisfaction levels in the analysis.

The questionnaire for workers also elicited data on demographic details and their attitude towards work, wages, recreational facilities, and supervisor's etc. All these were again examined in relation to the job satisfaction levels of the workers.

3.5 Sample chosen for the study.

The study focused only in Hyderabad as a major PPP project was on going. In the Hyderabad site there were a total of 150 supervisors. As far as workers were concerned, there were six labour camps where all the workers were given

accommodation. Each camp had around 300 workers. Hence in the total labour camps, there was a population of around 1800 workers.

As far as supervisors were concerned, questionnaires were distributed to all 150 of them. However only 120 were used in the study as some of them did not complete the questionnaire and those had to eliminated.

For the workers, the questionnaire was translated into Hindi and Telugu language for convenience's sake. The researcher visited the labour camps and gathered them and elicited the data. However, on an average only 100 would gather and showed willingness to participate in the survey. But there were few people who left in the middle of the survey without any reason given. The researcher was constrained to obtain data from the volunteers from the camps and hence the final number of workers from whom the data was obtained was 317.

Table 3.4 Sample Description

PARTICULARS	SUPERVISORS	WORKFORCE
POPULATION	150	1800
SAMPLE	120	317

3.6 Data collection

After briefing the respondents, the researcher took the help of a translator explained the variables and their implications particularly to the workers in the labour camps. Since most of the workers were from north a major portion of the communication happened in Hindi language only. Finally, all the items in the questionnaire were explained in the questionnaire and the responses were collected and coded.

As far as supervisors were concerned since they were all engineers, were able to understand the questionnaire and gave their responses.

Besides collecting data from primary source like from the above data was also collected from secondary sources like infrastructure governmental policies, specific websites and books and journals.

3.7 Data Analysis

The data thus collected was coded analysed and statistical tools like SPSS and regression were run to obtain quantitative data. The next chapter deals with the qualitative and quantitative interpretation of the data.

Chapter 4

Data Analysis & Interpretation

This chapter discusses in detail about the results of the statistical analysis conducted on the data collected. It presents the demographic details of all the respondents, both workers and supervisors/project managers. It describes the methods of data analysis used in the study, which is multiple regression and also discusses the regression results.

4.1 Sample Demographics

The data was collected using structured questionnaires from the respondents. The first part of the survey instrument covered the demographic details of the workers like their age, their nature of employment, their marital status and their years of service in the firm.

The following tables describe the respondents with reference to certain demographics profiles.

4.1.a Age-wise distribution of Respondents

Table 4.1.a The Age Wise Distribution of Respondents

Demographics	Total N	No. of Responses	Percentage (%
Age	317		
18-25		10	3.15
26-35		127	40.06
36-45		152	47.95
46-55		28	8.83

The above table 4.1.a describes the age of the workers. Out of the 317 workers, the highest response belonged to the groups of 26-35 and 36-45 years, 40% and 47.9% respectively. This signifies the presence of this age group is prevalent in the firm. This age groups also has a mix of millennials and baby boomers who have different levels of aspirations and motives to work.

4.1.b Distribution of Respondents by Work Experience in the company

Table 4.1.b Distribution of Respondents by Work Experience in the company

Demographics	Total N	No. of Responses	Percentage (%)
Work Experience	317		
Upto 1 year		16	5.05
2-5 years		230	72.56
6-11 years		51	16.09
More than 11 years		20	6.31

The above table 4.1.b depicts the distribution of respondents based on their work experience. 72.5% (230) of the workers have 2-5 years of work experience with the company. 51 respondents out of 317 had 6-11 years of service in the company. Both upto one year and more than 11 years categories have 16 and 20 respondents. This suggests that the company has a higher proportion of workers who are in the mid-level of their careers and maybe looking for growth opportunities as well as work life balance.

4.2 Regression Analysis

Multiple Regression analysis is one of the statistical method used to examine the relationship between a single dependent variable and a number of independent variables.

In the study, regression analysis was done using Stata to analyse the dependent variable job satisfaction and various independent variables like the attitude towards wages, safety facilities, supervisors etc.

The following table presents the results of the multiple regression for workers:

Table 4.1.a Regression Analysis

JOBSATISFACTION	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Attitude Towards Supervisors	.124	.021	5.80	0	.082	.166	***
Attitude Towards Recreational facilities	-.1	.036	-2.83	.005	-.17	-.03	***
Attitude towards Safety Facilities	-5.232	.592	-8.83	0	-6.397	-4.066	***
Attitude towards Welfare and Safety Measures	-.012	.017	-0.73	.468	-.046	.021	
Attitude Towards Wages	.074	.035	2.13	.034	.006	.143	**

Attitude Towards Work	-.279	.03	-9.25	0	-.338	-.219	***
to5Years	-.023	.023	-1.01	.314	-.068	.022	
to10Years	-.01	.025	-0.40	.688	-.06	.04	
Morethan11Years	-.057	.031	-1.84	.066	-.119	.004	*
Constant	30.461	2.979	10.22	0	24.599	36.323	***

Mean dependent var	3.302	SD dependent var	0.125
R-squared	0.527	Number of obs	317
F-test	37.994	Prob > F	0.000
Akaike crit.(AIC)	-637.615	Bayesian crit. (BIC)	-600.026

*** p<.01, ** p<.05, * p<.1

The R- square value indicates that experience and work-related aspects such as the Attitude towards Supervisors, Attitude towards Recreational facilities, Attitude towards Safety Facilities, Attitude towards Welfare and Safety Measures, Attitude towards Wages, Attitude towards Work together explain **52%** of variation in job satisfaction.

Independent variables Attitude towards supervisors & Attitude towards wages are positively associated with the dependent variable Job satisfaction.

However, Attitude towards Recreational facilities, Attitude towards Safety Facilities, Attitude towards Welfare and Safety Measures & Attitude towards Work are negatively associated with Job satisfaction.

A separate questionnaire was administered to the supervisors/project managers to understand if their attitudes towards compensation and performance appraisal methods affected their job satisfaction.

The following table presents the results of the multiple regression for supervisors:

Table 4.1.b Significance Analysis

VARIABLES	Job Satisfaction
Average Attitude towards performance	0.433***
	(0.148)
Average Attitude towards compensation	0.213
	(0.197)
Constant	1.395*
	(0.804)
Observations	120
R-squared	0.087

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The R- square value indicates that Experience and work-related aspects that is Attitude towards compensation and benefits and Attitude towards performance appraisal practices together explain 8% of variation in the independent variable Job satisfaction.

It can be seen that the Attitude towards compensation and benefits and Attitude towards performance appraisal practices are positively associated with the variable job satisfaction.

4.3 Interpretation of the Results

The present research study collected data from two groups:

(a) Supervisors (b) Workers

Data collected from both the groups was analysed separately to test the hypothesis Formulated.

Supervisors

Data was collected from 120 supervisors in the Hyderabad sector. Even though 150 questionnaire were distributed, only 120 were fit for analysis for want of completion of the questionnaire.

As far as supervisors are concerned, the objective was to study their attitude towards compensation and performance appraisal practices in the organization.

As far as compensation is concerned L&T follows the guidelines and norms and is vigilant towards the compensation requirements of its supervisors. Timely payment and ensuring industry demands has resulted in a positive attitude towards compensation policy of L&T by the supervisors thereby resulting in job satisfaction.

The performance appraisal practices of the company are also highly appreciated ensuring transparency and fairness. Hence a positive association resulted between performance appraisal practices and job satisfaction for the supervisors.

So, the hypothesis one: There is a positive association between job satisfaction and Supervisors attitude towards Compensation and Performance Evaluation has been accepted.

Workmen Analysis

A total of 600 questionnaires were distributed to the workers. However only 317 questionnaires were valid and hypothesis 2 to 5 were tested in the study.

The Factors that affect job satisfaction of construction workers as researched in the study are;

1. Wages
2. Supervisors
3. Recreation facilities
4. Safety Facilities
5. Safety Measures

6. Welfare Measures

7. Work

Wages

It is found from the study with regards to workers' wages had a positive correlation with Job satisfaction. Since wages comprise an integral part of work life, the focus of the worker is on the economic factors. It has also been observed that the majority of workers send a large portion of their wages back home to support their families and to provide running expenses like education etc., for their children. It's also interesting to note that timely payment of wages and receiving payment according to the existing labour norms is also a contributing factor for the positive relationship. However, when the labour codes get implemented we may have to revisit this relationship.

Supervisors

In the Construction sector work methods are scientific and requires constant guidance from Engineer in-charge or Supervisors. Every aspect of construction work has specified work methods through a document called Method Statement.

Orientation is given every day to Workers before commencement of work. Tool box training is also imparted to workers. The relationship between Workers and Supervisors becomes significant as both partner towards common objective of timely and safe completion of the work. Hence, it is not surprising to observe a favorable attitude towards supervisors and further leading to job satisfaction.

Recreation facilities

It is essential for the workers to stay on site. The camp site is provided with several facilities like housing for workers, water, electricity, shopping areas and few recreational facilities. The findings of the study indicate that the workers spend their free time by indulging in shopping or interactions with other group members than utilize their time in some sports activities or recreations. Hence there is a negative correlation between recreational facilities and job satisfaction. Probably the workers are physically fatigued because of the manual stress and strain during the working hours and do not show interest in sports or other recreational activities.

Safety Facilities

The company takes all the necessary steps to ensure the safety of their workers in the orientation program, safety measures and precautions are highlighted duly by the supervisor on a day to day basis. Safety training is imparted through video clippings, documentary, etc. Areas of training includes right from tool box training to the highest safety measures.

However the attitude of the workers is that they feel that safety is a matter of concern and an obligation of the supervisor. Hence they do not focus on the importance of it even though they are cautioned. Hence the results show a negative correlation between safety facilities and job satisfaction.

Safety Measures

Multiple construction activities such as Excavation, Foundation, Backfilling, Plinth Beam, Columns, Slab work, Brick work, Roof work, Wood work, Shuttering, Concrete, Reinforcement, Mechanical Plumbing and Electrical work etc. require specific Safety measures as construction risk varies at each level of activity. Management also invests a lot of time and energy in ensuring safety measures for the workers. Each activity has a risk of its own and has to be dealt with a lot of precaution. Safety of the worker is the primary objective of the

management. In this endeavor a lot of behavioral training is being imparted to the workers. Even though it's a collective responsibility of the individual, team and the management, still the workers consider the management to be primarily responsible for their safety. This is proved by the negative correlation between safety measures and job satisfaction.

Welfare Measures

As per the guidelines of the several acts, welfare measures are provided by the management. Personal Protective Equipment (PPE) is provided free of cost which includes Helmet, Jacket and Shoes. Facilities like washrooms canteens, small stores are also available in the camps.

However, the attitude of the worker is different as these are all temporary arrangements made by the management and the feelings of belongingness are lacking and may be it is contributing for the negative correlation between Welfare measures and job satisfaction.

Work

The nature of work in the construction sector is highly strenuous and physically tiring. Hence even though a number of facilities and welfare measures are provided to the workers, their focus is not on work or career. More than 60 percent of the workers stay away from their families and in spite of receiving a number of orientation and training programs, they lack the required enthusiasm to move high up in their jobs. Hence there is a negative correlation between work and job satisfaction.

From the above qualitative and quantitative interpretations, it is obvious that the supervisors experience job satisfaction because of good HR practices in the sector. However as far as workers were concerned their attitude towards wages and supervisors was positively associated with job satisfaction. But with respect to other independent variables such as recreational welfare measures, safety and work were negatively associated with job satisfaction.

Another peculiar and specific observation to the construction sector is high attrition levels of the workers. Every activity in the construction sector is also associated with an element of safety risk. Because of high attrition levels, employers tend to incur huge expenditure towards continuous training of

workforce to ensure progress and completion of the project. In case of non-availability of right skilled workforce, projects get delayed leading to cost over and time overruns.

Recommendations

To the Policy makers

- There is acute shortage of skilled workforce in the construction sector and on the other hand, there is huge unemployment in our country. There is an urgent need to review the policy framework to bridge the gap to effectively utilize the unemployed youth so that abundant skilled workforce can be made available in the construction sector for the prosperity of our nation.
- The high attrition levels result in continuous repetitive training in various activities such as welding, carpentry, machine operation, plastering works, mechanical, plumbing, electrical etc. After the project is over there is no continuity in the employment at various levels. A policy framework is necessary to capture the skill inventory of the work force nationwide.

To the Management – L & T

- It is suggested to review the negative association between job satisfaction and recreation facilities, safety measures, attitude towards work and safety facilities from the worker were the organisation spends huge amount of money. Company is here by suggested to evolve a suitable policy to engage workforce in safety practices.
- Respective industrial managers on the sites may encourage workmen to indulge in recreational activities both for recreation and to relive their stress.
- A plan may be evolved for career growth of the workers in a systematic manner with in the construction sector.

Scope for Further Research

Based on the literature review and the gaps thereof, this study was done orienting towards L&T as a case study in the construction sector. However, there is a further scope on research on the following:

- The present study focused on L&T construction sector. The study may be extended to other aspects of infrastructure. Designing a plan or a program to bridge the gap between unemployment and scarcity of skilled workforce.
- Impact of labour codes once there are implemented.

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Annexures

Questionnaire

Supervisor/Engineer/Officer/Manager/Project Manager

Part A - Demographics

1. Gender

a. Male

b. Female

2. Age

a. 18 to 25

b. 36 to 45

c. 26 to 35

d. 46 to 55

e. 56 and above

3. Level of Education

a. Up to high school

b. First Degree

c. Diploma/Certificate (technical/professional)

d. Second Degree

e. Other (specify) _____

4. Years of Service

a. Up to 1 year

b. Up to 5 years

c. Up to 10 years

d. Up to 15 years

e. More than 15 years, please specify

5. Please specify your employment type (form of employment) in the organization/project when you were initially hired.

a. Temporary

b. Long term contract

c. Short term contract

d. Permanent

Part B

1. **Supervisor/Engineer/Officer/Manager/Project Manager's Attitude towards Recruitment and Selection**

Please tick from the following.

	Highly Dissatisfied	Neutral	Highly Satisfied
Recruitment Methods			
Through websites			
Online employment agencies			
Print media advertisements			
Executive search consultants			
Friends/recommendation			
Selection methods			
Interviews			
Cognitive ability test			
Personality inventories			
Technical skill test			

2. **Supervisor/Engineer/Officer/Manager/Project Manager's Attitude towards Work Design**

Please tick from the following.

	Highly Dissatisfied	Neutral	Highly Satisfied
Decision makers in project			
Project manager			
Project team (consensus)			
Director			
Final authority in decision making			
Project manager			
Project team (consensus)			
Director			

3. **Supervisor/Engineer/Officer/Manager/Project Manager's Attitude towards Training & Development Practices**

Please tick from the following.

	Highly Dissatisfied	Neutral	Highly Satisfied
Basis of selection for training			
No training			
Merit/based on performance			
Chosen by direct supervisors			
Voluntary basis/express interest			
Frequency of training			
No Training			
Once every quarter every year			
Once every half a year			
Once a year			
Others			
Number of training courses attended in last 24 months			
0			
1 to 2			

3 to 5			
>5			
Type of trainers			
No training			
In-house trainers/staff			
External trainers			
Mix of internal and external trainers			
Type of training			
Safety			
Scheduling			
Financial/costing			
Regulatory			
Others			

4. **Supervisor/Engineer/Officer/Manager/Project Manager's Attitude towards Performance Appraisal practices**

Please tick from the following (Scale: 5- Very Satisfied, 4- Slightly Satisfied, 3- Neither Satisfied nor Dissatisfied, 2- Slightly Dissatisfied, 1- Very Dissatisfied)

	Very Dissatisfied	Slightly Dissatisfied	Neither Satisfied nor Dissatisfied	Slightly Satisfied	Very Satisfied
How satisfied are you with the fairness in performance appraisal practices followed in your organization					
How satisfied are you with the fairness in performance feedback provided in your organization					
How satisfied are you with the fairness in					

promotion opportunities provided in your organization					
How satisfied are you regarding the appropriateness of pay for your performance					

5. **Supervisor/Engineer/Officer/Manager/Project Manager's Attitude towards Compensation & Benefits**

Please tick from the following (Scale: 5- Very Satisfied, 4- Slightly Satisfied, 3- Neither Satisfied nor Dissatisfied, 2- Slightly Dissatisfied, 1- Very Dissatisfied)

	Very Dissatisfied	Slightly Dissatisfied	Neither Satisfied nor Dissatisfied	Slightly Satisfied	Very Satisfied
How satisfied are you with the fairness in monetary					

forms of compensation provided by your organization					
How satisfied are you with the fairness in rewards provided by your organization					
How satisfied are you with other benefits provided by your organization					

6. **Supervisor/Engineer/Officer/Manager/Project Manager's Attitude towards Compensation & Benefits**

Please tick from the following (Scale: 5- Very Satisfied, 4- Slightly Satisfied, 3- Neither Satisfied nor Dissatisfied, 2- Slightly Dissatisfied, 1- Very Dissatisfied)

	Very Dissatisfied	Slightly Dissatisfied	Neither Satisfied	Slightly Satisfied	Very Satisfied

			nor Dissatisfied		
How satisfied are you with the opportunities to participate in decision-making provided in your organization					
How satisfied are you with the freedom of opinion provided in your organization					
How satisfied are you regarding the fair treatment of employees in your organization					

How satisfied are you regarding the openness and effectiveness of information communication in your organization					
How satisfied are you with the way your supervisor treats you					
How satisfied are you regarding the supervisor support present in your organization					

Questionnaire

(Workmen)

A. For Workers and Supervisors – Demographics

4. Gender

c. Male

d. Female

5. Age

f. 18 to 25

g. 36 to 45

h. 26 to 35

i. 46 to 55

j. 56 and above

6. Level of Education

f. Up to high school

g. First Degree

h. Diploma/Certificate (technical/professional)

i. Second Degree

j. Other (specify) _____

4. Years of Service

a. Up to 1 year

b. Up to 5 years

c. Up to 10 years

d. Up to 15 years

e. More than 15 years, please specify

5. Please specify your current job position in the organization.

a. Const. /Technical Worker

b. Engineer

c. Foreman/Supervisor

d. Office/Admin officer

e. Senior manager

6. Please specify your employment type (form of employment) in the organization/project when you were initially hired.

e. Temporary

f. Long term contract

g. Short term contract

h. Permanent

B. <u>For Workers</u>

1. Attitude towards work

4-point Likert Scale

Work	• My job is interesting and I enjoy doing it • My job gives me a sense of accomplishment
Opportunities for Advancement	• The company in which I work provides opportunities for advancement and promotion • Information about job vacancies within the company are internally available
Responsibility	• I have control over how I do my work

	• The physical environment in which I work is suitable and allows me to do my job • I have the necessary resources, tools and equipment to do my job
Clarity of mission	• I understand how my work contributes for the achievement of the company's goal
Good feelings about the organization	• I am proud to work for this company • I care about the future of the company in which I work

2. Attitude towards Wages

Wages and leave	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
Salary					
Overtime wages					
Travel allowance					
Incentives					
Holidays					
Casual leave					
Medical leave					

3. Attitude towards Welfare and Safety Measures

a. Statutory Welfare Measures

Statutory welfare measures	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
Canteens					
Restrooms					
Drinking water					
Accommodation					
Sitting					
First aid					
Transport					

b. Safety Facilities

Safety facilities	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
Safety guidelines					
Shoes					
Helmets					
Eye and ear protection					
Fire extinguisher					
Ambulance					

c. Recreational Facilities

Recreational facilities	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
Cultural programs					
Tours					
Reading rooms					
Indoor games					

4. Attitude towards Supervisors

4-point Likert Scale

1.	The supervisor adequately informs its employees
2.	My supervisor communicates well
3.	Supervisors manage employees effectively

4.	Supervisors make effective decisions
5.	Supervisors care about their employees
6.	My supervisor is approachable at any time and easy to talk with
7.	My supervisor trusts me
8.	My supervisor considers my ideas
9.	My supervisor recognizes me for doing good work

5. Job satisfaction Scale

5-point Likert scale

1.	The praise I get for doing a good job
2.	The way my co-workers get along with each other
3.	The chance for advancement on my job
4.	The freedom to use my own judgment
5.	Competence of my supervisor in making decisions

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by Vasudev Chivukula

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