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## “SUPPLY CHAIN MANAGEMENT ON HIGH RISE BUILDING IN AHMEDABAD, GUJARAT”

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- Abstract:** In the Most typical project, Supply chain Management (SCM) has been increasingly recognized as a critical factor in improving bottom-line performances. In addition, more and more firms are making use of SCM to improve their performance. The study aims to understand and determine critical variables of SCM that would be able to enhance product quality and business performance in manufacturing companies. The study specifically investigates relationships between SCM, product quality and business performance. By using data that include information of purchase quantity, lead time, and price of order as the input of the model for training, a rule set for best supplier selection can be obtained. The result of the study indicated that applying supply chain Management practice to its business activities. The study also indicated that supply chain Management practice has significantly influence to business performance over the year. The result indicates that production as well as the technological aspects of SCM and a greater degree of Management support for SCM implementation initiatives

**IndexTerms – Building industry, Supply Chain, Transportation, Materials, Increase Cost, Environment**

### I. INTRODUCTION

In this chapter to show the relevance and study of the background. In the introduction the study of Indian construction sector and the changes in the market due to supply chain management. By this research paper the objectives, scope, & methodology for the study. In this thesis the structure has been used in the order of text and able to give answers the research question.

In the Indian construction sector is the Heart of the national economy. It is the largest construction sector for the industry sector and residential sector & it is more important in many businesses. There are lot of business & lot of critical connections to the rest of the economy for example, private housing cost & company investment. The importance of the residential & industrial sector is due to the close ties to the economy. By this sector the economy one of the highest. By the investment of rupee in the construction sector the increment benefits of 78 paisa to the whole economy. The construction sector, contribute about 5% of GNP.

The expenditure on the construction in the period 1980-1990 is 3142.32 million Rupee. From 2001 to 2011, it is predicated to expand to Rs 657873 million rupee. It is increased about 1600% from the Both Industry. The industry can be of broad categories like Infrastructure, Residential, Roads etc. It is clearly seen that the increase in the expenditure is done on the Residential, Roads & Industrial segment. By the growth rate of the Indian Construction Sector 5.56 % from the 2015-2020. About 2.95% from the 2010 to 2015. And in the January 2019 2.7 trillion Rupee have been contribution from the GDP.

### II. OBJECTIVE:

To investigate the consequence of supply chain breakdown in residential sector.

To Improve the efficiency & effectiveness of residential project management of supply chain.

To figure out why supply chains fail and what impact on construction sector.

**III. NEED OF STUDY:**

In all the construction sectors a serious problem is facing today's is fragmentation. The materials demand is high and the shortage in markets due to this all the ongoing projects are in delay due to the high demand of raw materials. And by the numerous the project's cost value has increased, causing it to deviate from its intended schedule. The old strategy of planning, scheduling, & contracting each function on its own island is one of the causes.

**Some recent SCM in residential sectors:**

Residential sector is the largest sector in construction sector.

The construction sector is the one of the largest fragment in India, there are three different types of manufactures, suppliers, architectural firms, general contractors, & construction management firms.

The expense of construction is high due to inefficiencies, poor communication, mistakes & delays.

Supply chain management is a new way to lowering the cost of facility dependability and speed in building. The production in the SCM takes place by the (supplier of construction and subcontractor) & sees the global optimization of activities. In the supplier production of the materials the subcontractor from the majority of the project's costs, & supply chain techniques offer similar advantages. According to limited studies & research, inadequate supply cost planning increase project costs by 10% on average. This is most likely a modest estimate of the project's duration, which may be impacted.

**IV. Research Methodology:**

This research is based on information from journals, research papers, the internet, & an interview. To learn more about it & to break in supply chain from Engineers & particular construction sector, residential projects. The analysis is done considering the traditional & supply chain based on the manufactures and others suppliers & a new SCM model is developed by this analysis.

**V. DATA COLLECTION:**

To prepare face-to-face interview and case study method in SCM in the various high rise residential buildings & opinions from them in the various construction project ongoing.

**Case Study:1**

<b>Name of project</b>	Shafalya Infra LLP
<b>Type of project</b>	High Rise Building
<b>Location</b>	Science city, Ahmedabad
<b>No of Floors</b>	B-1,2,,3 G+12
<b>Designation</b>	Project Manager
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Pankaj Bhai Chavda
<b>Experience</b>	12 years

**Case Study:2**

<b>Name of project</b>	Harmony Harikesh
<b>Type of project</b>	High Rise Building
<b>Location</b>	Science city, Ahmedabad
<b>No of Floors</b>	B-1,2,3 G+31
<b>Designation</b>	Project Manager
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Bhavin L patel
<b>Experience</b>	3 years

**Case Study:3**

<b>Name of project</b>	Wishpark Infra LLP
<b>Type of project</b>	High Rise Building
<b>Location</b>	Science city, Ahmedabad
<b>No of Floors</b>	B-1,2 G+12
<b>Designation</b>	Engineer
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Piyush prajapati
<b>Experience</b>	5 years

**Case Study:4**

<b>Name of project</b>	Sahjanand Capital Builtech LLP
<b>Type of project</b>	High Rise Building
<b>Location</b>	Science city, Ahmedabad
<b>No of Floors</b>	G+17
<b>Designation</b>	Site In charge
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Drupal Gajjar
<b>Experience</b>	12 years

**Case Study: 5**

<b>Name of project</b>	NB Developers LLP
<b>Type of project</b>	High Rise Building
<b>Location</b>	Sola, Ahmedabad
<b>No of Floors</b>	G+7
<b>Designation</b>	Project In charge
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Bhavin S Prajapati
<b>Experience</b>	4 years

**Case Study:6**

<b>Name of project</b>	Yashvi Construction
<b>Type of project</b>	High Rise Building
<b>Location</b>	Naranpur, Ahmedabad
<b>No of Floors</b>	G+11
<b>Designation</b>	Engineer
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Mayur Ahuja
<b>Experience</b>	5 years

**Case Study:7**

<b>Name of project</b>	Shree Krushn Buildcon
<b>Type of project</b>	High Rise Building
<b>Location</b>	Science city, Ahmedabad
<b>No of Floors</b>	G+7
<b>Designation</b>	Engineer
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Sailesh Bhai Rabari
<b>Experience</b>	3 years

**Case study:8**

<b>Name of project</b>	Sagad Builders
<b>Type of project</b>	High Rise Building
<b>Location</b>	Science city, Ahmedabad
<b>No of Floors</b>	G+12
<b>Designation</b>	Project Manager
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Upendrasinh Parmar
<b>Experience</b>	20 years

**Case study:9**

<b>Name of project</b>	Akshar Square
<b>Type of project</b>	High Rise Building
<b>Location</b>	Vastrapur, Ahmedabad
<b>No of Floors</b>	B-1,2 G+12
<b>Designation</b>	Director
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Neelam Chotaliya
<b>Experience</b>	18 years

**Case study:10**

<b>Name of project</b>	Aaryan Developers
<b>Type of project</b>	High Rise Building
<b>Location</b>	Vastrapur, Ahmedabad
<b>No of Floors</b>	G+6
<b>Designation</b>	Engineer
<b>Problem in SCM</b>	<b>Yes</b>
<b>Name</b>	Sagar patel
<b>Experience</b>	7 years

**Price list of material Before & After**

<b>Sr No</b>	<b>Materials</b>	<b>Before (Jan-May)</b>	<b>After (June)</b>
<b>1</b>	Cement (50 KG BAG)	380&390	411
<b>2</b>	AAC Blocks (CM)	3850 to 4000	4300
<b>3</b>	Bricks (NO)	6 to 7	7.50
<b>4</b>	Aggregate (20mm) (Per ton)	420 to 500	550 to 600
<b>5</b>	Sand (per MT)	400 to 470	476.14
<b>6</b>	Fine Ash(BSA)+ (KG)	1100 to 1200	1600
<b>7</b>	Annailed Wire	60 to 64	65
<b>8</b>	Wood (cubic feet)	250 to 280	320
<b>9</b>	Shuttering sheet	30	45
<b>10</b>	Dr Fixit LW	295 to 300	380

**Discussion of some Interview Question for Materials problem**

Sr no	Check	Yes	NO	Both
1	Does materials come at time.			Both
2	Does the strike of aggregate impact on project	Yes		
3	Increase of cost in material impact on the project.	Yes		
4	When the materials supply breaks due to some issue then it impact on the project.	Yes		
5	Does the delay of materials impact on project.	Yes		
6	Due to the high demand in the market the shortage of materials can impact on project.	Yes		
7	When the materials are supply on project, it is check by the supervisor for quality ensure.		No	
8	Due to the shortage in market materials are advance order and store.			Both
9	Does your construction company own a warehouse or not?		No	
10	The material bought by company the supplier or by manufacturer?			Both



Figure 1 Interview Response Chart

#### Shortage of Materials in Market Responses

Sr no	Materials	Yes	NO	Both
1	Cement	Yes		
2	Sand	Yes		
3	Aggregate	Yes		
4	AAC Block	Yes		
5	Brick		No	
6	Fine Ash		No	
7	Annailed Wire		No	
8	Wood	yes		
9	Shuttering Sheet		No	
10	Dr Fixit Pidiproog	Yes		

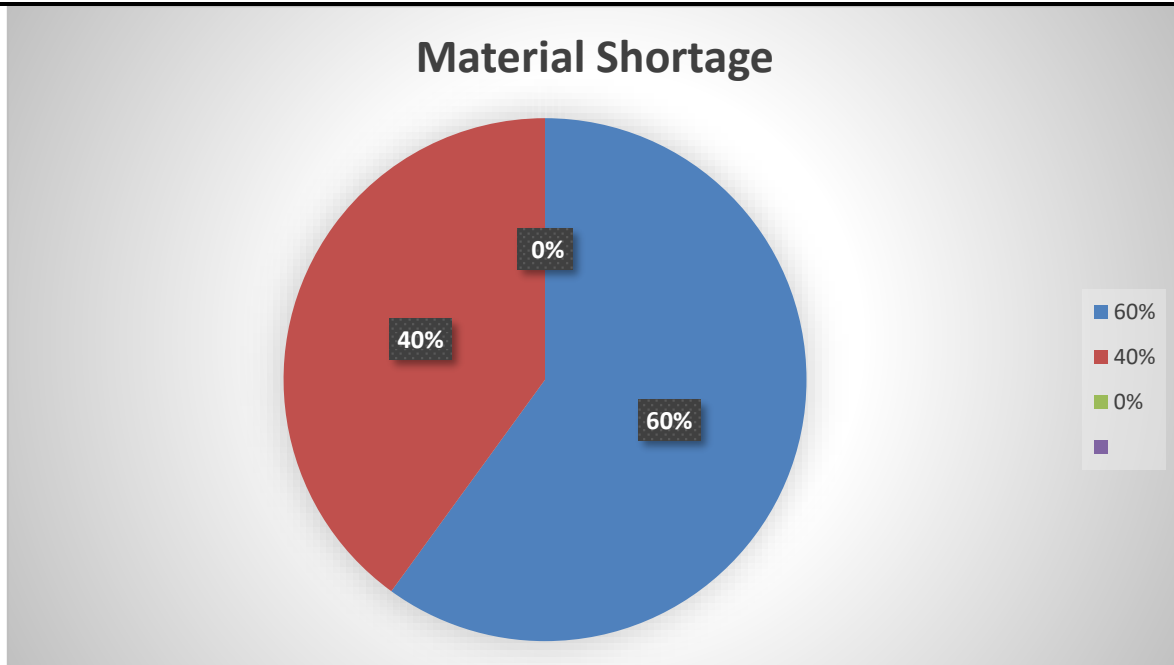


Figure 2 Material Shortage Response Chart

## **VI. Data Analysis:**

### **Introduction**

In this chapter the result is depends on the case study used by the face to face interview. This chapter is demonstrating the features of the study of the population, the materials supply chain management in the construction. This is the main issue in the Ahmedabad district in the high rise buildings, contractors & suppliers' connection in the construction sectors. The maximum difficulties facing by the contactors and builders are material supply chain.

### **General Background**

This data represents over all the validation responders. Total 7 to 10 materials are analyzing by the responders. And in which stage the materials is break. The reason behind this supply chain break, we analyze by the data. The data is collected from the high rise building in the Ahmedabad city.

### **All the Remarks of Validation**

#### **Remarks No 1**

In the market the demand of AAC blocks is in high, so that the blocks have shortage in market due to this the supply chain has break.

On 1<sup>st</sup> may to 18<sup>th</sup> may the strike on the Aggregate by the (GBQIA). Due to this strike the whole construction sectors get effect and the shortage in the market. Due to this the cost is also increase.

Due to the technical issue the transportation of steel on the site get delay and it impact the project.

By this all the problems the site is directly impact on the Date line of the project and cost of the Project.

#### **Remarks No 2**

By the strike in aggregate on 1<sup>st</sup> may to 18<sup>th</sup> may the project is delay 10 days from the actual time of the project. By this strike the supply chain break.

Due to this the labour cost is directly impact on the project.

Admixture is delay 2 to 3 days on the site.

Wood shortage in the markets.

#### **Remarks No 3**

Due to the strike on the aggregate from 1<sup>st</sup> may to 18<sup>th</sup> may the project is delay. By this strike the supply chain break.

In the market the demand of AAC blocks is in high, so that the blocks have shortage in market due to this the supply chain has break.

Due to the over cost in the materials it impacts the cost of the project and it breaks the chain.

On both the site the suppliers are same and same issue happen on project.



**Validation Problems**

- **By this case study all the validation has two common problems in the supply chain of materials.**
  1. On 1<sup>st</sup> May to 18<sup>th</sup> May the strike is organizing by the (GBQIA) for the aggregate materials. Due to this strike the whole construction sector get affected and shortage in market. After the strike the cost is high on the market due to the shortage and demand.
  2. In the market the demand of AAC blocks is high, so that the blocks have shortage in market due to this the supply chain has break. Now a day in the construction Residential sector the demand for the AAC blocks are higher in markets.

**VII. CONCLUSION:**

The construction industry is fragmented, with inadequate communication & coordination among project participants. The problems like inter organization problems, such as a delay in delivers of the materials transportation problem, wrong delivers, inaccurate information transfer in the material supply chain, the result is miss performance. It is very important to supply of the materials at perfect time to the project site. By deciding the factors between a successful project full of delays.

By the data analyze & data collection the problem is mainly due to the high demand on the market. And due to the strike it is the main reason for short duration all the construction project gets impact by the shortage of the materials. we will have to make strategy to avoid the problem in the future.

**VIII. FUTURE SCOPE:**

By applying the SCM in residential sector the delivers of the materials are schedule for the cost reduction & schedule for the benefits of improvement.

By the implementation of the materials supply chain process to have the materials needed, quality check and time to delivers the materials.

This research established the foundation for re-engineering current supply chain procedures management in the residential sectors and sector of industry. And the research provider is a framework in the materials supply chain. Contractors help to implementation of the framework in the materials supply. The quantity, time & quality is needed in the supply chain in materials. it can be used as a starting point for future researchers in the same topic.

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