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# **A STUDY ON THE EARNING POTENTIAL OF CONSTRUCTION EQUIPMENTS**

By

P-2372

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Of

**Department of Management Studies  
Kumaraguru College of Technology  
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**A PROJECT REPORT  
Submitted to the**

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**In the partial fulfillment of the requirements  
for the award of the degree**

Of

**MASTER OF BUSINESS ADMINISTRATION**

**April, 2008**

**KCT Business School  
Department of Management Studies  
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**BONAFIDE CERTIFICATE**

Certified that this project report titled “A Study on the Earning Potential of Construction Equipments” is the bonafide work of Ms. Aneetha .A, 71206631004 who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
**Dr. K. Chitra**  
Project guide

  
**Director**

Evaluated and Viva Voce conducted on July 2, 2008

  
Examiner 1

  
Examiner 2

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2 DECLARATION 2

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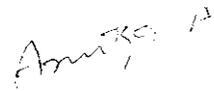
## DECLARATION

I, hereby declare that this project report entitled as “**A Study on the Earning Potential of Construction Equipments**” has been undertaken for academic purpose submitted to Anna University in partial fulfillment of the requirements for the award of the degree of Master of Business Administration. The project report is the record of the original work done by me under the guidance of **Dr. K. Chitra** during the academic year 2007 – 2008.

I, also declare hereby, that the information given in this report is correct to best of my knowledge and belief.

**Date:** 02.07.08

**Place:** Coimbatore

  
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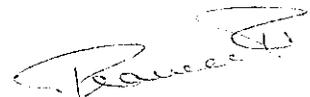
## PROJECT COMPLETION CERTIFICATE

\*\*\*\*\*

This is to certify that Mr. / Ms. Aneetha.A (Roll No. 06MBA04) a student of KCT Business School, Kumaraguru College of Technology, had undergone a project between January 10, 2008 (date of joining) and March 24, 2008 (date of leaving) titled "A study on the Earning Potential of Construction Equipments".

During the tenure his / her performance was **Good**.

Yours faithfully  
For Sakthi Finance Ltd



**R.PRAVEENA**  
HR Executive

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*ii* EXECUTIVE SUMMARY *ii*

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## EXECUTIVE SUMMARY

Construction equipment is one of the key segments of any manufacturing sector. India today is, by and large self sufficient in the production of construction machinery. The industry has evolved over last four decades from primarily catering to the army's requirement in to a stage where it spans all major equipment categories such as Earthmoving and Road Construction Equipment, Concrete Equipment, Material Handling Equipment etc. During the last decade, industry has made enormous progress and has grown both in terms of size and diversity. Construction Equipments play an important role in the development of country's infrastructure. These equipments are costly and not easily re saleable. The success of the equipments highly depends on the earning potential.

Against this back ground the study was conducted to analyse the earning potential of construction equipments, cost involved in each machinery, the income generated, the average amount spent for each machinery etc., which helps in finding the profitability and earning potential of the equipments. The study assumes the characteristic of exploratory research. A sample of hundred and twenty four respondents is selected on convenience basis and data are collected through an interview schedule.

The study reveals that category A contractors own more number of equipments followed by hirers when compared to other categories. Tippers are the equipments which are owned in more numbers followed by Excavators and back hoe loaders. Most of the contractors prefer owning the equipments than hiring them. The earning potential of Excavators is high and for tippers is low. Setting up service stations on their own will also prove to be a good business opportunity which will help in expansion. The findings would enable the strategists to frame suitable strategies enhance the market share.

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≈ ACKNOWLEDGEMENT ≈

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I adore the almighty and extol his glory by paying my contribution of thankfulness for blessing me with all knowledge required to complete this project successfully.

I express my sincere gratitude to our respected Chairman Dr. N. Mahalingam, beloved Correspondent Prof. Dr. K. Arumugam, Principal Dr. Joseph V. Thanikal, Kumaraguru College of Technology, Coimbatore for encouraging and providing facilities to do this project.

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I acknowledge my sincere thanks to Mr.Velusamy, General Manager. Sakthi Finance Limited for giving me an opportunity for doing the project in their esteemed organizations and encouraged me with his expert counseling and guidance for successful completion of my research study.

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*ℵ* INTRODUCTION *ℵ*

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## CHAPTER 1

### INTRODUCTION

#### 1.1. BACKGROUND OF THE STUDY:

##### **NBFC Industry:**

“Non-Banking Financial Company” includes only the non-banking institution that is a loan company or an investment company or hire purchase finance company or equipment leasing company or a mutual benefit financial company. The role of an NBFC is not different from that of a bank mobilizing money from people with the promise of repaying more. Nearly 40,000 NBFC's set up establishments to mobilize money with a promise of high interest. Unfortunately many of them were fly-by night operators.

Sakthi Finance Ltd started its operations as a NBFC 's away back in 1955, now it is major player in the finance sector , backed by the trust of the investors, and the Sakthi group commitment , Sakthi Finance Ltd., with its innovative schemes and excellence in service is a name to reckon with in the finance industry. In the plight of this circumstances where RBI has issued strong guidelines which is likely to change the working pattern / structure of NBFC's itself, this study acquires special importance.

##### **Infrastructure Industry:**

Our country's development greatly depends upon infrastructure facilities. Currently available infrastructure facilities are inadequate. The main objective of our government is to develop all the required infrastructure facilities .Sakthi finance ltd is planning to make investment for financing infrastructure related equipments. It is essential to understand the present situation of infrastructure projects, contractors, manufacturers of infrastructure equipment and other financial institution.

Over the last three decades, roads have emerged as the principal mover of people and goods - almost 65 per cent of India's freight movement and 85 per cent of India's passenger movement (Source: [www.nhai.org/roadnetwork.htm](http://www.nhai.org/roadnetwork.htm)). With a total length of approximately 3.3 million kilometers, India has the second largest road network in the world. Roads have played a vital role in transportation and also enhancing trade. The

government has taken initiatives to improve and strengthen the network of National Highways, State Highways and roads in major districts and rural areas.

Indian road network of 33 lakh kilometers (km) is second largest in the world. The bulk of this outlay is meant for the development of National Highways and related programmes. An expenditure of Rs. 20,505 crore is likely to be incurred in the first three years of the Plan Period. The road transport sector in India has expanded manifold in fifty years after independence, both in terms of spread and capacity. The growth in the importance of road transport within the transport sector is borne out by its growing share in GDP. The share of road transport in GDP is presently 3.69% that accounts for a major share of all transport modes, which contribute 5.5% to GDP. The composition of road traffic has grown from 12 per cent freight and 31.6 per cent passenger traffic in 1950-51 to an estimated 65 per cent freight and 87 per cent passenger traffic during the Tenth Five Year Plan period. Traffic on the roads is growing at the rate of 7-10 per cent per annum while the growth in vehicles has been to the tune of 12 per cent per annum for the past few years.

India has a very long road network which carries 80% of the total freight traffic. Hence road sector assumes significant importance in on-going development process. The economic development in India is happening in all parts of the country and goods will have to move throughout the length and breadth of the country. The agricultural commodity movement is also a major factor contributing to the development of commercial vehicles industry. The new commercial vehicles sales will lead to more demand for finance for used vehicles as the vehicles sold now will enter into refinance market.

India continues to be the most sought after location for off shore businesses. The economic growth of India is second in the world only after China. India's IT and BPO industry continue to grow dramatically. Considering its rapid growth rate, India has the potential to be the next world leader. However, India's growth faces a major challenge. As India grows, it faces problems in developing its infrastructure to meet the skyscraping demands of the businesses. Without significant investment in infrastructure, India will be unable to continue its astounding growth.

### **Construction Equipments industry:**

Construction equipment is one of the key segments of any manufacturing sector. India today is, by and large self sufficient in the production of construction machinery. The industry has evolved over last four decades from primarily catering to the army's requirement in to a stage where it spans all major equipment categories such as Earthmoving and Road Construction Equipment, Concrete Equipment, Material Handling Equipment etc. During the last decade, industry has made enormous progress and has grown both in terms of size and diversity. With investment projections of more than \$350 billion in infrastructure sector over the next few years, prospects of the construction equipment industry appear to be dazzling. International majors have unveiled ambitious plans for India, and leading Indian firms are also strengthening their existing operations, and even foraying. The industry is poised for a growth trend in order to realize India's growth momentum with sustained competitiveness. India's Construction equipment consists of the following key categories:

- **Earth Moving Equipments:** Its the largest segment and includes products like excavators, backhoe, loaders, Bulldozers.
- **Construction Equipments:** Includes key equipment like concrete mixer, hot mix plant, road making machine, concrete breakers, stone crushers etc.
- **Material Handling Equipment:** It includes mobile cranes, forklifts, truck cranes, tower cranes and conveyors etc.
- **Construction Vehicles:** These include dumpers, trippers, tankers, trailers etc.

### **Current Scenario:**

The construction industry is the primary users of the heavy earthmoving equipments in India. The organized construction sector accounts for 50-55% of the total construction equipment industry which is growing at around 25% per annum. amidst sustained economic development with special emphasis on infrastructure development by the government and private organizations.

### **Size of the market**

The Indian construction equipment sector is estimated at USD \$2.25 billion, a fraction of global market which is over \$75 billion. The global industry is growing at the pace of 5% per annum compare to India's robust growth of around 30% per annum.

## **Demand**

Due to the robust growth in the infrastructure development, the demand for the construction equipments is expected to exceed to 10,000 units from current 6,000 units.

## **Exports**

Exports currently constitute 2-3% of India's construction equipment industry. Many factors contributed to the low level of exports, including a lack of complete product range, the need to avoid competition with JV partners and relatively low levels of technology & quality. But now, exports are expected to grow rapidly. Increased outsourcing of manufacturing to low-cost countries and improvements in technology and product range are expected to boost Infrastructure Equipment (IE) exports from India.

## **Growth Drivers for the Industry**

India has demonstrated strong growth across all sectors, with Indian economy moving in top gear we are set to achieve exponential growth in coming years. The India Infrastructure development has been on a high agenda for the Indian government over past few years as it is a key driver for the overall economy development. Construction spending as a percentage of GDP has been increasing steadily over last 4-5 years from 5.70% in 2000 to 6.83% in 2006 and it is estimated to touch 6.85% in 2007. It is expected to grow significantly in the coming years as well.

## **Outsourcing opportunity**

The vast talent pool gives India a comparative advantage, with high quality of engineering, software and IT talent. Many global players source engineering services including design and testing from India.

It is estimated that a companies R&D spend is of 4-5% of the turnover with company of \$1 billion and over turnover. There is a huge opportunity, which Indian Construction Equipment (CE) players can explore.

Indian players like Telco Construction Equipment Co (TELCO) and L&T have already made an entry into product designing, with their e-Engineering solutions. L&T's e-Engineering, focuses on providing services in CAD in different verticals, such as construction equipment, industrial products, automotive, aerospace and ship designs.

### **Construction Equipment hiring business to the industry:**

Rentals offer multiple benefits to the end user, it is preferred model globally. Having equipments on rentals have few benefits such as:

- a) Avoid large capital expenditure
- b) Saves on maintenance and storage cost and offers access to broad selection of equipments.
- c) It allows best equipment for the job and tests it before take a decision to buy.

New machines drive the rental market. Rental companies sell off used machines, as soon as they get the price to recover their investments. This keeps the fleet young, ensuring higher uptime and lower requirement of parts. It also adds to productivity. Penetration of rentals in the Infrastructure Equipment Industry in India, has been low. In the case of cranes, rental penetration is estimated to be higher (around 60%); but overall, it was 2% in 2004.

Renting has a strong potential in India, particularly for smaller equipment. It is already becoming the preferred option for small and medium sized contracting firms. Penetration of rentals could go up to 20-25% by 2010. A 20% penetration in a USD 4.25 bn industry would put the rental market at USD 800mn plus by 2010.

## **1.2. REVIEW OF LITERATURE**

A literature review discusses published information in particular subject area and sometimes information in a particular subject is with in a certain time period. A literature review can be just a simple summary of the sources, but it usually has an organizational pattern and combines both summary and syntheses. A summary in a recap of the important information of the sources but a synthesis in a re-organization of that information. It might give a new interpretation of old material or combine new with old interpretations or it might race the intellectual progression of the field, including major debates. And depending on the situation, the literature review may evaluate the sources and advice the reader on the most pertinent and relevant.

A literature review has a number of purposes it enables to:

- Define and limit the problem you are working on
- Place the study in a historical perspective

- Evaluate promising research methods
- Relate your findings to previous knowledge and suggest further researcher
- Return on capital is one of the most effective ways of measuring a company's success.

Mike Vorster has taken a study on "Question of Profitability" (2008)<sup>1</sup> Equipment departments do not make profits. They are set up to recover costs - nothing more and nothing less. Equipment managers wrestle with whether or not their departments should be profit centers, that is, should money be left over at the end of the year. All the estimates of inflows from payments and outflows to cover costs and charges are made assuming the job account will reach a target margin. Achieving or exceeding target levels of utilization is essential to improving the owning side of the equipment account. With insurance, if you want a low premium, you need to lower your claims. The equipment cost-recovery process is no different.

Kenneth E. Bentsen has taken up a study on Using Equipment Leasing To Strategic Advantage (2007)<sup>2</sup> Asset management" is a term used since the 1980s that basically means the ability to plan, acquire, manage, and recycle assets in a systematic manner. Each stage of asset management has a significant impact on portfolio return and profitability. The asset management function should be employed throughout an asset's entire life cycle from the delivery of equipment to its installation, use, maintenance, and finally de-installation and disposition.

Gini McKain et al Dan McKain has undertaken a study on "Quick turnaround" (2007)<sup>3</sup> For a number of contractors in South Central Texas a major ingredient to success in the hot mix asphalt paving business is to scale their size-appropriate equipment spread to the project at hand. Emblematic of this is the thrust made by Ramming Paving Co., Ltd. On a recent major industrial parking lot in San Antonio, Texas, the contractor's well-trained crew was able to put down a 700-ton project in just under 12 hours - and they did it with only three machines.

<sup>1</sup> Construction Equipment. Boston: Jan 2008. Vol. 111, Issue 1; pg. 72, 1 pgs

<sup>2</sup> Western Builder. Milwaukee: Dec 17, 2007. Vol. 97, Issue. 50; pg. 8, 1 pgs

<sup>3</sup> Pavement. Fort Atkinson: Aug/Sep 2007. Vol. 22, Issue 6; pg. 38, 2 pgs

Frankfurt am Main has undertaken a study on Investment and financing (2007)<sup>4</sup> After several years of fairly low investment, fixed asset formation increased considerably in 2006, particularly on the part of enterprises. At the same time, profitability improved significantly, something which was reflected in a sharp increase in corporate sector savings in the macroeconomic accounts. This has also contributed to an improvement in the financial situation of German enterprises, despite the renewed increase in borrowing. The financial situation of households also continued to change for the better last year. The financial and non-financial assets of this sector rose to just over euro9 trillion in 2006, not least as a result of increased investment in housing construction, whereas debt practically stagnated, at euro1 ½ trillion. This contrasts to a certain extent with developments in some of the other western industrial countries, where households' liabilities, particularly those resulting from housing loans, have increased sharply in recent years.

Brad Humphrey has undertaken a study on Concrete Contractor (2007)<sup>5</sup> The importance of tools and equipment being ready for work crews - overseeing these items requires a manager to be on his or her toes By developing an inventory management system, needed tools and equipment will always be available Additionally, a manager should implement a preventive maintenance program to guarantee the available tools and equipment are in working order Many construction companies fail in the management of their resources and thus spend thousands of dollars a year in crisis management.

Bob Domnick et al Quarry took up study on "portability package" (2006)<sup>6</sup> Highly mobile, self-contained conveyors are diesel-over-hydraulic units that do not require electrical power. They deliver efficient stockpiling in even the most remote locations. An ideal complement to track-mounted crushing and screening plants, the self-contained conveyor delivers full-system portability. With a diesel engine mounted to its undercarriage and hydraulic operation of the head section and axle jacks, self-contained units are simple to move, and are up and running in minutes.

<sup>4</sup> Monthly Report of the Deutsche Bundesbank. : Jun 2007 Vol. 59, Issue 6; pg. 15. 17 pgs

<sup>5</sup> Atkinson: Apr/May 2007. Vol. 7, Issue 3; pg. 66, 2 pgs

<sup>6</sup> Pit & Quarry. Chicago: Jun 2006. Vol. 98, Iss. 12; pg. 14, 1 pgs

Colin Sowman has undertaken a study on industries named "Happy Returns" (2006)<sup>7</sup> Business is about making money and the plant hire business is no different - While big companies may make large profits, smaller companies can be equally as profitable on a pro-rata basis and indeed may be more efficient as they have fewer overheads. Calculating the return is easy enough, as the accountant will have produced figures for a company's assets (fixed assets, plant, cash and debtors) along with the profit it has made. Simply total up the assets, divide by the profit and express as a percentage.

(2005)<sup>8</sup> Worldwide demand for heavy construction equipment is projected to rise 5.4 percent annually through 2009 to \$106 billion. Growth will be supported by the expected continued expansion of emerging markets, the overall size of demand and growth potential, as the growth prospects for Japan and Western Europe will be hampered by a combination of negative demographic and structural trends, including aging populations and high levels of regulation and taxation. While strong equipment demand is usually foreshadowed by a combination of elements including favorable demographics and burgeoning GDP performance, Eastern Europe is a somewhat different story, as the region's population is forecast to decline. However, based on the economic turnarounds experienced by other countries joining the EU, expected infrastructure and economic improvements should help to strongly increase construction equipment demand in the region.

Joseph R has undertaken a study on "Profitability, Heavy construction, Equipment acquisition planning, Efficiency, Cranes & hoists, Civil engineering, Advantages, High rise buildings, Construction"(1995)<sup>9</sup> A project's success hinges on 2 criteria - profitability and timely completion. Both depend on a well-thought-out plan detailing methods, equipment, and schedule. Selecting the proper hoisting facilities plays a major part in this planning. Tower cranes offer several advantages over conventional cranes and although the advice of the crane vendor can be helpful, the entire project management team should have a thorough understanding of tower cranes' special needs

<sup>7</sup> PMJ. Sutton: Mar 2006. Vol. 33, Issue 3; pg. 40, 1 pgs

<sup>8</sup> Research Studies. : Oct 2005. Vol. 14, Issue 3; pg. 15, 1 pgs

<sup>9</sup> Jr. Civil Engineering.:Feb 1995. Vol. 65, Issue. 2. p. 52 (2 pp.)

and characteristics to be able to use them correctly. Tower cranes have a distinct advantage over conventional lattice-boom crawler or truck cranes because the boom, or jib, rises high above the work site. The tower crane's jib can place its load anywhere within its radius of operation without interfering with the structure over which it swings.

Glaser, Leo B., has undertaken a study on How Modular Plant Construction Offers Improved Cost and Schedule Controls (1982)<sup>10</sup> For the C-E Lummus Co. (Bloomfield, New Jersey), use of modularization in construction projects has shown, under certain circumstances, a high potential for effectively achieving cost savings. The building of offshore oil and gas production platforms has helped to promote this idea, because modular construction is the only practical way to assemble a great deal of equipment when space is limited. There is data available showing investment costs running 10% lower than anticipated when using modular construction.

### **1.3. STATEMENT OF THE PROBLEM**

Construction Equipments play an important role in the development of country's infrastructure. These equipments are costly and not easily re saleable. The success of the equipments highly depends on the earning potential. In this study, attempt has been made to analyse the earning potential of construction equipments, cost involved in each machinery, the income generated, the average amount spent for each machinery etc., which helps in finding the profitability and earning potential of the equipments.

### **1.4. OBJECTIVES OF THE STUDY**

- To analyse the mode of ownership of Construction equipments.
- To Present the Profile of Equipment used in terms of cost involved income generated & servicing charges.
- To analyse the Earning Potential of various brands of construction equipments.
- To Provide Suggestions for based on the findings.

<sup>10</sup> Pavement. Fort Atkinson: Aug/Sep 2007. Vol. 22, Issue6;pg. 38, 2 pgs

## **1.5. SCOPE OF THE STUDY**

Scope of study is to determine Earning potential of the Construction Equipments through the data collected in Coimbatore, Erode, Pollachi, Tirpur, Salem and Chennai.

## **1.6. METHODOLOGY**

### **1.6.1 TYPE OF STUDY**

The type of study used for this project is exploratory in nature. Exploratory study explores new opportunities for future development, it is done by the process of collecting information to formulate, research and to investigate the future opportunities.

### **1.6.2 SAMPLING DESIGN**

The sampling design consists of sampling method and sample size. The sampling method used is convenient method of sampling since the population is infinite. The sample size is 124 respondents from the contractors in Coimbatore, Erode, Pollachi Tirpur, Salem and Chennai.

### **1.6.3 METHOD OF DATA COLLECTION**

The study mainly depends on Primary data collected through Interview Schedule. Secondary data is collected through company manuals, records, magazines and web sites for getting the background information.

### **1.6.4 TOOLS FOR ANALYSIS**

The tools used for analysis are

- Descriptive Analysis

Descriptive analysis is used to describe the profile of respondents and business, and equipments used.

- Mean-Score Analysis

In this study mean value is used to identify and rank the factors which influence the Key factors contributing success and profitability.

### 1.7 Limitations:

- Due to time constraint only 124 respondents have been covered.
- As the method of convenient sampling is used the findings cannot be generalized.

### 1.8 Chapter scheme:

This project is divided into 5 chapters,

Chapter one deals with background of the study, review of literature, objectives and scope of the study, methodology and limitations.

Chapter two deals with history of the organization, management, organization structure service profile, etc.,

Chapter three covers macro micro analysis of the study.

Chapter four includes data analysis and interpretation through representation of various tables and graphs.

Chapter five deals with results, discussion and recommendations provided for the study.

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≈ ORGANIZATION PROFILE ≈

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## CHAPTER - 2

### ORGANISATION PROFILE

#### 2.1 HISTORY OF THE ORGANISATION:-

Sakthi Finance Ltd., was incorporated in 1955, as a non-banking finance company. Initially, the Company catered exclusively to the hire purchase financial requirements of the Group's Telco Dealership units. This captive hire purchase business launched the Company firmly as a major player in this sector.

The Sakthi Group's long-standing association with the public through its agro-based industries, educational and charitable institutions has helped the company become an edifice of mutual trust and faith. Today, the company is one of the leading non-banking finance companies with over 21 branches in Tamilnadu, Kerala, Andhra Pradesh and Maharastra states. To widen its reach and extend its services, a branch expansion program is being implemented.

The company has an excellent brand image among the populace in this part of the country because of the excellent track record of the group. Despite the shakeout in the Industry, the Company has been able to hold its own in a highly competitive environment.

Sakthi Finance has positioned itself as a niche player and is now focusing on the Commercial Vehicle re-finance segment. The Company has planned to set up deployment in hire purchase financing and has envisaged a growth rate of 30 to 35 % over the next 3 years.

It is targeted to increase the deployment in hire purchase business manifold in the coming years. The consistent high economic growth and the Government emphasis on development of infrastructure such as construction of Golden Quadrilateral and linking of rivers have opened up tremendous opportunities for Sakthi Finance.

The Company was promoted by Dr. N. Mahalingam during the year 1955 in the name of "The Pollachi Credit Society Private Limited". The Company was later converted into a Public Limited Company as "Sakthi Finance Limited" on 27<sup>th</sup> July 1967. SFL is engaged in the retail finance business. The Company came out with its first public issue of equity shares in 1984 and mobilised Rs.75 lakhs. In the year 1994 SFL obtained credit rating for Fixed Deposit Programme through ICRA and was rated 'MA'. Later in the Year 1995 the rating was upgraded from 'MA' to 'MA+'. The grading of the company for Fixed

Deposits Programme is 'MA-'. Company's business currently involves Acceptance of deposits, Non-Convertible Debentures, Hire Purchase Financing of commercial vehicles, Machinery etc., Mortgage Financing, and other finance related activities with its main focus on the Financing of commercial vehicles.

The total deposits mobilised by the company crossed Rs.100 crore mark in the year 1991. The company is principally engaged in hire purchase and leasing business. The stock on hire has grown steadily over the years from Rs.203.60 lakhs in 1984 to Rs. 20418.08 lacs in the F.Y. 2007. In compliance of the regulations, the company reduced the deposit base to less than Rs.100 crores and the deposit as on 31st March 2007 stood at Rs. 8186 lacs. As a result of the reduction in fund base, the stock on hire also dropped to Rs.11941.68 lakhs in 2001, but gradually increased to Rs.20418 lacs in 2006-07. At present the Company has 25 branches in Tamil Nadu, Kerala, Andhra Pradesh, Karnataka, Pondicherry and Delhi.

### **MAIN OBJECTS OF THE COMPANY:**

The main objects of the company are as follows:(As set out in the Memorandum and Articles of Association of the Company)

1. To lend and / or to advance money or grant loans on any terms that may be thought fit with or without security to persons, firms, individuals, companies, local bodies or Government and particularly to customers and other persons having dealings with the Company.
2. To promote, assist in promoting, finance, aid, procure aids, manage, takeover or create any undertaking whether existing or new.
3. To act as Secretaries and financiers to enterprises.
4. To act as an issue house, Registrars and Share Transfer Agents, Financial Advisers. Technical Consultants, System Analysts and Data Processors.

5. To purchase, sell, exchange, deal in or invest in shares, debentures, bonds, Stocks of Joint Stock Companies, firms, local bodies or of Government.

6. To carry on the business of Underwriters, Sub-underwriters, Brokers, Managers, Advisors, Consultants to issue of shares, debentures, bonds, fixed deposits and other securities and of syndication of loans, project finance, working capital facilities and deferred payment facilities.

### **SUBSIDIARIES OF THE COMPANY:**

SFL has a 100% Subsidiary Company, Sakthi Properties (Coimbatore) Limited.

### **DISTINCTIVE FEATURES OF SAKTHI FINANCE:**

- One of India's oldest NBFCs
- Founded in the year 1965.
- Part of the Rs 1200 crore Sakthi Conglomerate which was founded in the year 1935.
- The Sakthi Group has a leading presence in Finance Agro foods, Dairy, and Transport.
- A deep understanding of the transport industry has made Sakthi one of the most trusted names in financing for commercial vehicles.
- A wide variety of loans for cars, commercial vehicles, plant machinery and equipment are available.
- One of the first companies to introduce used vehicle financing.
- Sakthi Finance Ltd., has 20 branches spread all over India.
- Over 1, 00,000 happy customers and still growing.
- The Locker Operations are carried out by SAKTHI FINANCIAL SERVICES LIMITED, an associate Company.

Sakthi Finance Limited operates as a nonbanking finance company in India. It offers loans for cars, commercial vehicles, plant machinery, equipment, and other consumer durables. The company was incorporated in 1955 and is based in Coimbatore, India. Sakthi Finance Limited is part of SAKTHI Group of companies.

### INDUSTRY SUMMARY:

The Non-Banking Financial Companies (NBFCs) are a heterogeneous group of finance companies unlike the commercial and co-operative banks. NBFCs are defined under Section 45-I(f) read with Sections 45-I© and 45-I(e) of RBI Act, 1934, and can carry on business in one or more of these areas:

- Asset Finance Company
- Insurance Company
- Loan Company
- Investment Company
- Mutual Benefit Finance Company
- Miscellaneous Non-Banking Company
- Housing Finance Company
- Residuary Non-Banking Company

The funding to small-scale industry is mainly for plant and machinery, industrial equipment, computer system etc. 70 % of the activities of NBFCs are in Leasing Equipment and Hire Purchase. There is some exposure in Bill Discounting and Factoring. The main strength of NBFCs is that they can devise innovative financing schemes and tailor-made schemes according to the specific requirement of the client. (Source: [www.indianfoundry.com/Teri/finance/nbfc.html](http://www.indianfoundry.com/Teri/finance/nbfc.html)).

The NBFIs in India comprises various types of financial institutions with each one of them having its roots at a particular stage of development of the financial sector. All-India Financial Institutions (AIFIs), largely an offshoot of development planning in India, were created for long-term financing with some of them having sectoral/regional focus. Non-banking financial companies (NBFCs), on the other hand, are mostly private sector units, which have carved their niche in the Indian financial system.

As of June 2006, there were in all 13,014 NBFCs registered with RBI of which 428 accepted deposits (Source: *Economic Survey 2006-2007*). NBFCs are an integral part of the country's financial system because of their complimentary as well as competitive role. They act as a critical link in the overall financial system catering to a large market of niche customers. As a result of consolidation and restructuring in the financial sector and liberalisation and globalisation of markets only a few strong NBFCs now remain in business. However, competition continues to be intense, as the Indian and foreign banks have entered the retail lending business in a big way, thereby exerting pressure on margins.

On the regulatory front, NBFCs are regulated by the RBI almost at par with banks. All the prudential norms for asset classification, income recognition, provisioning requirements etc., are applicable to NBFCs.

#### **COMPANY SUMMARY:**

SFL is a RBI registered NBFC engaged in financing of commercial vehicles, infrastructure equipment and personal finance products for over 50 years. SFL was promoted in 1955 by Dr. N. Mahalingam; promoter of the Coimbatore based Sakthi Group. SFL was formed with an objective of providing hire-purchase assistance to truck operators where it derives certain advantages from the group's dealership business as well as its experience in the transport sector. Currently, SFL is an independent multi-line finance company which focuses mainly on two product lines in finance segment viz. -- Commercial Vehicles and Infrastructure equipment. SFL at present has 25 branches concentrated mainly in Southern India. The client base of SFL predominantly consists of small vehicle operators. Customers are usually provided 75% to 80 % of the market value of the asset. The loans are secured by hypothecation of the assets financed.

Sakthi Finance Limited was incorporated on 30<sup>th</sup> March 1955 under the Company's Act in the name of "Pollachi Credit Society" Private Limited, as group's in house financing arm for TELCO dealership. The company made its first public issue in 1984. With successive rights issue on premium the company paid up the capital raised from Rs 25 Lakhs to 17.5 crores as on March 2002.

The company's authorized capital comprises, 4, 00, 00,000 equity shares of Rs.10 each and 5, 00,000 redeemable cumulative preference share of Rs.100 each. The issued subscribed and paid up capital are 2, 00, 71,321 equity shares ors Rs.10 each fully paid up.

Sakthi Finance Limited is a unit of Sakthi Group Promoted by Dr.N. Mahalingam. Authorized share capital of the capitals of the company in 2006 is Rs. 45 cores which is divided into 4 crores Equity shares of Rs.10 each and 5 Lakhs Redeemable Preference share of Rs.100 each. The Paid- up Shares capital is 2, 00, and 71,231 Equity shares of Rs.10 each. Presently the company operates through a networks of 21 branches located in Tamilnadu, Kerala, Andrapradhesh and Maharashtra, with specific focus on Tamil Nadu and Savings centers have been established at various deposit potential arrears at taluks of different districts in Tamilnadu and Kerala for mobilizing public deposits. The Company is also having safety locker facility to the deposit holders.

### **STRENGTH OF VISION:**

Sakthi, a growing group that's business interests are etching out new industrial horizons. With the strength of vision, the Sakthi group is now among the top corporate houses in the country. Led by the farsighted Dr.N. Mahalingam, the group chairman – the driving force behind Sakthi the group today is a Rs.800 Crore conglomerate, has diverse interests spanning across Sugars, Textiles, Transport ,Finance, Fruit beverages, Soya products, Synthetic gem manufacturing.

A keen participant in social commitments, the Sakthi group has set up many Educational and charitable institutions, hospitals and religious centers.

### **VISION OF SAKTHI FINANCE LIMITED:**

1. Be amongst the top three re-financiers of commercial vehicles in the country.
2. Become total solution provided through channel seven -- value chain management.
3. Become the most preferred supplier of the customer choice.

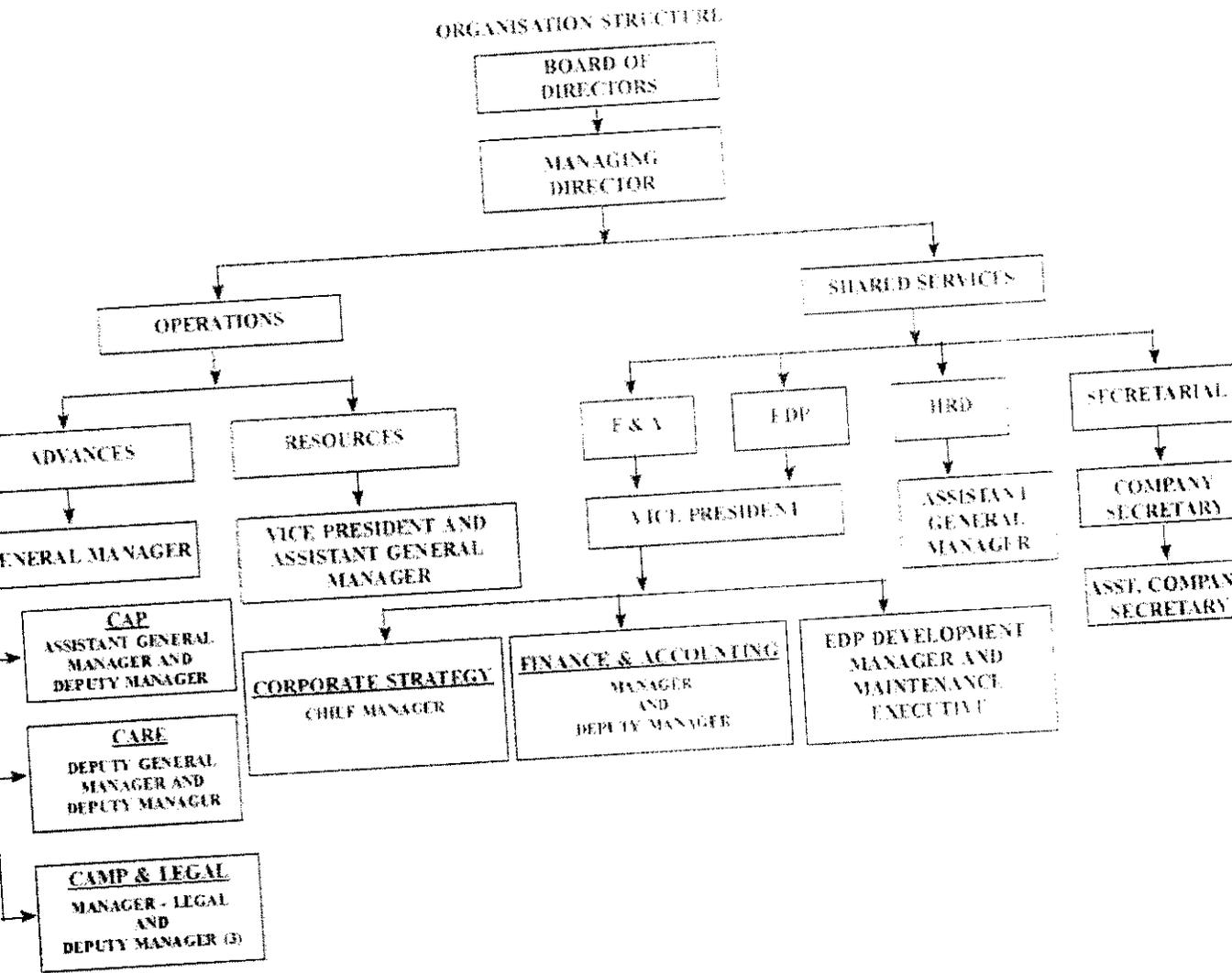
**MISSION OF SAKTHI FINANCE LIMITED:**

1. To partner the progress of “ the small and medium transport “ (SRTO & MRTO)
2. To provide “End to End service” leading to “Total Customer Solution” with speed, Flexibility and Integrity.

**2.2. MANAGEMENT****BRANCH OFFICES**

1. **Tamilnadu:** Chennai, Coimbatore, Mylapore, Madurai, Pollachi, Trichy, Salem, Erode, Namakkal and Tirunelveli.
2. **Kerala:** Calicut, Eranankulam, Kottayam and Kannur.
3. **Karnataka :** Bangalore
4. **Andhra Pradesh:** Vishakapatnam, Vijayawada.
5. **New Delhi**

## 2.3 ORGANIZATIONAL STRUCTURE



## **2.4. PRODUCTS PROFILE AND MARKET POTENTIAL**

SFL is engaged in providing finance for commercial vehicles and equipments.

### **Commercial Vehicle Finance:**

Providing finance for the Commercial Vehicles forms the core business of SFL. SFL provides finance for new as well as used commercial vehicles. The strategy of the company is to engage in niche segment of commercial vehicle refinance business. Very few organized players have entered into commercial vehicle refinance business wherein the age of the truck is more than 5 to 6 years. The average loan size for commercial vehicles varies from Rs. 2.00 Lakhs to Rs. 4.00 Lakhs and the tenure is from 24 Months to 36 Months.

### **Infrastructure Equipment Finance:**

SFL has also entered in the financing of Infrastructure equipment and earth moving machines in order to diversify its portfolio. Government has proposed incentives for industries engaged in the infrastructure development. These incentives may give SFL an opportunity to improve in this line of business on account of the potential in equipment financing, as there is scope for growth in this business. The details of the business done in this segment by the company is as follows

### **MARKET POTENTIAL:**

SFL has outsourced this process of retail resource mobilizations to its associate company called Sakthi Financial Services Limited. Sakthi Financial Services Limited has employed around 30 field staff in Tamil Nadu to market the Fixed Deposit and Non-Convertible Debentures scheme of Sakthi Finance Limited. Potential customers are contacted and explained about the schemes and deposit is mobilized.

The marketing activity for lending is directly handled by Sakthi Finance Limited. The company has 25 branches in Tamil Nadu, Kerala, Andhra Pradesh, Karnataka, Pondicherry and Delhi. Each branch is in-charge of a Branch Manager. Depending upon the potential in the territory, 4 to 6 marketing officers are attached to each branch, at present there are 75 marketing officers in the rolls of the company. These officers are located in rural centres, wherein truck population 35 is higher. Each of these officers

typically covers 50 km area from his location. They are responsible for lending money in that area and also for collecting the installments. These officers are given required marketing support, by holding Special Customer Meets, Campaigns etc.

### **2.5. COMPETITIVE STRENGTHS OF SAKTHI FINANCE METHODS:**

- Part of the Sakthi group – one of the reputed groups of the southern Indian headed by Dr.N. Mahalingam
- Customer base of more than 5 million
- Experience in hire purchase financing of more than 45 years
- Business focused executives at all levels.
- The company is rated by ICRA as MA that means adequate safety.
- First in the industry to issue post dated interest warrants in advance every year.

### **FUTURE PLANS OF SAKTHI FINANCE:**

- The company is in progress of setting up exclusive software for maintaining their electronic database.
- The company has planned to electronically appraise the upcoming credit proposals with the newly build software.
- The company has plans to stretch its market to open new branches in South India.
- The company is in the process of framing new deposit schemes to accumulate deposits from its customers.

## 2.6 DESCRIPTION OF VARIOUS FUNCTIONAL AREAS:

The Basic Process of the Business is explained below:

### Lending and Collections

The processes involved in lending activity are enumerated below:-

**1. Customer Acquisition and Retention (CARE):** Marketing Officers located in potential centres identify good customers who intend to borrow and collect their profiles. If the profile of the intended borrower matches with the policy of the company, the executive makes a recommendation as to whether the loan to the applicant should be extended or not.

**2. Customer Appraisal Process (CAP):** This process team takes care of appraising the profiles of all intended borrowers and select the right borrowers who have the capacity and intention to repay the loan. The Appraisal process is centralized and handled at Head Office. All the branches are linked through internet and hence the appraisal process is carried out faster. The funds are advanced after the process of evaluation is completed and the necessary documentations have been completed.

**3. Customer and Asset Management Process (CAMP):** The critical success factor of an NBFC is its ability to manage the advance portfolio and recover the money lent on due dates. There is a team at Head Office which is continuously monitoring the recovery and offers support to branches on exceptional accounts which pose collection problems.

≈ MACRO & MICRO ANALYSIS ≈

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## CHAPTER 3

### MACRO-MICRO ANALYSIS

#### MACRO ANALYSIS:

##### Over view of construction Equipment industry in India:

The upswing in the Indian Economy has enhanced the demand for the Construction and Material Handling equipments. The demand for Construction and Material Handling Equipments is correlated with the growth of other segments like Infrastructure Construction, Ports, Pipelines, Roads, Steel, Power Projects, Mining, Building Construction etc. Increase in foreign investment (FDI/FII) and technology has led to a tremendous growth in requirement of mobile cranes and construction equipments. The size of Indian construction industry is over US\$25 billion and it accounts for over 6.5% of GDP. With the GDP growth likely to be around 8% for 3 to 5 years going forward, the demand for construction equipments will continue to grow with core sectors like construction, cement, steel chemicals, petroleum, mining etc. Construction equipments forms major portion of construction cost though its share differs by the construction segments.

Source: Construction Industry Development Council survey

Construction Segment	Construction Cost as % of Construction Cost
Building	4-5
Roads	21-23
Bridges	16-18
Dams	21-23
Power	21-24
Railway	6-8
Mineral Plant	20-22
Medium Industry	7-9
Transmission	5-7

## Birth of Indian Construction Equipment Industry:

The Evolution of Indian Construction Equipment (CE) Industry can be broken up in a time frame of five decade on bases of Industry trends, market and products.

S.No	Year	Industry Trend	Market	Products
1	1960-70's	Domestic production began with setting up of BEML	Government being the main producer and buyer	Dozers, Dumpers, graders, scrapers, graders etc.
2	1980's	Private sector entering the sector with likes of L&T, Telecom	Growth of market due to increase in mining/infrastructure activities	Hydraulic excavators, mining equipment etc
3	1990's	Joint Ventures with global player	Liberalization of economy with increase construction activities	Pavers, loaders, backhoe etc
4	2000's	Demand moving northward leading to capacity doubling	Infrastructure development gains momentum with investments pouring	Equipments of latest technology with increase load handling capacity
5	Current scenario & Future	Sectorial reforms and boost to infrastructure development	Increase in budgetary allocation, increase in international finance institution funding for infrastructure	Emerging as a manufacturing hub for designing and developing products for global markets

Prior to 1960's, domestic requirements of construction equipment were entirely met by imports. Domestic production began in 1964 with manufacturing of bulldozers, dumpers, graders, scrapers etc by Bharat Earth Movers Ltd (BEML) a PSU unit under Ministry of Defense. In the private sector, the Hindustan Motors established its Earthmoving Equipment Division in 1969 at Tiruvallur, near Chennai. In 1974, L&T began to manufacture hydraulic excavators under license from Poclain, France. In 1980, Telcon began production of hydraulic excavators under license from Hitachi, Japan and in 1981. Escorts JCB started production of backhoe loaders under license from JCB, UK. Escorts JCB was taken over by JC Bamford Excavators Ltd. U.K. in 2003 and is now called JCB India Ltd. Volvo and Terex Vectra are the newest entrants to the market. Volvo has set up their manufacturing unit in Bangalore.

### **Equipments used in construction: an over view:**

Heavy construction equipment consists of the following major product categories: off-highway trucks and tractors, loaders, graders and rollers, cranes and draglines, mixers and pavers as well as attachments and parts. This equipment is used in a broad array of applications--ranging from major infrastructure projects to office buildings and from housing to factories, power plants and mining.

### **Cranes:**

A crane is a tower or derrick that is equipped with cables and pulleys that are used to lift and lower material. They are commonly used in the construction industry and in the manufacturing of heavy equipment. Cranes for construction are normally temporary structures, either fixed to the ground or mounted on a purpose built vehicle.



They can either be controlled from an operator in a cab that travels along with the crane, by a push button pendant control station, or by radio type controls. The crane operator is ultimately responsible for the safety of the crews and the crane.

Cranes are of different types, they are,

- Mobile Cranes
- Telescopic Crane
- Tower Crane
- Truck Mounted Crane
- Rough Terrain Crane

## Excavators:

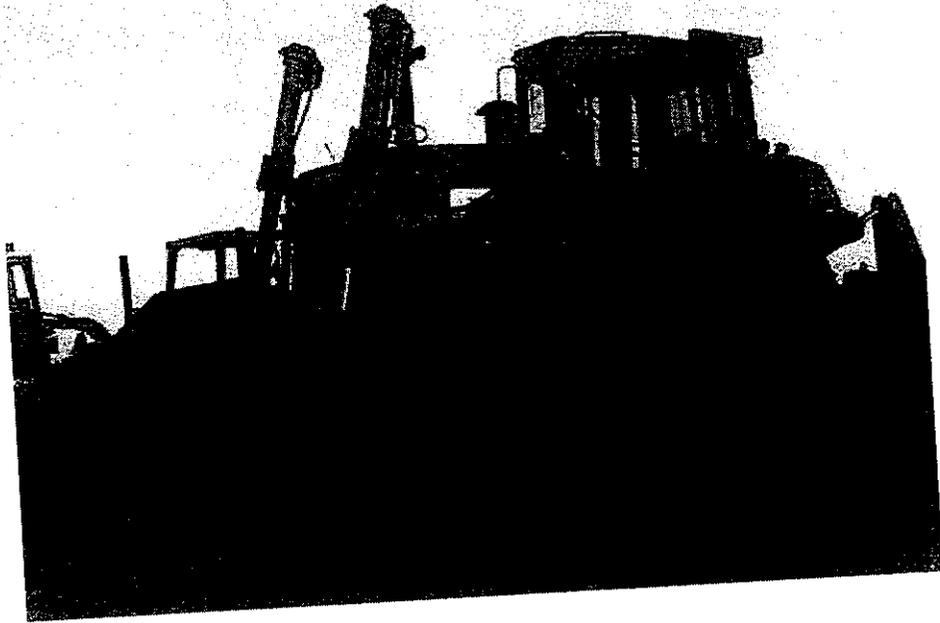
The compact hydraulic excavator can be a tracked or wheeled vehicle with an approximate operating weight of 13,300 pounds. Normally, it includes a standard backfill blade and features an independent boom swing. The compact hydraulic excavator is also known as a mini excavator.



A compact hydraulic excavator is different from other types of heavy machinery in the sense that all movement and functions of the machine are accomplished through the transfer of hydraulic fluid. The work group and blade are activated by hydraulic fluid acting upon hydraulic cylinders. The rotation and travel functions are also activated by hydraulic fluid powering hydraulic motors.

**Bulldozer:**

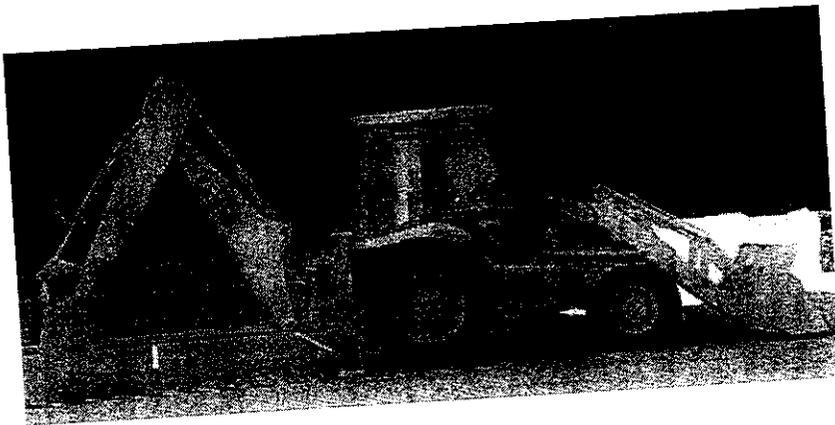
The bulldozer is a very powerful crawler that is equipped with a blade. The term bulldozer is often used to mean any type of heavy machinery, although the term actually refers to a tractor that is fitted with a dozer blade. Often times, bulldozers are large and extremely powerful tracked vehicles. The tracks give them amazing ground mobility and hold through very rough terrain. Wide tracks on the other hand, help to distribute the weight of the dozer over large areas, therefore preventing it from sinking into sandy or muddy ground.



Bulldozers have great ground hold and a torque divider that's designed to convert the power of the engine into dragging ability, which allows it to use its own weight to push heavy objects and even remove things from the ground. Take the Caterpillar D9 for example, it can easily tow tanks that weight more than 70 tons. Due to these attributes, bulldozers are used to clear obstacles, shrubbery and remains of structures and buildings.

### **Backhoe Loader - Construction Equipment:**

Also referred to as a loader backhoe, the backhoe loader is an engineering and excavation vehicle that consists of a tractor, front shovel and bucket and a small backhoe in the rear end. Due to the small size and versatility, backhoe loaders are common with small construction projects and excavation type work. Originally invented in Burlington Iowa back in 1857, the backhoe loader is the most common variation of the classic farm tractor. As the name implies, it has a loader assembly on the front and a backhoe attachment on the back.



Anytime the loader and backhoe are attached it is never referred to as a tractor, as it is not normally used for towing. When the backhoe is permanently attached, the machine will normally have a seat that can swivel to the rear to face the backhoe controls. Any type of removable backhoe attachments will normally have a separate seat on the attachment itself. Backhoe loaders are common and can be used for many tasks, which include construction, light transportation of materials, powering building equipment, digging holes and excavating, breaking asphalt, and even paving roads. You can often replace the backhoe bucket with other tools such as a breaker for breaking and smashing concrete and rock. There are some loader buckets that offer a retractable bottom, which enable it to empty the load more quickly and efficiently.

## Infrastructure Thrust:

Roads	Power	Ports	Airports
<ul style="list-style-type: none"> <li>Rs.27 trillion needed to develop 50000 km under NHDP</li> <li>Rs. 133 trillion required to develop 369000 km of rural roads &amp; upgrade another 368000km</li> <li>Golden Quadrilateral (GQ) and the North-South, East-West Corridors- progressing at the rate of 4.48 kms per day</li> <li>96 per cent of GQ to be completed by June'06 &amp; Corridors by the end of 2008</li> </ul>	<ul style="list-style-type: none"> <li>GoI's Vision "Power for All by 2012"</li> <li>GoI aim to add 90000 MW by 2012</li> <li>Rs.10 trillion required till 2012 towards generation, transmission, &amp; distribution</li> <li>3016 MW added till January 2006</li> <li>Contracts placed for projects spanning 95 districts and covering 41,461 un-electrified and 9,379 electrified villages</li> </ul>	<ul style="list-style-type: none"> <li>Traffic expected to grow @ 10% p.a.</li> <li>NMDP phase I for sprucing major ports. investment required Rs. 607 billion by 2012</li> <li>Phase II of Rs. 202 billion for minor ports</li> <li>Maritime Development Work is in progress in 101 projects covering inland waterways</li> <li>Plan allocation for Department of Shipping increased by 37 per cent to Rs.735 crores</li> </ul>	<ul style="list-style-type: none"> <li>Expected growth in next 5 years :               <ul style="list-style-type: none"> <li>- Passenger 15%</li> <li>- Cargo 20%</li> </ul> </li> <li>Investment required Rs. 400 billion over next 5 years, out of which 100 billion will be spent for developing Greenfield airports.</li> <li>Delhi/Mumbai airports already privatized. Others in pipeline.</li> </ul>
Railways	Telecom	Urban Infrastructure	Mining
<ul style="list-style-type: none"> <li>2<sup>nd</sup> largest network - 63122 Km.,</li> <li>Daily movement of 16 million passengers &amp; 1.53 MT of freight</li> <li>Rs 220 billion required for the development of 2700 kms freight corridors</li> <li>Overall Rs 3000 bn needed to develop railway sector</li> </ul>	<ul style="list-style-type: none"> <li>Past 5 years growth at 25% p.a ,projected growth 40% p.a</li> <li>Rs. 1 trillion required in hardware, software &amp; content development.</li> <li>FDI allowed in telecom:               <ul style="list-style-type: none"> <li>- 74% for telecom service providers</li> <li>- 100% for telecom equipment manufacturers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>100% FDI allowed for construction &amp; township development.</li> <li>Rs 837 billion required under NURM</li> <li>Five fold explosive growth in Urban India</li> </ul>	<ul style="list-style-type: none"> <li>INR 145 bn opportunity in mining equipment in next 5 yrs.</li> <li>Coal reserves of 20 billion tonnes to be de-blocked for power projects</li> <li>100% FDI allowed on automatic route for:               <ul style="list-style-type: none"> <li>- Coal &amp; lignite mining</li> <li>- Exploration &amp; Mining of diamond &amp; precious stones, gold &amp; silver</li> </ul> </li> </ul>

The above plan of the government for developing infrastructure in the country to fuel overall economic growth has a huge positive impact on the sector.

### **Infrastructure in India:**

India has one of the largest road networks in the world aggregating to 3.34 million Km. The country's road network consists of Expressways, National Highways, State Highways, Major District Roads, other district roads and village roads with the following length distribution:

The importance of infrastructure for sustained economic development and influencing the living standards is well recognized. In the Indian context, while there has been some progress in attracting investment into infrastructure, the total annual capital investment on infrastructure still hovers around 4 percent of GDP, as compared to over 10 percent share in some other Asian countries. The dynamics of the Indian economy warrant a strong push to infrastructure.

India continues to be the most sought after location for off shore businesses. The economic growth of India is second in the world only after China. India's IT and BPO industry continue to grow dramatically. Considering its rapid growth rate, India has the potential to be the next world leader. However, India's growth faces a major challenge. As India grows, it faces problems in developing its infrastructure to meet the skyscraping demands of the businesses. Without significant investment in infrastructure, India will be unable to continue its astounding growth

There are six core areas and infrastructure industries, viz., electricity, crude oil, petroleum refinery products, coal, steel and cement, having a weight of 26.7 per cent in overall Index of Industrial Production (IIP) achieved 6.8 per cent during 2000-01. Several fiscal incentives were announced by the government for boosting investment in infrastructure projects. Ten-year tax holiday offered to projects in core sectors like roads, highways, waterways, water supply, sanitation and solid waste management systems can now be availed of during the initial 20 years. Projects in airports, ports, inland ports, industrial parks and generation and distribution of power can now avail of 10-year tax holidays during the initial 15 years. Tax incentives were made available to investors providing long-term finance to enterprises engaged in infrastructure.

**Railways:** The Indian Railways is the second largest network in the world with a total route length of 63,000 km and a fleet of 7,000 passenger and 4,000 goods trains.. It carries more than 4,000 million passengers per year and transports over 382 million tones of freight every year. It is well equipped to meet its demands for locomotives, coaches and other components. Lately, the Railways have launched a massive gauge-conversion drive. With improvement in tracks, plans are afoot to introduce faster trains. Very soon, certain prestigious long-distance trains will be running at 160 km per hour. The Railways have also started a scheme to privatize several services that will include maintenance of railway stations, meals, drinking water and cleaning of trains.

**Road Transport:** The roadways have grown rapidly in independent India. Ranging from the cross-country link of the national highways to the roads in the deepest interiors, the country has a road network of 2.1 million km. India also manufactures most of its motorised vehicles: cars, jeeps, trucks, vans, buses and a wide range of two-wheelers of various capacities. While Indian scooters have established a good foreign market, the car industry is also looking up with several foreign companies setting up plants in India.

**Shipping:** The natural advantage of a vast coastline requires India to use sea transport for the bulk of cargo transport. Following the policy of liberalization, the Indian shipping industry, major ports, as also national highways and water transport have been thrown open to the private sector. Shipping activity is buoyant and the number of ships registered under the Indian flag has reached 471. The average age of the shipping fleet in India is 13 years, compared to 17 years of the international shipping fleet. India is also among the few countries that offer fair and free competition to all shipping companies for obtaining cargo. There is no cargo reservation policy in India.

**Aviation:** India has an aviation infrastructure which caters to every aspect of this industry. Hindustan Aeronautics Limited (HAL) is India's gigantic aeronautical organization and one of the major aerospace complexes in the world. India's international carrier, Air-India, is well known for its quality service spanning the world. Within the country, five international airports and more than 88 other airports are linked by Indian Airlines.

The 1998-99 Budget announced by the BJP government has given a major thrust to infrastructure development, particularly in energy and power, transport and communications, by stepping up public expenditure in these sectors. This increased government spending on infrastructure which is expected to boost India's sluggish economy. The lack of a clear policy frame work for private sector participation has hampered the badly-needed infrastructure development, particularly in telecommunications, power, roads and ports. The public sector, has reduced its investments considerably, due primarily to its poor fiscal position.

Previously, investment in the infrastructure (mainly in the highways),made by the government were mainly due to the need of huge volume of resources required, long gestation period, uncertain returns and various associated externalities. However, the requirement of galloping resources and the concern for managerial efficiency and consumer awareness in recent times have led to an active involvement by the private sector as well.

To encourage participation of private sector, the Department of Road Transport and Highways has laid down comprehensive policy guidelines for private sector participation in the Highway sector. The Government has also announced several incentives such as tax exemptions and duty free import of road building equipments and machinery to encourage private sector participation in the highway sector. It has been decided that all the sub-projects in NHDP Phase-III to Phase VII would be taken up on the basis of Public Private Partnership (PPP) on Build, Operate and Transfer (BOT) mode or Annuity mode. The private sector participation envisaged in Phase II of NHDP has also been increased.

### **Investment Incentives:**

The following provisions have been listed with a view to attract private investment and for facilitating public-private partnership in National Highways:

- Simplified policies with transparent procurement procedures
- Model Concession Agreement (MCA) standardization
- Foreign Direct Investment (FDI) up to 100 percent is allowed in the road sector
- Viability Gap Funding up to 40 percent of project cost based on competitive bidding for each project
- Tax concessions -complete tax holiday for any 10 consecutive years out of 20 years of the concession period.
- Retention of toll by concessionaire for BOT (Toll) projects
- Duty free import of high capacity and modern road construction equipments
- Greater Equitable allocation of risk
- Better clarity in the defining of rights and obligations of the parties.
- Strong dispute resolution mechanism
- Robust Institutional and legal set up comfort to the investors
- Revenue sharing in the form of negative grant and concession fee.
- Protection of the concessionaire from the risks of additional Tollway and competing roads.

### **Investment Opportunities:**

- Roads, Bridges and Bypasses
- Consultancy Services
- Major Highway Contracts under International Competitive Bidding (ICB)
- Collaborations for Equipment Manufacture
- Equipment Leasing
- Design Engineering
- New Technology
- New Management Techniques

## MICRO ANALYSIS:

As India is the seventh largest and second most populous country in the world, a new spirit of economic freedom is now stirring in the country, bringing sweeping changes in its wake. Infrastructure is generally a set of interconnected structural elements that provide the framework supporting an entire structure. It has diverse meanings, but is perhaps most widely understood to refer to roads, airports, and utilities.

India has a large and fairly well developed infrastructure framework extending to all parts of the country. However, certain areas like power, telecommunications, transport etc. need further expansion and modernization. And, the public sector alone can no longer fully finance the requirements. The Infrastructure Development Finance Corporation (IDFC), established in 1997, is a specialized financial institution, set up to provide credit enhancement to infrastructure projects, and to extend long term loans and guarantees that existing institutions may not be able to provide.

India initiated an ambitious reform programme, involving a shift from a controlled to an open market economy showing signs of overheating because of basic infrastructure constraints, both physical and human. So far, the bulk of infrastructure was in the public sector. Public sector in India operating in a protected set up has been largely subsidized by the Government. Since the launching of reform, Government is trying to reduce its borrowing which means that further subsidization will not be possible. There is one area where there is a need for private sector and foreign investment to come in. Because of the long gestation period, and many social implications, the infrastructure sector compares unfavorably with manufacturing and many other sectors. For this, specific policies in this area are needed to make infrastructure attractive. Clearly, there is a wide gap between the potential demand for infrastructure for high growth and the available supply. This is the challenge placed before the economy, i.e. before the public and private sector and foreign investors. This can also be seen as an opportunity for a widening market and enhanced production.

India's infrastructure has been expanding at an accelerated pace to support the economic growth rate of over 9 per cent. The six core-infrastructure industries, which account for a combined weight of 26.68 per cent in the index of industrial production (IIP), registered a growth of 8.6 per cent in 2006-07 as against 6.2 per cent during 2005-06.

The growth has continued apace during the current fiscal, with the six core-infrastructure industries growing at the rate of 6.9 per cent during April-September 2007. Significantly, electricity recorded a growth rate of 7.6 per cent compared to 6.7 per cent in the same period last year. Other sectors recording major growth include: petroleum refinery products (9.8 per cent), cement (8.3 per cent) and finished (carbon) steel (6.6 per cent).

Projects planned for the next five years include:

- Additional power generation capacity of about 70,000 MW
- Construction of Dedicated Freight Corridors between Mumbai and Delhi, and Ludhiana and Kolkata
- Capacity addition of 485 million MT in major ports, 345 million MT in minor ports
- Modernization and redevelopment of 21 railway stations
- Development of 16 million hectares through major, medium and minor irrigation works
- Modernization and redevelopment of 4 metro and 35 non-metro airports
- Six-laning 6,500 km of Golden Quadrilateral and selected National Highways
- Construction of 1,65,244 km of new rural roads, and renewing and upgrading existing 1,92,464 km covering 78,304 rural habitations

### **Infrastructure Management involves the following:-**

- Physical structures that form the foundation for development. Infrastructure includes: wastewater and water works, electric power, communications.
- Basic services necessary for development to take place, for example, roads, electricity, sewerage, water, education and health facilities.
- The public facilities and services needed to support residential development, including highways, bridges, schools and sewer and water systems.
- Permanent resources serving society's needs, including roads, sewers, schools, hospitals, railways, communication networks etc.
- In transportation planning, the fundamental facilities and elements of a transportation system serving a county, city, or area, such as roads, rails, sidewalks, and traffic signals.
- Human-made systems that provide any or all of the normal public services to an urban area (e.g. water supply, sewage, utilities, traffic control).
- The architectural elements, organizational support, corporate standards, methodology, data, processes, and physical hardware/network, etc. that make up the data warehouse environment.

These various elements may collectively be termed: civil infrastructure, municipal infrastructure, or simply public works, although they may be developed and operated as private-sector or government enterprises. In other applications, infrastructure may refer to information technology, informal and formal channels of communication, software development tools, political and social networks, beliefs held by members of particular groups. Economically infrastructure could be seen to be the structural elements of an economy which allow for production of goods and services without themselves being part of the production process. E.g. roads allow the transport of raw materials and finished products.

## **RURAL INFRASTRUCTURE:**

Rural infrastructure comprises rural roads, rural housing and rural electrification. Rural road connectivity is an extremely important aspect of rural development. A centrally sponsored scheme has been launched called the Pradhan Mantri Gram Sadak Yojana (PMGSY) which seeks to provide connectivity to all unconnected habitations in rural areas with a population of more than 500 persons through good all-weather roads by the end of the Tenth Plan period. In respect of hill states and desert areas, the objective would be to connect habitations with population of 250 persons and above. In order to achieve the objective of the Programme, a requirement of Rs.60, 000 crore has been estimated.

### **Roadways:**

Roadways in India have come a long way. Starting from the pug dandies (a small path created naturally due to frequent walks) of earlier times to the present-day Rajpath of Delhi, the country has crossed many spheres of road travel. The 'thread that binds the nation together' is truly a deserving metaphor for a road network that is one of the largest in the world. Its grand system of national highways, state highways and the roads that run endlessly within cities are marvelous.

India has its well-connected transport network since the time people started keeping records. The road network is assuming a pivotal role in the movement of goods and passengers. There has been a substantial shift in the mode of transportation from Railways towards the road sector. While the Railways handle only 40% of the freight and 20% of the passengers load, 60% of the goods and 80% of passenger's movement takes place through roads. It is anticipated that the function of the road network will further increase in the foreseeable future.

Though the National Highways constitute only 2% of the entire road network, they carry about 40% of the freight and passengers. The National Highways cover a length of 52000 km and pass through every state of India. They are the vital lifelines of the economy making possible trade and commerce.

## **GROWTH POTENTIAL OF INFRASTRUCTURE:**

India's infrastructure has been expanding at an accelerated pace to support the economic growth rate of over 9 per cent. The six core-infrastructure industries, which account for a combined weight of 26.68 per cent in the index of industrial production (IIP), registered a growth of 8.6 per cent in 2006-07 as against 6.2 per cent during 2005-06.

The growth has continued apace during the current fiscal, with the six core-infrastructure industries growing at the rate of 6.9 per cent during April-September 2007. Significantly, electricity recorded a growth rate of 7.6 per cent compared to 6.7 per cent in the same period last year. Other sectors recording major growth include: petroleum refinery products (9.8 per cent), cement (8.3 per cent) and finished (carbon) steel (6.6 per cent). According to a consultation paper circulated by the Planning Commission, a massive US\$ 494-billion of investment is proposed for the Eleventh Plan period (2007-12), which would increase the share of infrastructure investment to 9 per cent of GDP from 5 per cent in 2006-07. This translates roughly into US\$ 40 billion of annual additional investment.

Thus for the growth of multimodal transport industry, proper infrastructure is one of the prime requirements. Whether it is railways, roadways or seaways -- infrastructure should be world-class. From the Union Budget 2008-09 expectations of our industry include more outlay for improving infrastructure, rationalization of tax structure, especially service tax. For the growth of the industry, government should come up with more projects. The single mode transport operators are opting for road bridging. The companies seeking services from a multimodal transport operator are looking for one-point solution. The companies/clients want a single player to fulfill all their requirements with respect to good transportation from the point of origin to the destination. At the same time, there is need to develop alternative routes for cargo transportation so that distance between the place of origin of cargo and the destination should be covered in the shortest possible time, which will result in efficiency and save fuel.

## SWOT Analysis of the Sector

### Strength

Construction Equipment sector is estimated at USD\$ 2.25 billion in 2006 and is growing at 25% per annum against 5% per annum of global market. Indian market is estimated to be USD\$ 4 billion by 2010.

The vast talent pool gives India a comparative advantage, with high quality of engineering, software and IT talent. India's labor cost per hour is amongst lowest compare to other developing countries.

### Weakness

Weak organized market currently. It is necessary to have a strong organized market for the industry to grow fast, because it offers substantial benefits. It will allow customers to upgrade to newer, more sophisticated equipment faster, and also help players to retain customers.

To develop India as a major manufacturing hub it is necessary to focus on R & D. But in the case of construction equipment the focus on R & D is less compare to the global counter parts. With few exceptions, technology is imported from global partner or parent companies, rather than developing it indigenously here.

### Opportunities

Many global companies have brought in world-class technology, processes and systems. Few big name s like JCB, Ingersoll Rand, Komastu, Caterpillar have there presence in India. With India's talent pool of skilled labor, adequate R & D, low cost of labor India has the potential to manufacture similar equipments at a much lower cost.

### Threats

Unorganized segment is estimated to be at 16-18% which varies across different equipment categories. High end equipments are manufactured by organized players with large R & D facilities. Hence, unorganized sector does not pose a big threat. Government have drawn robust plan for infrastructure development but still poor quality of existing infrastructure acts as a bottle neck as significant resource is utilized for its repairs and maintenance. This acts as a hurdle for implementation of new projects, which also hampers the overall economic development of the economy and the sector.

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≈ DATA ANALYSIS & INTERPRETATION ≈

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## CHAPTER 4

### DATA ANALYSIS & INTERPRETATION

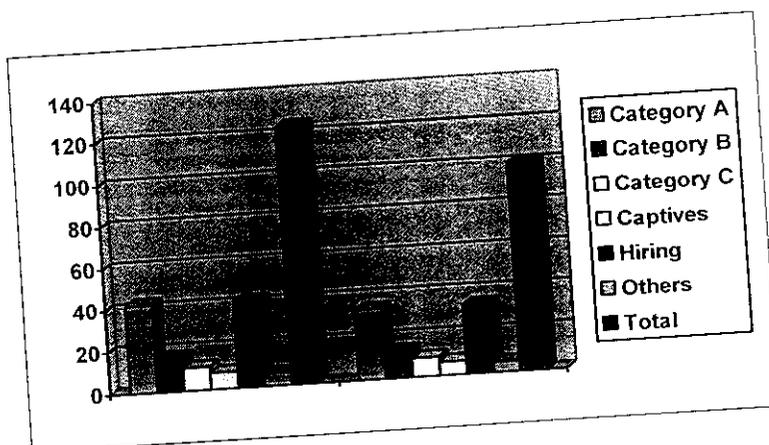
#### 4.1 Category of contractors:

**Table 1 - Distribution of respondents on the basis Categories of Contractors**

Category	Number of respondents	percent
Category A	42	33.87
Category B	16	12.9
Category C	11	8.87
Captives	8	6.45
Hiring	41	33.06
Others	6	4.83
Total	124	100

From the above table, it can be seen that, 33.87% of customers belong to category A contractors, 33.06% belong to hiring category, 12.9% belong to category B, 8.87% belong to category C, 6.45% use equipments for captive purposes and 4.83% belong to other category.

**Chart 1- Category of Contractors**



#### 4.2 Profile of Ownership:

**Table 2 - Distribution of Equipments owned on the basis of Categories of Contractors**

Category of respondents	Tippers		Backhoe loaders		Excavators		Cranes		Road equipments		Construction machinery	
	Number owned	percent	Number owned	percent	Number owned	percent	Number owned	percent	Number owned	percent	Number owned	percent
Category A	21	38.8	24	58.5	32	61.53	14	43.75	17	80.95	19	73.07
Category B	6	11.11	2	4.87	5	9.61	5	15.625	3	14.28	3	11.5
Category C	8	14.81	-	-	2	3.84	-	-	-	-	-	-
Captive	4	7.4	3	7.31	-	-	-	-	1	4.76	4	15.38
Hiring	13	24.07	12	29.26	9	17.3	13	40.625	-	-	-	-
Others	2	3.7	-	-	5	9.61	-	-	21	100	26	100
Total	54	100	41	100	52	100	32	100	21	100	26	100

From the above table it can be seen that 38.8% of tippers are owned by Category A respondents, 24.07% are owned by hiring category and 11.11% are owned by category C. 58.5% of Backhoe loaders are owned by Category A respondents and 29.26% are owned by hiring category. 61.53% of Excavators are owned by Category A respondents, 17.3% are owned by hiring category and 40.625% are owned by hiring category. 43.75% of cranes are owned by Category A respondents and 14.28% are owned by category B. 73.07% of category. 80.95% of road equipments are owned by Category A respondents and 15.38 % are owned by hiring category. construction machineries are owned by Category A respondents and 15.38 % are owned by hiring category.

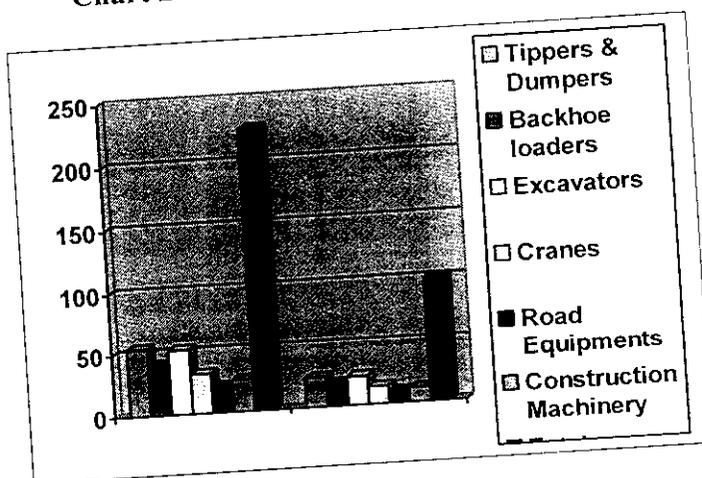
### 4.3 Profile of the Equipments Used

Table 3 – Distribution on the basis of Equipments Owned

Equipments	No. of Equipments	Percentage
Tippers & Dumpers	54	23.8
Backhoe loaders	41	18.1
Excavators	52	23.0
Cranes	32	14.1
Road Equipments	21	9.5
Construction Machinery	26	11.5
Total	226	100

From the above table it can be seen that most (23.8%) of the respondents own Tippers & dumpers, 23% own excavators, 18.1% own backhoe loaders, 14.1% own cranes, 11.5% own construction machinery and 9.5% own road equipments.

Chart 2 - Profile of the Equipments Used



#### 4.3.1 Tables showing the details of Tippers:

**Table 4 – Distribution of respondents on the basis Make of Tippers**

Make of Tippers	No. of respondents	Percentage
Ashok Leyland	23	42.5
Escorts	8	14.8
Jcb	4	7.4
Tarex	4	7.4
Tata	11	20.3
Taurus	4	7.4
Total	54	100

From the above table it can be seen that most (42.5%) of the respondents prefer Ashok Leyland, 20.3% prefer Tata, 14.8 % prefer Escorts, 7.4 % prefer Jcb, Tarex, Taurus.

**Table 5 – Distribution of respondents on the basis Number of Tippers Owned**

No. of Tippers	No. of respondents	Percentage
1 to 10	23	42.5
11 to 20	14	25.9
>25	17	31.4
Total	54	100

From the above table it can be seen that most (42.5%) of the respondents own tippers between 1 to 10, 31.4% own above 25 and 25.9% of the respondents between 11 to 20.

**Table 6 – Distribution of respondents on the basis number of Tippers Hired**

No. of Tippers	No. of respondents	Percentage
1 to 5	2	22.3
6 to 10	4	44.4
>10	3	33.3
Total	9	100

From the above table it can be seen that most (44.4%) of the respondents hire tippers between 6 to 10, 33.3% hire above 10 and 22.3% of the respondents between 1 to 5.

**Table 7 - Distribution of respondents on the basis of income/hour of Tippers & Dumpers**

Tippers & Dumpers(Rs.)	No. of respondents	Percentage
100 to 500	26	48.1
500 to 1000	20	37.0
1001 to 5000	8	14.9
Total	54	100

From the above table it can be seen that most (48.1%) of the respondents earn an income between 100 to 500, 37.0% earn 500 to 1000, 14.9% earn between 1001 to 5000.

**Table 8 – Distribution of respondents on the basis of Working Days/week of Tippers & Dumpers**

Tippers & Dumpers(Days)	No. of respondents	Percentage
1 to 5 days	11	20.3
6 to 10 days	43	79.7
Total	54	100

From the above table it can be seen that majority (88.7%) of the equipments work up to 6 days per week and 11.3 % around 1 to 5 days a week.

**Table 9 – Distribution of respondents on the basis Cost of the Equipments (Tippers)**

Cost of the Equipments(Rs)	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	12	22.2	8	88.8
5000 to 10000	23	42.5	-	-	-	-
10000 to 10000	-	-	12	22.2	-	-
10000 to 20000	-	-	18	33.3	1	11.2
20000 to 15000	19	35.1	-	-	-	-
15000 to 20000	7	12.9	-	-	-	-
Above 20000	5	9.2	12	22.2	-	-
Total	54	100	54	100	9	100

From the above table it can be seen that 42.5% of the respondents have maintenance cost between 5000 to 10000, 35.1% between 11000 to 15000, 12.9% between 16000 to 20000 and 9.2% above 20000, 33.3% have Operating cost between 10000 to 20000 and 22.2% between 1000 to 5000, 6000 to 10000 and above 20000, 88.8% of hiring cost is between 1000 to 5000 and 11.2% between 10000 to 20000.

**Table 10 – Distribution of respondents on the basis Cost of the Equipments for Ashok Leyland Tippers**

Cost of the Equipment (RS)	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	4	17.3	3	75
to 10000	15	65.2	-	-	-	-
to 10000	-	-	-	-	1	25
00 to 20000	-	-	-	-	-	-
00 to 15000	3	13.0	16	69.5	-	-
00 to 20000	3	13.0	-	-	-	-
0000	2	8.6	3	13.0	-	-
al	23	100.0	23	100	4	100

From the above table it can be seen that 65.2% of the respondents have maintenance cost between 5000 to 10000, 16.6% between 11000 to 15000 and between 16000 to 20000 and 11.1% above 20000, 61.1% have operating cost between 11000 to 15000 and 22.2% between 1000 to 5000, 16.6% above 20000, 75% of hiring cost is between 1000 to 5000 and 25% between 6000 to 10000.

Table 11 – Distribution of respondents on the basis Cost of the Equipments for Tata  
Tippers

Equipment Cost	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	3	27.2	2	100
5000 to 10000	7	63.6	-	-	-	-
10000 to 15000	-	-	-	-	-	-
15000 to 20000	-	-	-	-	-	-
20000 to 25000	2	18.2	-	-	-	-
25000 to 30000	2	18.2	-	-	-	-
30000 to 35000	-	-	8	72.7	-	-
35000 to 40000	-	-	11	100	2	100
Total	11	100.0	11	100	2	100

From the above table it can be seen that 63.6% of the respondents have maintenance cost between 5000 to 10000, 18.2% between 11000 to 15000 and between 16000 to 20000, 72.7% have Operating cost above 20000 and 27.2% between 1000 to 5000, hiring cost is between 1000 to 5000.

Table 12 – Distribution of respondents on the basis Cost of the Equipments for Escorts brand Tippers

Cost of the Equipments	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
1000 to 5000	-	-	-	-	2	100
5000 to 10000	-	-	-	-	-	-
10000 to 15000	-	-	3	37.5	-	-
15000 to 20000	-	-	-	-	-	-
20000 to 25000	5	62.5	2	25	-	-
25000 to 30000	3	37.5	-	-	-	-
30000 to 35000	-	-	3	37.5	-	-
Total	8	100.0	8	100	2	100

From the above table it can be seen that 62.5% of the respondents have maintenance cost between 11000 to 15000, 37.5% between 16000 to 20000, 37.5% have Operating cost between 6000 to 10000 and above 10000 and 25% between 11000 to 15000, hiring cost is between 1000 to 5000.

**Table 13 – Distribution of respondents on the basis Cost of the Equipments for Other brand (Tarex, Jcb & Taurus) Tipplers**

Cost of the Equipments (Rs)	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	-	-	1	100
5000 to 10000	4	33.3	-	-	-	-
10000 to 15000	-	-	10	83.3	-	-
15000 to 20000	-	-	-	-	-	-
20000 to 25000	8	66.7	2	16.7	-	-
25000 to 30000	-	-	-	-	-	-
30000 to 35000	-	-	-	-	-	-
Total	12	100.0	12	100	1	100

From the above table it can be seen that 66.7% of the respondents have maintenance cost between 20000 to 25000 and 33.3% between 5000 to 10000, 83.3% have Operating cost between 6000 to 10000 and 16.7% between 11000 to 15000, hiring cost is between 1000 to 5000.

**Table 14 - Distribution of respondents on the basis of servicing amount for Tippers & Dumpers**

Tippers & Dumpers(Rs.)	No. of respondents	Percentage	Service number	No. of respondents	Percent
2000 to 5000	11	20.3	1	12	22.22
5001 to 10000	13	24.0	2	8	14.8
10001 to 15000	12	22.2	3	9	16.66
15001 to 20000	6	11.1	4	6	11.11
20001 to 30000	3	5.5	7	9	16.66
30001 to 50000	5	9.2	12	10	18.5
>50000	4	7.4	Total	54	100.0
Total	54	100			

From the above table it can be seen that the servicing amount for 24% of tippers is between 5001 to 10000, 22.2% between 10001 to 15000, 20.3% between 2000 to 5000, 11.1% between 15001 to 20000, 9.2% between 30001 to 50000, 7.4% above 50000 and 5.5% between the range of 20001 to 30000. 22.22% of tippers are serviced 1 time. 14.8% of tippers are serviced twice, 16.66% are serviced thrice, 11.11% are serviced 4 times, 16.66% are serviced 7 times and 18.5% are serviced 12 times.



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#### 4.3.2 Tables showing the details of Backhoe Loaders:

**Table 15 – Distribution of respondents on the basis Make of Backhoe loaders**

Make of Backhoe Loaders	No. of respondents	Percentage
Ashok Leyland	4	9.7
Escorts	4	9.7
Jcb	29	70.7
Tata	4	9.7
Total	41	100

From the above table it can be seen that 70.7 % of the respondents prefer Jcb, 9.7% prefer Ashok Leyland, Escorts and Tata.

**Table 16 – Distribution of respondents on the basis number of Backhoe Loaders**

**Owned**

No. of Backhoe Loaders	No. of respondents	Percentage
1 to 10	30	73.1
11 to 20	6	14.6
>25	5	12.1
Total	41	100

From the above table it can be seen that most (73.1%) of the respondents own Backhoe loaders between 1 to 10, 14.6% own between 11 to 20 and 12.1% of the respondents own above 25.

**Table 17 – Distribution of respondents on the basis of Backhoe Loaders Hired**

No. of Backhoe Loaders	No. of respondents	Percentage
1 to 5	2	40
6 to 10	2	40
>10	1	20
Total	5	100

From the above table it can be seen that 40% of the respondents hire Backhoe Loaders between 1 to 5 and between 6 to 10, 20% hire above 10.

**Table 18 – Distribution of respondents on the basis of income/hour of Backhoe Loaders**

Backhoe Loaders (Rs.)	No. of respondents	Percentage
100 to 500	6	14.7
500 to 1000	35	85.3
Total	41	100

From the above table it can be seen that majority (85.3%) of the respondents earn an income between 500 to 1000, 14.6% earn 100 to 500.

**Table 19 – Distribution of respondents on the basis of Working Days/week of Backhoe Loaders**

Backhoe Loaders (Days)	No. of respondents	Percentage
1 to 5 days	36	87.9
6 to 7 days	5	12.1
Total	41	100

From the above table it can be seen that majority (87.8%) of the equipments work 1 to 5 days per week and 12.1 % around 6 to 7 days a week.

Table 20 – Distribution of respondents on the basis Cost of the Equipments

(Backhoe Loaders)

of the pment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	4	9.7	5	100
0 to 10000	18	43.9	-	-	-	-
0 to 10000	-	-	3	7.3	-	-
00 to 20000	-	-	17	41.4	-	-
00 to 15000	5	12.1	-	-	-	-
00 to 20000	10	24.3	-	-	-	-
0000	8	19.5	17	41.4	-	-
tal	41	100	41	100	5	100

From the above table it can be seen that 43.9% of the respondents have maintenance cost between 5000 to 10000, 24.3% between 16000 to 20000, 19.5% above 20000, and 12.1% between 11000 to 15000. 41.4% have Operating cost between 10000 to 20000 and above 20000, 9.7% between 1000 to 5000. and 7.3% between 6000 to 10000, hiring cost is between 1000 to 5000.

Table 21 – Distribution of respondents on the basis Cost of the Equipments for the brand JCB (Backhoe Loaders)

of the oment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	1	3.4	1	100
to 10000	4	13.7	-	-	-	-
to 10000	-	-	4	13.7	-	-
00 to 20000	-	-	-	-	-	-
00 to 15000	23	79.3	23	79.3	-	-
00 to 20000	1	3.4	-	-	-	-
0000	1	3.4	1	3.4	-	-
al	29	100	29	100	1	100

From the above table it can be seen that 79.3% of the respondents have maintenance cost between 11000 to 15000, 13.7% between 5000 to 10000, 3.4% between 16000 to 20000 and above 20000. 79.3% have operating cost between 11000 to 15000 and 13.7% between 6000 to 10000, 3.4% between 1000 to 5000 and above 20000, hiring cost is between 1000 to 5000.

Table 22 – Distribution of respondents on the basis Cost of the Equipments for other brand  
(Ashok Leyland, Escorts & Tata) Backhoe Loaders

of the oment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	-	-	1	100
to 10000	4	33.3	-	-	-	-
to 10000	-	-	6	50	-	-
0 to 20000	-	-	-	-	-	-
00 to 15000	-	-	6	50	-	-
00 to 20000	6	50	-	-	-	-
0000	2	16.7	-	-	-	-
al	12	100	12	100	1	100

From the above table it can be seen that 50% of the respondents have maintenance cost between 16000 to 20000, 33.3% between 5000 to 10000, 16.7% above 20000, 50% have Operating cost between 6000 to 10000 and between 11000 to 15000, hiring cost is between 1000 to 5000.

Table 23– Distribution of respondents on the basis of servicing amount for Backhoe Loaders

Backhoe Loaders(Rs.)	No. of respondents	Percentage	Service number	Number of respondents	Percent
10001 to 15000	6	14.6	1	5	12.19
15001 to 20000	4	9.7	2	8	19.5
20001 to 30000	18	43.9	3	7	17
30001 to 50000	5	12.1	4	8	19.51
>50000	8	19.5	5	10	24.3
Total	41	100	6	3	14.63
			Total	41	100.0

From the above table it can be seen that the servicing amount for 43.9% of back hoe loaders is between 20001 to 30000, 19.5% is above 50000, 14.6% is between 10001 to 15000, 12.1 % between 30001 to 50000, and 9.7% between 15001 to 20000. 12.19% of Backhoe loaders are serviced 1 time, 19.5% of Backhoe loaders are serviced 2 times, 17 % are serviced 3 times, 19.5 % are serviced 4 times, 24.3% are serviced 5 times and 14.63% are serviced 6 times

#### 4.3.3 Tables showing the details of Excavators:

Table 24– Distribution of respondents on the basis Make of Excavators

Make of Excavators	No of respondents	Percentage
Hitachi	5	9.6
Jcb	24	46.1
Tata	19	36.5
Volvo	4	7.6
Total	52	100

From the above table it can be seen that 46.1% of the respondents prefer Jcb, 36.5% prefer Tata, 9.6% prefer Hitachi and 7.6% prefer Volvo.

**Table 25– Distribution of respondents on the basis of Excavator Owned**

No. of Excavators	No. of respondents	Percentage
1 to 10	32	61.5
11 to 20	16	30.7
>25	4	7.6
Total	52	100

From the above table it can be seen that most (61.5%) of the respondents own Excavators between 1 to 10, 30.7% own between 11 to 20 and 7.6% of the respondents own above 25.

**Table 26– Distribution of respondents on the basis of Excavators Hired**

No. of Excavators	No. of respondents	Percentage
6 to 10	2	100
Total	2	100

From the above table it can be seen that the respondents hire Excavators between 6 to 10 nos.

**Table 27– Distribution of respondents on the basis of income/hour of Excavators**

Excavators(Rs.)	No. of respondents	Percentage
100 to 500	17	32.7
500 to 1000	35	67.3
Total	52	100

From the above table it can be seen that majority (67.3%) of the respondents earn an income between 500 to 1000, 32.7% between 100 to 500.

Table 28– Distribution of respondents on the basis of Working Days of Excavators

Excavators (Days)	No. of respondents	Percentage
1 to 5 days	39	75
6 to 7 days	13	25
Total	52	100

From the above table it can be seen that majority (75%) of the equipments work 1 to 5 days per week and 25 % around 6 to 7 days a week.

Table 29 - Distribution of respondents on the basis Cost of the Equipments (Excavators)

Cost of the Equipment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	7	13.4	2	100
5000 to 10000	19	36.5	-	-	-	-
10000 to 16000	-	-	19	36.5	-	-
16000 to 20000	-	-	7	13.4	-	-
20000 to 15000	6	11.5	-	-	-	-
15000 to 20000	7	13.4	-	-	-	-
Above 20000	20	38.4	19	36.5	-	-
Total	52	100	52	100	2	100

From the above table it can be seen that 38.4% of the respondents have maintenance cost above 20000, 36.5% between 5000 to 10000, 13.4% between 16000 to 20000, and 11.5% between 11000 to 15000, 36.5% have Operating cost between 6000 to 10000 and above 20000, 13.4% between 10000 to 20000 and between 1000 to 5000, hiring cost is between 1000 to 5000.

Table 30 – Distribution of respondents on the basis Cost of the Equipments for the brand JCB Excavators

Cost of the Equipment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
1000 to 5000	-	-	1	4.1	1	100
5000 to 10000	3	12.5	-	-	-	-
10000 to 15000	-	-	18	75	-	-
15000 to 20000	-	-	-	-	-	-
20000 to 25000	-	-	3	12.5	-	-
25000 to 30000	4	16.7	-	-	-	-
30000 to 35000	17	70.8	2	8.3	-	-
Total	24	100	24	100	1	100

From the above table it can be seen that 70.8% of the respondents have maintenance cost above 20000, 16.7% between 16000 to 20000, 12.5% between 5000 to 10000, 75% have Operating cost between 6000 to 10000, 12.5% between 11000 to 15000, 8.3% above 20000 and, 4.1% between 1000 to 5000, hiring cost between 1000 to 5000.

Table 31 – Distribution of respondents on the basis Cost of the Equipments for the brand Tata Excavators

of the oment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	-	-	2	100
to 10000	-	-	-	-	-	-
to 10000	-	-	2	25	-	-
00 to 20000	-	-	-	-	-	-
00 to 15000	2	25	3	37.5	-	-
00 to 20000	4	50	-	-	-	-
0000	2	25	3	37.5	-	-
al	19	100	19	100	2	100

From the above table it can be seen that 50% of the respondents have maintenance cost between 16000 to 20000, and 25% between 11000 to 15000 and above 20000, 37.5% have Operating cost between 11000 to 15000 and above 20000, 25% between 6000 to 10000 and, hiring cost is between 1000 to 5000.

Table 32 - Distribution of respondents on the basis Cost of the Equipments for other brands  
(Hitachi & Volvo) Excavators

Cost of the Equipment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
up to 5000	-	-	-	-	-	-
5000 to 10000	-	-	-	-	-	-
10000 to 15000	-	-	-	-	2	100
15000 to 20000	-	-	-	-	-	-
20000 to 25000	-	-	6	66.7	-	-
25000 to 30000	4	44.4	-	-	-	-
30000 to 35000	5	55.5	3	33.3	-	-
Total	9	100	9	100	2	100

From the above table it can be seen that 55.5% of the respondents have maintenance cost above 20000, 44.4% between 16000 to 20000, 66.7% have Operating cost between 11000 to 15000 and 33.3% above 15000, hiring cost is between 6000 to 10000.

**Table 33 – Distribution of respondents on the basis of servicing amount for excavators**

Excavators(Rs.)	No. of respondents	Percentage	Service number	Number of respondents	Percent
2000 to 5000	2	3.8	2	11	21.15
5001 to 10000	1	1.9	4	8	15.3
10001 to 15000	4	7.6	5	5	9.61
15001 to 20000	3	5.7	6	8	15.3
20001 to 30000	4	7.6	7	7	13.46
30001 to 50000	13	25	8	9	17.3
>50000	25	48.0	9	4	7.69
Total	52	100	Total	52	100.0

From the above table it can be seen that the servicing amount for 48.0 % of excavators is above 50000, 25% between 30001 to 50000, 7.6% is between 10001 to 15000 and 20001 to 30000, 5.7 % between 15001 to 20000, 3.8% between 2000 to 5000. 21.15% of Excavators are serviced 2 time, 15.3 % of are serviced 4 Excavators times, 9.61 % are serviced 5 times, 15.3 % are serviced 6 times, 13.46 % are serviced 7 times , 17.3% are serviced 8 times and 7.69% are serviced 9 times

#### 4.3.4 Tables showing the details of Cranes:

**Table 34 – Distribution of respondents on the basis Make of Cranes**

Make of Cranes	No. of respondents	Percentage
Ashok Leyland	5	15.6
Axn	12	37.5
Escorts	12	37.5
Jcb	3	9.3
Total	32	100

From the above table it can be seen that 37.5% of the respondents prefer Axn and Escorts, 15.6% prefer Ashok Leyland and 9.3% Jcb.

**Table 35 – Distribution of respondents on the basis of Cranes Owned**

No. of Cranes	No. of respondents	Percentage
1 to 10	18	56.2
11 to 20	8	25
>25	6	18.7
Total	32	100

From the above table it can be seen that majority (56.2%) of the respondents own cranes between 1 to 10, 25% own between 11 to 20 and 18.7% of the respondents own above 25.

**Table 36 – Distribution of respondents on the basis of Cranes Hired**

No. of Cranes	No. of respondents	Percentage
6 to 10	1	50
>10	1	50
Total	2	100

From the above table it can be seen that 50% of the respondents hire Cranes between 6 to 10 and above 10.

**Table 37 – Distribution of respondents on the basis of income/hour of Cranes**

Cranes (RS)	No. of respondents	Percentage
100 to 500	24	75
500 to 1000	6	18.7
1001 to 5000	2	6.2
Total	32	100

From the above table it can be seen that majority (75%) of the respondents earn an income between 100 to 500, 18.7% earn 500 to 1000 and 6.2% between 1001 to 5000.

Table 38 – Distribution of respondents on the basis of Working Days of Cranes

Cranes (Days)	No. of respondents	Percentage
1 to 5 days	24	75
6 to 7 days	8	25
Total	32	100

From the above table it can be seen that majority (75%) of the equipments work 1 to 5 days per week and 25% around 6 to 7 days a week.

Table 39 – Distribution of respondents on the basis Cost of the Equipments (Cranes)

Cost of the Equipment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	4	12.5	-	-
5000 to 10000	19	59.3	-	-	-	-
10000 to 15000	-	-	16	50	2	100
15000 to 20000	-	-	8	25	-	-
20000 to 25000	2	6.2	-	-	-	-
25000 to 30000	2	6.2	-	-	-	-
30000 to 35000	9	28.1	4	12.5	-	-
Total	32	100	32	100	2	100

From the above table it can be seen that 59.3% of the respondents have maintenance cost between 5000 to 10000, 28.1% above 20000, 6.2% between 16000 to 20000 and 11000 to 15000, 50% have Operating cost between 6000 to 10000, 25% between 10000 to 20000 and 12.5% above 20000 and between 1000 to 5000, hiring cost is between 6000 to 10000.

Table 40 – Distribution of respondents on the basis Cost of the Equipments for the brand Escorts Cranes

of the oment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	-	-	1	100
to 10000	8	66.7	-	-	-	-
to 10000	-	-	12	100	-	-
00 to 20000	-	-	-	-	-	-
00 to 15000	4	33.3	-	-	-	-
00 to 20000	-	-	-	-	-	-
0000	-	-	-	-	-	-
tal	12	100	12	100	1	100

From the above table it can be seen that 66.7% of the respondents have maintenance cost between 5000 to 10000, 33.3% between 11000 to 15000, Operating cost is between 6000 to 10000, hiring cost is between 5000 to 10000.

Table 41 – Distribution of respondents on the basis Cost of the Equipments for the brand Axn Cranes

of the ment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	-	-	1	100
to 10000	6	66.7	-	-	-	-
to 10000	-	-	12	100	-	-
00 to 20000	-	-	-	-	-	-
00 to 15000	4	33.3	-	-	-	-
00 to 20000	-	-	-	-	-	-
0000	-	-	-	-	-	-
al	12	100	12	100	1	100

From the above table it can be seen that 66.7% of the respondents have maintenance cost between 5000 to 10000, 33.3% between 11000 to 15000, Operating cost is between 6000 to 10000, hiring cost is between 5000 to 10000.

Table 42 – Distribution of respondents on the basis Cost of the Equipments for other brand (Ashok Leyland & Jcb) Cranes

Cost of the Equipment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	-	-	1	100
5000 to 10000	5	62.5	-	-	-	-
10000 to 20000	-	-	8	100	-	-
20000 to 15000	3	37.5	-	-	-	-
15000 to 20000	-	-	-	-	-	-
20000 to 000	-	-	-	-	-	-
Total	8	100	8	100	1	100

From the above table it can be seen that 62.5% of the respondents have maintenance cost between 5000 to 10000, 37.5% between 11000 to 15000, operating cost is between 6000 to 10000, hiring cost is between 000 to 5000.

Table 43 – Distribution of respondents on the basis of servicing amount for cranes

Cranes(Rs)	No. of respondents	Percentage	Service number	Number of respondents	Percent
5001 to 10000	6	18.7	1	7	21.87
10001 to 15000	24	75	2	6	18.75
30001 to 50000	2	6.2	3	3	9.375
Total	32	100	4	2	6.25
			5	2	6.25
			6	6	18.75
			10	1	3.12
			12	5	15.62
			Total	32	100

From the above table it can be seen that the servicing amount for 75 % of cranes is between 10001 to 15000, 18.7% between 5001 to 10000 and 6.2% between 30001 to 50000. 21.87% of Cranes are serviced 1 time, 18.75 % of Cranes are serviced 2 times, 9.375 % are serviced 3 times, 6.25 % are serviced 4 times, 6.25 % are serviced 5 times, 18.75% are serviced 6 times, 3.12% are serviced 10 times and 15.62 % are serviced 12 times

#### 4.3.5 Tables showing the details of Road Equipments:

Table 44 – Distribution of respondents on the basis Make of Road Equipments

Make of Road Equipments	No. of respondents	Percentage
Ashok Leyland	8	38.0
Joseph	1	4.7
L&T	10	47.6
Tata	1	4.7
Vpg	1	4.7
Total	21	100

From the above table it can be seen that 47.6% of the respondents prefer Lnt, 38% prefer Ashok Leyland and 4.7% prefer Joseph, Tata and Vpg.

**Table 45 – Distribution of respondents on the basis of Road Equipments Owned**

No. of Road Equipments	No. of respondents	Percentage
1 to 10	15	71.4
11 to 20	4	19.0
>25	2	9.5
Total	21	100

From the above table it can be seen that majority (71.4%) of the respondents own Road Equipments between 1 to 10, 19.0% own between 11 to 20 and 9.5% of the respondents own above 25.

**Table 46 – Distribution of respondents on the basis of Road Equipments Hired**

No. of Road Equipments	No. of respondents	Percentage
1 to 5	1	33.3
6 to 10	1	33.4
>10	1	33.3
Total	3	100

From the above table it can be seen that 33.3% of the respondents hire Road Equipments between 1 to 5, 6 to 10 and above 10 nos.

**Table 47 – Distribution of respondents on the basis of income/hour of Road Equipments**

Road Equipments (RS)	No. of respondents	Percentage
100 to 500	14	66.7
500 to 1000	7	33.3
Total	21	100

From the above table it can be seen that majority (66.7%) of the respondents earn an income between 100 to 500, 33.3% earn 500 to 1000.

**Table 48 – Distribution of respondents on the basis of Working Days of Road Equipments**

Road Equipments(Days)	No. of respondents	Percentage
1 to 5 days	5	23.8
6 to 7 days	16	76.1
Total	21	100

From the above table it can be seen that majority (76.1%) of the equipments work 6 to 7 days per week and 23.8 % around 1 to 5 days a week.

**Table 49 – Distribution of respondents on the basis Cost of the Equipments**

(Road Equipments)

Cost of the Equipments	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
000 to 5000	-	-	10	47.6	3	100
5000 to 10000	12	57.1	-	-	-	-
10000 to 15000	-	-	-	-	-	-
15000 to 20000	-	-	11	52.3	-	-
20000 to 25000	9	42.8	-	-	-	-
25000 to 30000	-	-	-	-	-	-
>30000	-	-	-	-	-	-
Total	21	100	21	100	3	100

From the above table it can be seen that 57.1% of the respondents have maintenance cost between 5000 to 10000, and 42.8% between 11000 to 15000, 52.3% have Operating cost between 10000 to 20000, and 47.6% between 1000 to 5000, hiring cost is between 1000 to 5000.

Table 50 - Distribution of respondents on the basis Cost of the Equipments for the brand L&T  
(Road Equipments)

of the pment	Maintenance Cost		Operative Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
to 5000	-	-	-	-	2	100
0 to 10000	-	-	-	-	-	-
0 to 10000	-	-	-	-	-	-
00 to 20000	5	50	-	-	-	-
00 to 15000	5	50	10	100	-	-
00 to 20000	-	-	-	-	-	-
0000	-	-	-	-	-	-
tal	10	100	10	100	2	100

From the above table it can be seen that 50% of the respondents have maintenance cost between 10000 to 20000, and 50% between 11000 to 15000, Operating cost between 11000 to 15000, hiring cost is between 10000 to 5000.

Table 51 - Distribution of respondents on the basis Cost of the Equipments for the brand Ashok Leyland (Road Equipments)

of the pment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	-	-	2	100
0 to 10000	-	-	-	-	-	-
0 to 10000	-	-	-	-	-	-
00 to 20000	-	-	-	-	-	-
000 to 15000	8	100	8	100	-	-
0000 to 20000	-	-	-	-	-	-
00000	-	-	-	-	-	-
Total	8	100	8	100	2	100

From the above table it can be seen that the respondents have maintenance cost between 11000 to 15000, operating cost between 11000 to 15000, hiring cost is between 1000 to 5000.

Table 52 - Distribution of respondents on the basis Cost of the Equipments for other brands (Joseph, Tata & Vpg) Road Equipments

of the pment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	-	-	1	100
0 to 10000	-	-	-	-	-	-
0 to 10000	-	-	-	-	-	-
000 to 20000	-	-	-	-	-	-
000 to 15000	3	100	3	100	-	-
000 to 20000	-	-	-	-	-	-
0000	-	-	-	-	-	-
Total	3	100	3	100	1	100

From the above table it can be seen that the respondents have maintenance cost between 11000 to 15000, operating cost between 11000 to 15000, hiring cost is between 1000 to 5000.

**Table 53 – Distribution of respondents on the basis of servicing amount for road equipments**

Road Equipments(Rs.)	No. of respondents	Percentage	Service number	Number of respondents	Percent
2000 to 5000	1	4.7	2	17	80.9
5001 to 10000	7	33.3	1	4	19.04
10001 to 15000	3	14.2	Total	21	100
15001 to 20000	8	38.0			
20001 to 30000	2	9.5			
Total	21	100			

From the above table it can be seen that the servicing amount for 38 % of road equipments is between 15001 to 20000, 33.3% between 5001 to 10000 and 14.2% between 10001 to 15000, 9.5 % between 20001 to 30000, 4.7% between 2000 to 5000. 80.9% of Road equipments are serviced 2 times and 19.04% are serviced 1 time.

#### 4.3.6 Tables showing the details of Construction machinery:

**Table 54 – Distribution of respondents on the basis Make of Construction Machinery**

Make of Construction Machinery	No. of respondents	Percentage
Ashok Leyland	2	7.6
Lmw	12	46.1
L&T	2	7.6
Mec	2	7.6
Stetter	2	7.6
Tata	2	7.6
Trailers	2	7.6
Vpg	2	7.6
Total	26	100

From the above table it can be seen that 46.1% of the respondents prefer Lmw, 7.6% prefer Ashok Leyland, L&T, Mec, Stetter, Tata, Trailers, Vpg.

**Table 55 – Distribution of respondents on the basis of Construction machinery Owned**

No. of Construction Machinery	No. of respondents	Percentage
1 to 10	18	69.2
11 to 20	3	11.5
>25	5	19.2
Total	26	100

From the above table it can be seen that majority (69.2%) of the respondents own Construction Machinery between 1 to 10, 19.2% own above 25 and 11.5% between 11 to 20.

**Table 56 – Distribution of respondents on the basis of Construction Machinery Hired**

No. of Construction Machinery	No. of respondents	Percentage
6 to 10	1	100
Total	1	100

From the above table it can be seen that the respondents hire Construction Machinery between 6 to 10.

**Table 57 – Distribution of respondents on the basis of income/hour of Construction Machinery**

Construction Machinery (RS)	No. of respondents	Percentage
100 to 500	22	84.6
500 to 1000	4	15.3
Total	26	100

From the above table it can be seen that majority (84.6%) of the respondents earn an income between 100 to 500, 15.3% earn 500 to 1000.

**Table 58 – Distribution of respondents on the basis of Working Days of Construction Machinery**

Construction Machinery (Days)	No. of respondents	Percentage
1 to 5 days	3	11.5
6 to 7 days	23	88.4
Total	26	100

From the above table it can be seen that majority (88.4%) of the equipments work 6 to 7 days per week and 11.5 % around 1 to 5 days a week.

**Table 59– Distribution of respondents on the basis Cost of the Equipments (Construction machinery)**

Cost of the Equipments	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
00 to 5000	-	-	4	15.3	1	100
5000 to 10000	10	38.4	-	-	-	-
10000 to 15000	-	-	-	-	-	-
15000 to 20000	-	-	22	84.6	-	-
20000 to 25000	6	23.0	-	-	-	-
25000 to 30000	-	-	-	-	-	-
30000 to 35000	-	-	-	-	-	-
35000 to 40000	10	38.4	-	-	-	-
Total	26	100	26	100	1	100

From the above table it can be seen that 38.4% of the respondents have maintenance cost between 5000 to 10000, and above 20000, 23.0% between 11000 to 15000, 84.6% have Operating cost between 10000 to 20000, and 15.3% between 1000 to 5000, hiring cost is between 1000 to 5000.

Table 60 – Distribution of respondents on the basis Cost of the Equipments for the brand LMW (Construction machinery)

Cost of the equipment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	-	-	1	100
5000 to 10000	12	100	-	-	-	-
10000 to 20000	-	-	-	-	-	-
20000 to 15000	-	-	-	-	-	-
15000 to 20000	-	-	-	-	-	-
20000 to 00000	-	-	-	-	-	-
Total	12	100	12	100	-	100

From the above table it can be seen that the respondents have maintenance cost between 5000 to 10000, operating cost between 10000 to 20000, hiring cost is between 1000 to 5000.

Table 61– Distribution of respondents on the basis Cost of the Equipments for other brands (Ashok Leyland, Lnt, Mec, Stetter, Tata, Trailers & Vpg) Construction machinery

Cost of the equipment	Maintenance Cost		Operating Cost		Hiring Cost	
	No. of Respondents	Percentage	No. of Respondents	Percentage	No. of Respondents	Percentage
0 to 5000	-	-	-	-	1	100
5000 to 10000	7	50	-	-	-	-
10000 to 6000	7	50	8	57.1	-	-
6000 to 10000	-	-	6	43.9	-	-
10000 to 20000	-	-	-	-	-	-
11000 to 15000	-	-	-	-	-	-
16000 to 20000	-	-	-	-	-	-
>20000	-	-	-	-	-	-
Total	14	100	14	100	1	100

the above table it can be seen that 50% of the respondents have maintenance cost between 5000 to 10000 and 50% between 6000 to 10000, Operating cost that 57.1% between 6000 to 10000 and 43.9% between 10000 to 20000, hiring cost is between 1000 to 5000.

**Table 62 – Distribution of respondents on the basis of servicing amount for Construction Machinery**

Construction Machinery (Rs)	No. of respondents	Percentage	Service number	Number of respondents	Percent
2000 to 5000	2	7.6	3	14	53.8
5001 to 10000	4	15.3	2	12	46.15
10001 to 15000	16	61.5	Total	26	100
15001 to 20000	3	11.5			
30001 to 50000	1	3.8			
Total	26	100			

From the above table it can be seen that the servicing amount for 61.5% of construction machinery is between 10001 to 15000, 15.3% between 5001 to 10000 and 11.5% between 15001 to 20000, 7.6 % between 2000 to 5000, 3.8% between 30001 to 50000. 53.8% of Construction machinery is serviced 3 times and 46.15 % are serviced 2 times.

#### 4.4 Ranking of the equipments

**Table 63 – Ranking on the returns of the equipment**

Factors	MEANSORE	RANKS
Tipplers & Dumpers	2.10	3
Backhoe Loaders	1.93	2
Excavators	1.67	1
Cranes	2.50	4
Road Equipments	3.43	7
Construction machinery	3.11	6
Others	3.00	5

From the above table, it is inferred that Excavators are ranked first in returns, followed by backhoe loaders, tipplers, cranes, other category machines like bulldozers followed by construction machinery and road equipments.

**Table 64 – Ranking on the expenses of the equipment**

Factors	MEANSORE	RANKS
Tipplers & Dumpers	2.09	3
Backhoe Loaders	2.27	4
Excavators	1.82	1
Cranes	2.67	5
Road Equipments	2.91	7
Construction machinery	2.79	6
Others	2.00	2

From the above table, it is inferred that Excavators are ranked first in expenses, followed by other category machines like bulldozers, and by tipplers, back hoe loaders, cranes, construction machinery and road equipments.

#### 4.5 Earning Potential of the equipment

Table 65 – Distribution of Equipments on the basis of the Earning potential

Equipments	No. of Equipments	Percentage
Tippers & Dumpers	54	23.8
Backhoe loaders	41	18.1
Excavators	52	23.0
Cranes	32	14.1
Road Equipments	21	9.5
Construction Machinery	26	11.5
Total	226	100

From the above table it can be seen that most (23.8%) of the respondents are satisfied with the earning potential of Tippers & dumpers, 23.0% with excavators, 18.1% with backhoe loaders, 14.1% with cranes, 11.5% with construction machinery and 9.5% with road equipments.

≈ FINDINGS, SUGGESTIONS  
& CONCLUSION ≈

## CHAPTER 5

### CONCLUSION

The chapter deals with the results and discussions of the study.

#### 5.1 Results and discussions

This chapter deals with the results and discussions of the study.

##### 5.1.1 Category of Contractors:

- 33.87% of customers belong to category A contractors, 33.06% belong to hiring category, 12.9% belong to category B, 8.87% belong to category C, 6.45% use equipments for captive purposes and 4.83% belong to other category.

##### 5.1.2 Profile of Ownership:

- 38.8% of tippers are owned by Category A respondents, 24.07% are owned by hiring category and 11.11% are owned by category C. 58.5% of Backhoe loaders are owned by Category A respondents and 29.26% are owned by hiring category. 61.53% of Excavators are owned by Category A respondents, 17.3% are owned by hiring category and 9.61% are owned by category C and category B. 43.75% of cranes are owned by Category A respondents and 40.625% are owned by hiring category. 80.95% of road equipments are owned by Category A respondents and 14.28% are owned by category B. 73.07% of construction machineries are owned by Category A respondents and 15.38 % are owned by hiring category

##### 5.1.3 Profile of the Equipments used:

###### Details of Tippers:

- 42.5% of the respondents prefer the brand Ashok Leyland, 20.3% prefer Tata, 14.8 % prefer Escorts, and 7.4 % prefer Jcb, Tarex, and Taurus.

- 42.5% of the respondents own tippers between 1 to 10nos, 31.4% own above 25nos and 25.9% of the respondents between 11 to 20nos.
- 44.4% of the respondents hire tippers between 6 to 10nos, 33.3% hire above 10nos and 22.3% of the respondents between 1 to 5nos.
- 48.1% of the respondents earn an income between Rs.100 to Rs.500/hour. 37.0% earn Rs.500 to Rs.1000/hour, 14.9% earn between Rs.1001 to Rs.5000/hour.
- 88.7% of the equipments work up to 6 days per week and 11.3 % around 7 to 5 days per week.
- 42.5% of the respondents maintenance cost/month is between Rs.5000 to Rs.10000, 35.1% between Rs.11000 to Rs.15000, 12.9% between Rs.16000 to Rs.20000 and 9.2% above Rs.20000, 33.3% of the respondents, Operating cost/month is between Rs.10000 to Rs.20000 and 22.2% between Rs.1000 to Rs.5000, Rs.6000 to Rs.10000 and above Rs.20000, 88.8% of hiring cost/month between Rs.1000 to Rs.5000 and 11.2% between Rs.10000 to Rs.20000.
- With respect to the brand Ashok Leyland, 65.2% of the respondents, maintenance cost for a month is between Rs.5000 to Rs.10000, 16.6% between Rs.11000 to Rs.15000 and between Rs.16000 to Rs.20000 and 11.1% above Rs.20000, 61.1% of respondents, Operating cost for a month is between Rs.11000 to Rs.15000 and 22.2% between Rs.1000 to Rs.5000, 16.6% above Rs.20000, 75% of hiring cost/month is between Rs.1000 to Rs.5000 and 25% between Rs.6000 to Rs.10000.
- With respect to the brand Tata, 63.6% of the respondents, maintenance cost /month are between Rs.5000 to Rs.10000, 18.2% between Rs.11000 to Rs.15000 and between Rs.16000 to Rs.20000, 72.7% respondents Operating cost/month is above Rs. 20000 and 27.2% between Rs.1000 to Rs.5000, hiring cost/month is between Rs. 1000 to Rs.5000.
- With respect to the brand Escorts, 62.5% of the respondents, maintenance cost /month is between Rs.11000 to Rs.15000, 37.5% between Rs.16000 to Rs.20000, 37.5% of respondents Operating cost/month is between Rs.6000 to Rs.10000 and above Rs.20000 and 25% between Rs.11000 to Rs.15000, hiring cost/month is between Rs.1000 to Rs.5000.

- With respect to other brands like Tarex, Jcb & Tauras, 66.7% of the respondents, maintenance cost/month is between Rs.11000 to Rs.15000 and 33.3% between Rs.5000 to Rs.10000, 83.3% respondents Operating cost/month is between Rs.6000 to Rs.10000 and 16.7% between Rs.11000 to Rs.15000, hiring cost/month is between Rs.1000 to Rs.5000.
- In the various range of servicing amount/year, 24% of tippers is between Rs.5001 to Rs.10000, 22.2% between Rs.10001 to Rs.15000, 20.3% between Rs.2000 to Rs.5000, 11.1% between Rs.15001 to Rs.20000, 9.2% between Rs.30001 to Rs.50000, 7.4% above Rs.50000 and 5.5% between the range of Rs.20001 to Rs.30000.

#### Details of Backhoe Loaders:

- 70.7 % of the respondents prefer the brand Jcb, 9.7% prefer Ashok Leyland, Escorts and Tata.
- 73.1% of the respondents own Backhoe loaders between 1 to 10nos, 14.6% own between 11 to 20nos and 12.1% of the respondents own above 25nos.
- 40% of the respondents hire Backhoe Loaders between 1 to 5nos and between 6 to 10nos, 20% hire above 10nos.
- 85.3% of the respondents earn an income between Rs.100 to Rs.500/hour, 14.6% earn Rs.500 to Rs.1000/hour.
- 87.8% of the equipments work up to 6 days per week and 12.1 % around 1 to 5 days per week.
- 43.9% of the respondents, maintenance cost/month is between Rs.5000 to Rs.10000, 24.3% between Rs.16000 to Rs.20000, 19.5% above Rs.20000, and 12.1% between Rs.11000 to Rs.15000, 41.4% of respondents. Operating cost/month is between Rs.10000 to Rs.20000 and above Rs.20000, 9.7% between Rs.1000 to Rs.5000, and 7.3% between Rs.6000 to Rs.10000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to the brand JCB, 79.3% of the respondents, maintenance cost/month is between Rs.11000 to Rs.15000, 13.7% between Rs.5000 to Rs.10000, 3.4% between Rs.16000 to Rs.20000 and above Rs.20000, 79.3% respondents operating cost/month is between Rs.11000 to Rs.15000 and 13.7% between Rs.6000 to

Rs.10000, 3.4% between Rs.1000 to Rs.5000 and above Rs.20000, hiring cost/month is between Rs.1000 to Rs.5000.

- With respect to other brands like Ashok Leyland, Escorts & Tata. 50% of the respondents, maintenance cost/month are between Rs.16000 to Rs.20000, 33.3% between Rs.5000 to Rs.10000, 16.7% above Rs.20000, 50% of respondents operating cost/month is between Rs.6000 to Rs.10000 and between Rs.11000 to Rs.15000, and hiring cost/month is between Rs.1000 to Rs.5000.
- Servicing amount/year for 43.9% of back hoe loaders is between 20001 to 30000, 19.5% is above 50000, 14.6% is between 10001 to 15000, 12.1 % between 30001 to 50000, 9.7% between 15001 to 20000.

#### Details of Excavators:

- 46.1% of the respondents prefer Jcb, 36.5% prefer Tata, 9.6% prefer Hitachi and 7.6% prefer Volvo.
- 61.5% of the respondents own Excavators between 1 to 10nos, 30.7% own between 11 to 20nos and 7.6% of the respondents own above 25nos.
- Respondents hire Excavators between 6 to 10 nos.
- 67.3% of the respondents earn an income between Rs.100 to 500/hour, 32.6% between Rs.500 to Rs.1000/hour.
- 75% of the equipments work up to 6 days per week and 25 % around 1 to 5 days a week.
- 38.4% of the respondents, maintenance cost/month is above Rs.20000, 36.5% between Rs.5000 to Rs.10000, 13.4% between Rs.16000 to Rs.20000. and 11.5% between Rs.11000 to Rs.15000, 36.5% respondents, Operating cost/month is between Rs.6000 to Rs.10000 and above Rs.20000, 13.4% between Rs.10000 to Rs.20000 and between Rs.1000 to Rs.5000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to the brand JCB, 70.8% of the respondents, maintenance cost/month is above Rs.20000, 16.7% between Rs.16000 to Rs.20000, 12.5% between Rs.5000 to Rs.10000, 75% respondents, Operating cost/month is between Rs.6000 to Rs.10000, 12.5% between Rs.11000 to Rs.15000, 8.3% above Rs.20000 and,

- 4.1% between Rs.1000 to Rs.5000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to the brand Excavators, 50% of the respondents, maintenance cost/month between Rs.16000 to Rs.20000, and 25% between Rs.11000 to Rs.15000 and above Rs.20000, 37.5% of respondents, Operating cost/month is between Rs.11000 to Rs.15000 and above Rs.20000, 25% between Rs.6000 to Rs.10000 and, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to other brands Hitachi & Volvo, 55.5% of the respondents, maintenance cost/month above Rs.20000, 44.4% between Rs.16000 to Rs.20000, 66.7% have Operating cost/month between Rs.11000 to Rs.15000 and 33.3% above Rs.20000, hiring cost/month is between Rs.6000 to Rs.10000.
- Servicing amount/year for 48.0 % of excavators is above Rs.50000, 25% between Rs.30001 to Rs.50000, 7.6% is between Rs.10001 to Rs.15000 and Rs.20001 to Rs.30000, 5.7 % between Rs.15001 to Rs.20000, 3.8% between Rs.2000 to Rs.5000.

#### Details of Cranes:

- 37.5% of the respondents prefer Axn and Escorts, 15.6% prefer Ashok Leyland and 9.3% Jcb.
- 56.2% of the respondents own cranes between 1 to 10nos, 25% own between 11 to 20nos and 18.7% of the respondents own above 25nos.
- 50% of the respondents hire Cranes between 6 to 10nos and above 10nos.
- 75% of the respondents earn an income between Rs.100 to Rs.500/hour, 18.7% earn Rs.500 to Rs.1000/hour and 6.2% between Rs.1001 to Rs.5000/hour.
- 75% of the equipments work up to 6 days per week and 25% around 1 to 5 days a week.
- 59.3% of the respondents, maintenance cost/month is between Rs.5000 to Rs.10000, 28.1% above Rs.20000, 6.2% between Rs.16000 to Rs.20000 and Rs.11000 to Rs.15000, 50% respondents, Operating cost is between Rs.6000 to Rs.10000, 25% between Rs.10000 to Rs.20000 and 12.5% above Rs.20000 and between Rs.1000 to Rs.5000, hiring cost/month is between 6000 to 10000.

- With respect to the brand Escorts, 66.7% of the respondents, maintenance cost/month is between Rs.5000 to Rs.10000, 33.3% between Rs.11000 to Rs.15000, Operating cost/month is between Rs.6000 to Rs.10000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to the brand Axn, 66.7% of the respondents, maintenance cost/month between Rs.5000 to Rs.10000, 33.3% between Rs.11000 to Rs.15000, Operating cost/month is between Rs.6000 to Rs.10000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to other brands like Ashok Leyland & Jcb, 62.5% of the respondents, maintenance cost is between Rs.5000 to Rs.10000, 37.5% between Rs.11000 to Rs.15000, operating cost /month is between Rs.6000 to Rs.10000, hiring cost/month is between Rs.1000 to Rs.5000.
- Servicing amount for 75 % of cranes is between 10001 to 15000,18.7% between 5001 to 10000 and 6.2% between 30001 to 50000.

#### Details of Road Equipments:

- 47.6% of the respondents prefer Lnt, 38% prefer Ashok Leyland and 4.7% prefer Joseph, Tata and Vpg.
- 71.4% of the respondents own Road Equipments between 1 to 10nos, 19.0% own between 11 to 20nos and 9.5% of the respondents own above 25nos.
- 33.3% of the respondents hire Road Equipments between 1 to 5nos, 6 to 10 and above 10 nos.
- 66.7% of the respondents earn an income between Rs.100 to 500/hour. 33.3% earn Rs.500 to Rs.1000/hour.
- 76.1% of the equipments work up to 6 days per week and 23.8 % around 1 to 5 days a week.
- 57.1% of the respondents, maintenance cost/month between Rs.5000 to Rs.10000, and 42.8% between Rs.11000 to Rs.15000, 52.3% respondents, Operating cost/month between Rs.10000 to Rs.20000, and 47.6% between Rs.1000 to Rs.5000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to the brand Lnt, 50% of the respondents, maintenance cost/month is between Rs.10000 to Rs.20000, and 50% between Rs.11000 to Rs.15000,

operating cost/month is between Rs.11000 to Rs.15000, hiring cost/month is between Rs.1000 to Rs.5000.

- With respect to the brand Ashok Leyland, respondents, maintenance cost/month is between Rs.11000 to Rs.15000, Operating cost/month between Rs.11000 to Rs.15000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to other brands like Joseph, Tata & Vpg, respondents, maintenance cost/month between Rs.11000 to Rs.15000, Operating cost/month is between Rs.11000 to Rs.15000, hiring cost/month is between Rs.1000 to Rs.5000.
- Servicing amount/year for 38 % of road equipments is between 15001 to 20000, 33.3% between 5001 to 10000 and 14.2% between 10001 to 15000, 9.5 % between 20001 to 30000, 4.7% between 2000 to 5000.

#### Details of Construction Machinery:

- 46.1% of the respondents prefer Lmw, 7.6% prefer Ashok Leyland, Lnt, Mec, Stetter, Tata, Trailers, Vpg.
- 69.2% of the respondents own Construction Machinery between 1 to 10nos, 19.2% own above 25nos and 11.5% between 11 to 20nos.
- Respondents hire Construction Machinery between 6 to 10nos.
- 84.6% of the respondents earn an income between Rs.100 to Rs.500, 15.3% earn Rs.500 to Rs.1000.
- 88.4% of the equipments work up to 6 days per week and 11.5 % around 1 to 5 days a week.
- 38.4% of the respondents, maintenance cost/month is between Rs.5000 to Rs.10000, and above Rs.20000, 23.0% between Rs.11000 to Rs.15000, 84.6% respondents, Operating cost/month is between Rs.10000 to Rs.20000, and 15.3% between Rs.1000 to Rs.5000, hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to the brand Lmw, maintenance cost/month is between Rs.5000 to Rs.10000, Operating cost/month is between Rs.10000 to Rs.20000. hiring cost/month is between Rs.1000 to Rs.5000.
- With respect to other brands like Ashok Leyland, Lnt, Mec, Stetter, Tata, Trailers & Vpg, 50% of the respondents, maintenance cost is between Rs.5000 to

Rs.10000 and 50% between Rs.6000 to Rs.10000, Operating cost/month ,57.1% between Rs.6000 to Rs.10000 and 43.9% between 10000 to 20000, hiring cost/month is between Rs.1000 to Rs.5000.

- Servicing amount/year for 61.5% of construction machinery is between Rs.10001 to Rs.15000, 15.3% between Rs.5001 to Rs.10000 and 11.5% between Rs.15001 to Rs.20000, 7.6 % between Rs.2000 to Rs.5000, 3.8% between Rs.30001 to Rs.50000.

#### 5.1.4 Ranking of the equipments

- Excavators are ranked first in returns, followed by backhoe loaders, tippers, cranes, other category machines like bulldozers followed by construction machinery and road equipments.
- Excavators are ranked first in expenses, followed by other category machines like bulldozers, and by tippers, back hoe loaders, cranes, construction machinery and road equipments.

#### 5.2 Recommendations

**The recommendations given to financiers are as follows:**

- It is envisaged that category A contractors own more number of equipments followed by hirers when compared to other categories. So while financing, more focus can be given to these categories of contractors.
- Tippers are the equipments which are owned in more numbers followed by Excavators and back hoe loaders, so it can be seen that these equipments have a greater demand comparatively. Financiers can allocate more funds for these types of equipments.
- As most of the contractors prefer owning the equipments than hiring them, the market for construction industry is likely to expand. So the financiers can deploy more funds in the construction equipment industry.
- Ashok Leyland is the most preferred manufacturer of tippers among the contractors. Jcb is preferred more in case of Back hoe loaders and Excavators. Escorts and Axn are popular brands of cranes while L&T and LMW are given preference in road equipments and construction equipments respectively.

Financiers can take into consideration these brands of equipments while funding, which are highly preferred by the investors.

- In order to face the competition in the field, the financiers can carve a set of profitable strategies like flexibility in the procedures and extending the repayment period along with the existing strategies to attract more customers and to become a potential player in the market.

**The recommendations given to contractors are as follows:**

- The earning potential of Excavators is high, even though the working days are only between 1 to 5 days a week, followed by Back hoe loaders and cranes. The contractors willing to invest, can invest in excavators, back hoe loaders and cranes since there is a good earning potential in these equipments.
- The earning potential of tippers is low; the working days are between 6 to 10 days a week, followed by road equipments and construction machinery. The contractors are suggested to be cautious in investing in these equipments.
- Ashok Leyland is the most preferred manufacturer of tippers among the contractors. Jcb is preferred more in case of Back hoe loaders and Excavators. Escorts and Axn are popular brands of cranes while L&T and LMW are given preference in road equipments and construction equipments respectively. While investing, investors can give more importance to these brands.
- Maintenance cost and operating cost is low for Ashok Leyland brand tippers and JCB back hoe loaders. Investors can give more preference for these brands of equipments where the cost involved will be less and the returns are reasonably good.
- Maintenance cost and operating cost is high for Ashok Leyland brand road equipments which include road rollers, mixers, hydraulic vibrators, Levelers. Investors can be cautious while investing in road equipments.
- Findings show that Excavator gives high returns where the cost involved is also high. The returns from Backhoe loaders are equally high but the cost involved is comparatively low. So the investors could formulate their investment portfolio accordingly.

- The Servicing cost involved is high for excavators and low for tippers, this also can be considered by investors at the time of investment.

**The recommendations given to manufacturers are as follows:**

- Setting up service stations on their own will also prove to be a good business opportunity which will help in expansion.

### 5.3 CONCLUSION

The Construction Equipment industry in India has become highly competitive due to the increase in the infrastructure projects and opening up of economy. Against this background the study is attempted to analyse the earning potential of construction equipments, cost involved in each machinery, the income generated, the average amount spent for each machinery etc., which helps in finding the profitability and earning potential of the equipments. The findings would enable the strategists to frame suitable strategies enhance the market share.



## ANNEXURE

1. Name \_\_\_\_\_ :

2. Which category of contractors you belong to?

- Category A                       Category B                       Hiring  
 Category C                       Captive                       Others

3. Equipment details

Equipment type	Owned (Nos)	Hired (Nos)	Make
Tippers & Dumpers			
Backhoe Loaders			
Excavators			
Cranes			
Road Equipments			
Construction machinery			
Others			

4. Please mention the income/hour of each equipment

Equipments	Income/hour	No. of Working days/week
Tippers & Dumpers		
Backhoe Loaders		
Excavators		
Cranes		
Road Equipments		
Construction machinery		
Others		

5. Mention the Costs Involved/month in each of the machinery. (Per machinery)

	Tippers	Backhoe Loaders	Excavators	Cranes	Road Equipments	Construction machinery	Others
Maintenance cost							
Operating cost							
Repairing cost/hour							

6. How many times do you service your equipment per year?

	Tippers & Dumpers	Backhoe loaders	Excavators	Cranes	Road Equipments	Construction machinery	Others
Number							
Amount(avg)							

7. Rank the following equipments according to the returns and expenses (top 3).

Ranks(expenses)	Equipments	Ranks(returns)
	Tippers & Dumpers	
	Backhoe Loaders	
	Excavators	
	Cranes	
	Road Equipments	
	Construction machinery	
	Others	

8. Are you satisfied with the earning potential of the equipment?

	Yes	No
Equipments		
Tippers & Dumpers		
Backhoe Loaders		
Excavators		
Cranes		
Road Equipments		
Construction machinery		
Others		

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