1. INTRODUCTION

1.1 Working Capital

Working capital is a financial metric which represents operating liquidity available to a business, an organization or entity. It refers to the cash available for day-to-day operations of an organization. It is a fund used to meet short term expenses of the firm. It is also called as current capital.

1.1.1. Working Capital Management

Working Capital Management involves managing the balance between firm’s short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both short-term debt and upcoming operational expenses.

Finance Manager has to pay particular attention to the levels of current assets and their financing. In determining optimum level of current assets, the firm should balance the profitability–solvency tangle by minimizing total costs.

1.1.2. Working Capital Cycle

Working Capital cycle indicates the length of time between company’s paying for materials, entering into stock and receiving cash from sales of finished goods. It is also called as Operating Cycle or Cash Conversion Cycle. It analyzes the accounts receivable, inventory and accounts payable in terms of number of days.

1.1.3. Managing the three operational components of Working Capital

Companies need to manage all three components simultaneously across the value chain so as to drive fundamental reductions in asset levels. A realistic plan with clear priorities is the best approach. An overly ambitious agenda can overstrain internal capabilities and deliver sub-optimal results. Instead, companies should concentrate on the most promising actions that will not impair flexibility and performance. These actions will vary depending on industry and competitive situation, and have to be adapted to country specifics and regulations.

1. Reduce inventory holding period: Inventory is one of the most overlooked sources of cash, typically accounting for almost half of the savings from working capital
optimization projects. By streamlining processes within the company—as well as processes involving suppliers and customers—companies can minimize inventory throughout the value chain.

2. **Speed up receivables collection:** Many companies are early payers and late collectors—a formula for squandering working capital. Other companies—particularly project-based businesses and manufacturers of large, costly products with lengthy production cycles—have cash flow problems caused by a mismatch in timing between costs incurred and customer payments. Therefore, efficient management of receivables and prepayments received is crucial.

3. **Rethink payment terms with suppliers:** If fast-paying companies are at one end of the spectrum, then companies that “lean on the trade” and use unpaid payables as a source of financing are at the other. Between these two extremes there is a more effective, integrated approach to payment renegotiation that takes into account all aspects of the customer–supplier relationship, from price and payment terms to delivery time frames, product acceptance conditions, and international trade definitions.

### 1.1.4 Profitability and liquidity

The basic objective of every business is to attain profitability and maximizing the profitability. Profit is excess of earnings over the cost of the business. Liquidity is ability of company in meeting its commitments. Profitability and liquidity are the most imperative issues which need to be balanced against each other.

### 1.1.5 Overview of Working Capital in India

A review of the Working Capital (WC) performance of leading companies in India for FY2016 indicates a deterioration over FY2015, with Cash to Cash (C2C) days increasing by 5%. However, if the oil and gas (O&G) and metals and mining (M&M) sectors are excluded from our calculations, the C2C would remain flat. The C2C of the O&G and M&M sectors (combined) reduced by 22% and 64% as compared to FY2015 and FY2011, respectively, because of a significant decrease in the oil prices.

To stay competitive in the global market, Indian companies need to establish and execute focused programs to release free cash from WC to fund growth.
Companies should explore traditional and innovative WC funding techniques with the goal of improving the overall cash flow position. To achieve this, the changes required will include:

- Managing WC as an ongoing strategic priority rather than a point-in-time intervention
- Focusing on overall operating cash flow rather than improving trade-offs between cash, costs and services
- Embedding cash culture in the organization across functions, with focus on target setting and metrics measurement
- Establishing robust governance and transparent reporting of WC
- Improving billing and cash-collection processes, and more effectively managing the payment terms
- Improving supply chain processes to reduce inventory holding and release trapped cash

1.2 An overview of sugar industry

In highlighting the importance of sugar industry in the society, it is the basic fact that directly or indirectly everyone is consuming the sugar in the present-day scenario. Therefore, sugar can be categorized as an important consumption good for all the household’s purposes. Sugar is observed to be main dominating position among sweet factors such as Gur, Khandsari as the sugar acts as raw material for producing these two products. Sugar harvesting has astonishing feet in cultivation because two crops the cultivator can harvest on the same crop without re-cultivation.

The growth of sugar industry has added great importance by facilitating the growth of by-products. Sugar industry is most significant contributor of state and central revenue. The sugar industry provides direct employment to about 3.35 lakh workers besides providing indirect sustainability to 30 million sugarcane growers all over the country.
1.2.1 World Sugar Industry

World Sugar Production

According to the world sugar production 120 countries are producing sugar and global production in a year is up to 180 million tons. Approximately 80 percentage is produced from sugar cane, which is highly grown in tropical countries. The remaining 20 percentage is produced from sugar beet, which is mostly grown in the temperate zones of the northern hemisphere. 70% countries produce sugar from sugar cane, 40% from sugar beet, and 10% from both.

Figure: 1.0 World Sugar Production, 2015-16

Source: http://www.sucden.com

The above figure representing 10 largest sugar producing nations across the globe. Among the different countries Brazil is considered as the top producer in global production with 21%. Whereas, India has stood in second position by producing 14% of the world sugar production for the year 2015 - 2016.
World Sugar Consumption

At the Initial stages of 20th century, a world population of 1.6 billion people consumed roughly 8 million tons of sugar, i.e. 5.1 kg per capital. The 10 largest sugar consuming nations represent two-thirds of total world consumption. White sugar consumption in developed countries can be considered as saturated, whereas developing countries are considered as growing markets, particularly in Asia and to a lesser extent, in the Middle-East and Africa.

FIGURE 1.1: World Sugar Consumption 2015-16

[Image of a pie chart showing the world sugar consumption for 2015-16]

Source: [http://www.sucden.com](http://www.sucden.com)

The above figure is depicting the 10 largest sugar consuming nations. Among the different countries India is considered as the top in global consumption with 15%. The European Union, China, Brazil, USA, Indonesia, Pakistan, Mexico and Thailand had occupied 9%, 10%, 8%, 7%, 3%, 4%, 2%, 2% respectively in the world sugar consumption for the year 2015 to 2016.
Overall view on World Sugar Production and Consumption, India stood in top second position in production of sugar and top position in consumption of sugar. Whereas, Brazil is placing top position in producing the sugar.

1.2.2 Sugar industry in India

India is treated as the original home of sugar and sugarcane. Indians knew the art of making sugar since the fourth century. The Chinese Emperor, Tsai-Hang sent a mission to Bihar in about 600 A.D. to ascertain and study the area of sugar manufacturing. From India, the knowledge of sugar manufacturing went over to Persia. However the process of modern sugar manufacturing may be said to have started with the adoption of a policy of discriminating protection by the government of India in 1932.

Indian sugar industry can be broadly classified into two sub sectors, the organized sector i.e. sugar factories and the unorganized sector i.e. manufacturers of traditional sweeteners like gur and khandesari. India is the largest single producer of sugar including traditional cane sugar sweeteners like khandesari and Gur equivalent to 26 million tons raw value followed by Brazil in the second place at 18.5 million tons. Even in respect of white crystal sugar, India has ranked No.1 position out of 7 countries for last 10 years. Presently, about 4 million hectares of land is under sugarcane with an average yield of 70 tonnes per hectare. Indian sugar production is characterized by a cyclical production pattern with typical sugar cycles lasting 2-3 years, as production adjusts to fall in price which in turn leads to lower supplies, price increase and higher production. According to USDA Abhinav National Monthly Refereed Journal of Research In Commerce & Management, India is the largest consumer and second largest producer of sugar in the world. In year 2006-2007 India produced 28.5 million tons and consumed 20 million tons of sugar. India has exported around 1.5 million tons of sugar after the ban on sugar exports was lifted in January, 2007. With an opening stock of 4 million tons in 2005-06, India will end the year with stocks of more than 11 million tons.

Sugar production in India has been cyclic in nature. From the sugar season 2010-11 onwards the country could consistently achieve sugar production more than the domestic requirements and could also generate surpluses for export. Maharashtra and Uttar Pradesh contribute over 60 percent of total sugar production while rest
comes from States like Tamil Nadu, Karnataka, Gujarat and Andhra Pradesh. In the 3rd Advance Estimates of the Department of Agriculture and Cooperation (DAC), released in May 2014, the sugarcane production is estimated at 3,483.8 lakh tons in the current sugar season. The production of sugar during 2013-14 season was estimated at 243 lakh tons as against the estimated domestic consumption of 240 lakh tons. The Production of sugar from 2001-02 to 2015-16 is as under.

Table 1.1: Total Sugar Production in India (Quantity in lakh Tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Production of Sugarcane</th>
<th>Production of Sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>2972.08</td>
<td>185.28</td>
</tr>
<tr>
<td>2002-03</td>
<td>2873.83</td>
<td>201.45</td>
</tr>
<tr>
<td>2003-04</td>
<td>2338.62</td>
<td>135.46</td>
</tr>
<tr>
<td>2004-05</td>
<td>2370.88</td>
<td>126.90</td>
</tr>
<tr>
<td>2005-06</td>
<td>2811.72</td>
<td>192.67</td>
</tr>
<tr>
<td>2006-07</td>
<td>3555.20</td>
<td>283.67</td>
</tr>
<tr>
<td>2007-08</td>
<td>3481.88</td>
<td>263.57</td>
</tr>
<tr>
<td>2008-09</td>
<td>2850.29</td>
<td>145.39</td>
</tr>
<tr>
<td>2009-10</td>
<td>2923.02</td>
<td>189.12</td>
</tr>
<tr>
<td>2010-11</td>
<td>3423.82</td>
<td>243.94</td>
</tr>
<tr>
<td>2011-12</td>
<td>3610.37</td>
<td>263.43</td>
</tr>
<tr>
<td>2012-13</td>
<td>3389.63</td>
<td>251.41</td>
</tr>
<tr>
<td>2013-14</td>
<td>3500.21</td>
<td>243.73</td>
</tr>
<tr>
<td>2014-15</td>
<td>3654.32</td>
<td>262.34</td>
</tr>
<tr>
<td>2015-16</td>
<td>3568.42</td>
<td>249.56</td>
</tr>
</tbody>
</table>

Source: National Federation of Cooperative Sugar Factories Limited, Cooperative Sugar, November, 2016, p.28

Government Norms in Sugar Industry

Sugar is a regulated industry in India. Sugar is an essential commodity, and is covered by the Essential Commodities Act, 1955 and consequently, its production
supply and distribution are regulated by the government. The Cane Commissioner of each state reserves and assigns areas for the supply of sugarcane to factories on an equitable basis. The purchase price of sugarcane is regulated and the central government fixes the SMP, which must mandatorily be paid by sugar producers to sugarcane growers, within a specified time. The Government of India, through the Sugar Directorate, can further fix the quantity and quality of sugar that may be produced by a factory during any year and can also regulate the sale of sugar. Sugar mills must sell a specified percentage of sugar, which is currently at 90 per cent of their production in the open market and are therefore subject to the forces of demand and supply. 10% Levy sugar must be sold as per government directions through fair price shops and the public distribution system at government notified prices, which may be set below the cost of production. Under the Sugarcane (Control) Order 1966, the Government of India fixes the Statutory Minimum Price (“SMP”) for sugarcane each year based on the recommendations of the Commission on Agricultural Costs and Prices, which takes into account factors such as the cost of cultivation, return to factories and average recovery for previous year. The SMP is fixed for a given base level of recovery and is the minimum price that is required to pay the farmers from whom we purchase cane. A portion of the sugar manufactured by sugar companies is bought by the Government of India as “levy sugar” at a price that is fixed by the Government of India. The remaining sugar is known as “free sale sugar” and is sold at a price that is determined by market factors such as availability.

De-Regulations of Sugar Sector

The central government considered the recommendations of Dr. C. Rangarajan Committee on de-regulation of sugar sector and decided to do away with levy obligation on sugar mills for sugar produced after September 2012 and dispense with the regulated release mechanism on open market sale of sugar. The de-regulation of the sugar sector is likely to improve the financial health of the sugar mills, increase the cash flow, reduce their inventory cost and also result in timely and better payment of cane price to sugarcane farmers in the country. The recommendations of the Committee relating to Cane Area Reservation, Minimum Distance Criteria and adoption of the Cane Price Formula have been left to the State Governments for adoption and implementation, as considered appropriate by them.
India's Trade in sugar

India has been a net exporter of sugar. However, it has been occasional net importer of sugar depending upon demand and supply situation in the country. As per the data provided by the Directorate General of Commercial Intelligence and Statistics (DGCIS)\textsuperscript{3}, India's export of sugar was highest in 2007-08 and import was on its peak in 2009-10. Import and Export of Sugar from 2005-06 to 2013-14 is as under:

**Table 1.2: Import and Export of Sugar (Quantity in lakh Tons)**

<table>
<thead>
<tr>
<th>Sugar Season (Oct-Sept)</th>
<th>Export of Sugar</th>
<th>Import of Sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>15.039</td>
<td>0.07**</td>
</tr>
<tr>
<td>2006-07</td>
<td>24.90</td>
<td>0.005**</td>
</tr>
<tr>
<td>2007-08</td>
<td>58.23</td>
<td>0.004**</td>
</tr>
<tr>
<td>2008-09</td>
<td>2.165</td>
<td>24.47***</td>
</tr>
<tr>
<td>2009-10</td>
<td>2.371</td>
<td>41.80***</td>
</tr>
<tr>
<td>2010-11</td>
<td>28.14</td>
<td>3.65**</td>
</tr>
<tr>
<td>2011-12</td>
<td>36.735</td>
<td>1.886**</td>
</tr>
<tr>
<td>2012-13</td>
<td>12.02</td>
<td>17.120**</td>
</tr>
<tr>
<td>2013-14</td>
<td>24.457</td>
<td>9.100**</td>
</tr>
<tr>
<td>2014-2015(P)</td>
<td>33.365</td>
<td>11.341**</td>
</tr>
<tr>
<td>2015-2016(P)</td>
<td>26.712</td>
<td>7.376**</td>
</tr>
</tbody>
</table>

**Source:** Note of Directorate of Sugar 2016 p.13

** As per Data furnished by DGCIS Kolkata.

*** As reported by Department of Revenue.(P) provisional

Despite the lower production, ISMA ruled out any possibility of imports saying there are sufficient stocks available with mills from the previous year. As per ISMA’s estimates, the 2016-17 sugar season will close in September with 4.85
million tonnes of surplus stocks. India’s domestic consumption of sugar is estimated at over 25 million tons per year. Top ten states in India producing Sugar are-Uttar Pradesh, Maharashtra, Tamilnadu, Karnataka, Andhra Pradesh, Bihar, Gujarat, Haryana, Panjab, Uttar khand.

Sugarcane is primarily grown in nine states of India: Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Maharashtra, Punjab, Uttar Pradesh and Tamil Nadu. More than 50 million farmers and their families are dependent on sugarcane for their livelihood. The sugar industry caters to an estimated 12 percent of rural population in these nine states through direct and indirect employment. Effectively, each farmer contributes to the production of 2.9 MT of sugar every year. In addition to farmers, an estimated 0.5 million workers are directly employed as agricultural labour involved in cultivation and harvesting. The sugar industry also supports diversified ancillary activities and skills that support the local economy. The dependent population creates substantial demand for local goods and services. In addition to the sugar industry's contribution to the rural economy, it has significant social and economic impact for the nation as well. The sugar industry is a green industry and is largely self sufficient in energy needs through utilisation of biogases for generating electricity and steam. In fact, the sugar industry generates surplus exportable energy through cogeneration and contributes in reducing the energy deficit that India is currently facing. The sugar industry is also the primary source of raw material for the alcohol industry in India. The annual economic contribution of the sugar industry to the exchequer through principal indirect taxes amounts to more than INR 2800 crores.

**Sugarcane Pricing Policy in India**

With the amendment of the Sugarcane (Control) Order 1966 on 22 October 2009 the concept of Statutory Minimum Price (SMP) of sugarcane was replaced with the 'Fair and Remunerative Price (FRP) of sugarcane for 2009-10 and
subsequent sugar seasons. The cane price announced by the Central Government is decided on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP) after consulting the State Governments and associations of sugar industry.

Under the FRP system, the farmers are not required to wait for the end of the season or for any announcement of the profits by the sugar mills or the Government. The new system also assures the margins on account of profit and risk to farmers irrespective of the fact whether the sugar mills generate profit or not and is not dependent on the performance of any individual sugar mill. Citing difference in the cost of production productivity levels and also as a result of pressure from farmers’ groups some States like Uttar Pradesh, Punjab, Haryana, Tamil Nadu and Uttar khand declare State specific sugarcane prices called State Advised Prices (SAP) usually higher than the FRP.
Table 1.3: Statutory Minimum Price/Fair and Remunerative Price (Rs./Quintal)

<table>
<thead>
<tr>
<th>Sugar season</th>
<th>SMP/FRP</th>
<th>Minimum Recovery %</th>
<th>Premium for every 0.1% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03</td>
<td>69.50</td>
<td>8.50</td>
<td>0.82</td>
</tr>
<tr>
<td>2003-04</td>
<td>73.00</td>
<td>8.50</td>
<td>0.85</td>
</tr>
<tr>
<td>2004-05</td>
<td>74.50</td>
<td>8.50</td>
<td>0.88</td>
</tr>
<tr>
<td>2005-06</td>
<td>79.50</td>
<td>9.00</td>
<td>0.88</td>
</tr>
<tr>
<td>2006-07</td>
<td>80.25</td>
<td>9.00</td>
<td>0.90</td>
</tr>
<tr>
<td>2007-08</td>
<td>81.18</td>
<td>9.00</td>
<td>0.90</td>
</tr>
<tr>
<td>2008-09</td>
<td>81.18</td>
<td>9.00</td>
<td>0.90</td>
</tr>
<tr>
<td>2009-10*</td>
<td>107.76 (SMP)</td>
<td>9.50</td>
<td>1.13</td>
</tr>
<tr>
<td>Oct-2009</td>
<td>129.84 (FRP)</td>
<td>9.50</td>
<td>1.37</td>
</tr>
<tr>
<td>2010-11</td>
<td>139.12 (FRP)</td>
<td>9.50</td>
<td>1.46</td>
</tr>
<tr>
<td>2011-12</td>
<td>145.00 (FRP)</td>
<td>9.50</td>
<td>1.53</td>
</tr>
<tr>
<td>2012-13</td>
<td>170.00 (FRP)</td>
<td>9.50</td>
<td>1.79</td>
</tr>
<tr>
<td>2013-14</td>
<td>210.00 (FRP)</td>
<td>9.50</td>
<td>2.21</td>
</tr>
<tr>
<td>2014-15</td>
<td>220 (FRP)</td>
<td>9.50</td>
<td>2.32</td>
</tr>
<tr>
<td>2015-16</td>
<td>246(FRP)</td>
<td>9.50</td>
<td>2.62</td>
</tr>
</tbody>
</table>

Source: www.Indiansugar.com
The Government of India on October 22, 2009 amended the Sugarcane (Control) order 1966 vide SO2665 (E)/Ess.com/ Sugarcane introducing Fair & Remuneration Price (FRP) for sugarcane vice SMP for the year 2015-16.

Plight of Sugarcane Farmers

Sugarcane growers are facing unprecedented uncertainty because of mounting cane arrears due to sugar mills. The payment to sugarcane farmers by sugar mills though statutorily supported by various statues and enforced by the State Government get affected by the dynamics of domestic market price as well as international situation related to export possibilities.

Table 1.4: Season-Wise Cane Price Arrears Position (in crores)

<table>
<thead>
<tr>
<th>Year</th>
<th>Position as on</th>
<th>Total Price Payable</th>
<th>Total Price Paid</th>
<th>Arrears</th>
<th>% of arrears on price payable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>15/09/2009</td>
<td>19691.6</td>
<td>19587.6</td>
<td>104.01</td>
<td>0.53</td>
</tr>
<tr>
<td>2009-10</td>
<td>15/09/2010</td>
<td>38512.8</td>
<td>38164.7</td>
<td>348.19</td>
<td>0.9</td>
</tr>
<tr>
<td>2010-11</td>
<td>15/09/2011</td>
<td>44685.9</td>
<td>43985.2</td>
<td>700.67</td>
<td>1.57</td>
</tr>
<tr>
<td>2011-12</td>
<td>15/09/2012</td>
<td>51571.3</td>
<td>50503.3</td>
<td>1067.98</td>
<td>2.07</td>
</tr>
<tr>
<td>2012-13</td>
<td>15/09/2013</td>
<td>59707.6</td>
<td>56248.5</td>
<td>3459.09</td>
<td>5.79</td>
</tr>
<tr>
<td>2013-14</td>
<td>15/09/2014</td>
<td>57868.3</td>
<td>50381.4</td>
<td>7486.91</td>
<td>12.94</td>
</tr>
<tr>
<td>2014-15</td>
<td>15/09/2015</td>
<td>61276.4</td>
<td>52394.2</td>
<td>8745.31</td>
<td>14.76</td>
</tr>
<tr>
<td>2015-2016</td>
<td>15/09/2016</td>
<td>63345.8</td>
<td>53476.1</td>
<td>8967.21</td>
<td>15.56</td>
</tr>
</tbody>
</table>

Source: Note of Directorate of Sugar, 2016, p.2-3

Challenges for sugar industry

Sugar is an agro-based industry so the prices always fluctuate with monsoon. The low yield of sugarcane, short crushing season, and unsatisfactory location of industry in Uttar Pradesh and Bihar and inadequate supply of cane
create problems for sugar mills having low milling efficiency. Low Recovery of sugar from sugarcane also poses a problem for sugar industry. Further Indian sugar mills do not have sugar plantations of their own and hence do not have control over quantity and quality of sugarcane supplied by various cane growers. Another problem of sugar industry is that the by-products of sugar mills are not fully utilized like molasses and biogases. Levy sugar obligations causes huge financial burden on mills under which mills are bound to sell sugar for distribution under public distribution system at price determined by the Government which is way below the cost of production. Arbitrary fixation of cane prices by the State Governments above the Fair Remunerative Price (FRP) fixed by the Centre has been adversely affecting the sugar mills. Due to all these reasons 189 mills were out of operation in 2013-14 sugar season while 166 mills were not operating in 2012-13.

1.2.3 Sugar industry in Andhra Pradesh

A brief of sugar industry in the state of Andhra Pradesh, sugar cane area and production, the performance scenario of sugar factories in the state, the relative position of the state of Andhra Pradesh (before bifurcation) in the production of sugar cane, the yield, the number of sugar factories, sugar production in India and different relevant dimensions of the industry are covered.
Andhra Pradesh is the fourth largest state in the Indian union with an area of 2,75,281 sq.km. accounting for 8.4 per cent of the total geographical area of the country. The state of Andhra Pradesh is regarded as the ‘granary’ of the south. The state is predominantly agrarian. Within the agricultural sector, food crops predominate accounting for 73.3 per cent total value of agricultural output of the state. Non-food crops account for 20.96 per cent. The state of Andhra Pradesh can rightly be called ‘Rice bowl’ of India with its resources, fertile fields and abundant cash crops. Agriculture provides the raw materials for industries like sugar, cloth, jute while industries produce machines and equipment to factories producing the requirements of the farmer like fertilizers, pesticides and tilling equipment as well as consumption goods.

Andhra Pradesh (AP) abounds in the number of private sector sugar companies in India along with Tamil Nadu and Karnataka. In the year 1933-34, vacuum process is adopted for sugar manufacturing in the state. Previously, the state government is planning to support cooperative sector as against other sectors. However, with passing time, a considerable change in the policy was noticed. Letters of Intent (L.O.I.) were given to the deserving entrepreneurs including 20 LOIs to the private sector companies. This gradually resulted in major benefits for the state government as well as for India as a whole. Today, the state of Andhra Pradesh sugar industry ranks 3rd in terms of recovery and 5th in terms of cane crushing. As per production capacity is concerned, Andhra Pradesh stands at the position 5th in India.

The state of Andhra Pradesh sugar industry can be classified into two parts such as organized sector including sugar mills and unorganized sector including manufacturers of gur (jaggery) and khandsari. The unorganized sector is often referred to as the rural industry. The rural industry plays major role in the level of production. As per the provisions of the state of Andhra Pradesh sugarcane Act, 1969, the crushing seasons in the state starts in the month of November and lasts up to 30th April of the next year.

During 2009-10, in the state of Andhra Pradesh, there are 35 sugar factories of which 8 are under the cooperative sector, 24 are under the private sector.3 are in joint sector. There are only 28 sugar factories in Andhra Pradesh during 1983-84 and during 2009-10, they stood at 34 in number. Andhra Pradesh occupies fifth place in
respect of sugar growing. This is one of the largest growers of sugarcane in the country. Sugar cane is cultivated in the districts of Sri kakkulam, Visakhapatnam, East Godavari, West Godavari, Krishna, Nizamabad, Kadapa, Chittor and Guntur. The mill at Bodhan in Nizamabad district of Andhra Pradesh is biggest in Asia.

Andhra Pradesh and Telangana sugar industry comes out of the vicious cycle of shortage and surplus of sugarcane, lower sugarcane yield, lower sugar recovery, ever increasing production costs and mounting losses. This study aims to throw light on the present situation of the sugar industry in Andhra Pradesh and Telangana states, discussing the details of impact of working capital management on profitability of the sugar industry.

1.3 Details Of Sugar Companies selected for study in Andhra Pradesh And Telangana states

1.3.1 Sugar Companies selected for study in Andhra Pradesh

1. Andhra sugars Ltd.,

The Andhra Sugars Limited is an India-based company engaged in the manufacturing and sale of sugar, organic and inorganic chemicals at plants located at Tanuku, Kovvur, Taduvai, Saggonda and Bhimadole. The Company’s non-conventional wind power is being generated at one location in Andhra Pradesh and twelve locations in Tamil Nadu. The Company’s primary segment is the Chlor-Alkali Division, which is a Power intensive operation. The Company’s products include sugars, aspirin, sulphuric acid, alcohol and Alco chemicals, chloro alkali and super phosphate. The Company’s subsidiaries include Jocil Limited, the Andhra Farm Chemicals Corporation Limited and Hindustan Allied Chemicals Limited.

Sugar is manufactured at Sugar Unit-1 Tanuku, Sugar Unit-11 Taduvai and Sugar Unit-Ill Bhimadole. Molasses which is a by-product from the Sugar Plants is the raw material for company's distillery located at Tanuku. Industrial Alcohol and Ethanol are produced at Distillery. Industrial Alcohol is the raw material for Ethanol and other organic chemicals manufactured at the Chemical Plants at Tanuku. Biogases which is a residue at the Sugar Plants after extraction of juice is being used to fuel the Co-generation operation. Carbon dioxide which is a by-product of fermentation at the
Distillery is purified and used as one of the raw materials to produce Salicylic Acid which goes into the manufacture of Aspirin.

2. **Empee sugars limited.**

   As a part of diversification Empee Group, in 1992 entered the Sugar business by establishing a Sugar Mill in Andhra Pradesh, which over a period of time became an integrated Sugar Complex with downstream products like Molasses, Rectified Spirit / Extra Neutral Alcohol, Biomass Fertilizers and Power. The Naidupet Mandal in Nellore District was the chosen site and the development it has brought to this once dry land is an incredible success story in itself. Farmers in the region now have a steady cash crop in sugarcane and a host of allied industries like molasses, alcohol, white sugar etc, have sprung up in and around the region.

   The rich experience gained in developing and operating the Naidupet Sugar Complex paved the way for the Group to expand its Sugar Divisions. Thus born, it is regarded as second integrated Sugar Complex at Ambasamudram, Tirunelveli District, in Tamil Nadu, which began operation in 2010. This Unit comprises of a 5000 TCD Sugar Mill, 50 MW Power Plant and 100 KLPD Ethanol Plan. Today the Group operates two Sugar Mills with a total crushing capacity of 8500 Tonnes per day. These Plants are located in the States of Andhra Pradesh and Tamil Nadu.

3. **KCP sugars limited.**

   **sugar unit-1:** K.C.P. Sugar and Industries Corporation Ltd (KSICL) has its first sugar factory at Vuyyuru, situated in Krishna District in Andhra Pradesh. The plant is located at 30 KM east of Vijayawada town on Vijayawada - Machilipatnam Highway. The plant was established with a crushing capacity of 600 TCD under cooperative sector in the year 1936. In the year 1941, when the cooperative venture failed the KCP Ltd, acquired the sugar factory from the co-operative sector as a going concern. Presently the plant can crush 7500 TCD after undergoing a serious of expansion and modernization. The plant produces high quality L30, M30 and S30 grades of sugar which are well accepted in Andhra and West Bengal markets and enjoys a premium for the past several decades.
Sugar Unit-2: KSICL has its Second sugar factory at Lakshmipuram, about 1.6 KM from challapalli, Machilipatnam Road, Krishna District, Andhra Pradesh. The plant was established with a crushing capacity of 800 TCD in the year 1957-1958. In the year 1987 The KCP Ltd took over the same. Presently the plant can crush 4000 TCD after undergoing a serious of expansion and modernization. The plant produces high quality L30,M30 and S30 grades of sugar which are well accepted in Andhra and West Bengal markets and enjoys a premium for the past several decades.

4. Jeypore sugars Ltd.,

The Jeypore Sugar Company (VVS SUGARS) Ltd. was incorporated as a public limited company on 29th July 1936 under the Indian Companies Act. 1913 and was the first company to be registered in the then newly formed province of Orissa with an initial capacity of 150 TCD and subsequently expanded to 450 TCD. The company diversified into various other activities like manufacture of Industrial Alcohol, Indian made foreign liquor and Ferro manganese. In the course of expansion of the company, a separate sugar unit was established at Nagaram in Guntur District A.P. in 1958. Due to non-availability of sugar cane the unit was shifted to Chagallu, West Godavari District, in A.P in 1961 with an installed capacity of 850 TCD in the year 1960-61 and having licensed capacity of 1250 TCD. At present the company’s installed capacity and crushing capacity is at about 8500 TCD.

5. Nava Bharath sugars limited.,

The Company was diversified into agri-business, starting with sugarcane development and production of sugar and its downstream products. The Company’s philosophy for the development of agri-business revolves around the following:

- Implementation of new and appropriate crop production technologies
- Development of farmers through contract farming
- Innovative measures for energy conservation and protection of environment in the processing units

The Company’s Sugar Plant is one of the most energy efficient sugar plants, operating with an electrical energy consumption of 23 kWh per ton of cane crushed and 31% steam consumption on cane. Zero discharge of effluents achieved by installation of a reverse osmosis plant and spent wash evaporation plant and 100%
utilization of the product received from the evaporation plant for composting filter cake and producing organic manure. The company is diversified into the following plants:

**Sugar Plant:** Located at Samalkot, Andhra Pradesh with the Capacity of 4000 TCD

**Distillery Plant:** Located at Samalkot, Andhra Pradesh with Capacity of 20 KLPD

**Ethanol Plant:** Located at Samalkot, Andhra Pradesh with the Capacity of 30 KLPD

6. **Parrys sugars limited.**

Parrys Sugar Industries Limited (PSIL) is a distinguished and rapidly expanding sugar producer in India. PSIL a subsidiary of EID Parry (India) Ltd, one of the fastest growing organizations in terms of sugar production in India. The industry is deeply committed to a larger vision of our social responsibility looking after the needs and quality of life of the farmers and local communities. Through the effective farmer partnership model the company provides assistance in farming practices and undertake various economic initiatives for the benefit of the local communities.

7. **Sagar sugars & allied products ltd.**

Sagar Sugars & Allied Products Ltd., is a private limited Firm. It has already made a spectacular impression on the world of trade with the range of products and cornered a major share of market and that has helped immensely to establish a niche for its products in the sugar segment.

8. **Prudential sugar corporation limited.**

Prudential Sugar Corporation Limited set up its first modern integrated Sugar Plant in the year 1994 to manufacture white Crystal Sugar. The plant is located near Village Nindra in Andhra Pradesh (India) with a capacity of 2500 TCD. It is a fully integrated Sugar Complex also with a facility for Power Co-generation. The location of the plant has advantage of two monsoons, the South West and the North East, which bring in sufficient rain to give a healthy crop over an area of 30000 Acres.

It is one of the largest producers & exporters of sugar in the country. Sugar manufactured by the company is recognized as a premium quality product having global reach & acceptance. The white plantation white sugar is produced at Nindra in Andhra Pradesh (India) by Double sulphitation followed by syrup clarification by
phosphor floatation process. The plantation white sugar thus produced not only meets the specifications of ISS standards of Government of India but also surpasses in many of quality aspects.

9. Suddalagunta sugars limited.,

Suddalagunta Sugars Limited is a Public incorporated on 12 September 1994. It is classified as Non-Govt. Company and is registered at Registrar of Companies, Hyderabad. This group entered the Sugar business by establishing a Sugar Mill in Andhra Pradesh, which over a period of time became an integrated Sugar Complex with downstream products like Molasses, Rectified Spirit / Extra Neutral Alcohol, Biomass Fertilizers and Power. Further company diverted into many plants through effective partnership motives such as introducing technical ways in extracting and formulating with the same basis in the streams of molasses, spirit and beverages.

1.3.2 Sugar Companies selected for study in Telangana

1. Delta sugars limited.,

The Delta sugars got registered at ROC, Hyderabad on 21st August, 2001 year. It has got limited company by shares and an Indian, non-government. The delta sugars have 3 active directors/ partners. The active directors are Gokaraju Rama Raju, Ganga raju Gokaraju, Ranga Raju Gokaraju.

2. Gayathri Sugars Ltd.,

It is a public limited company listed on Bombay Stock Exchange (BSE) is a part of the 50 year old highly diversified Gayatri Group. It is in the field of Manufacturing across integrated fields such as Sugar, Distillery, and Power. Along with its Registered and Corporate Office in Hyderabad has two state-of-the-art sugarcane based integrated units –Kamareddy Unit- situated at Adloor Yellareddy Village, Sadasivanagar Mandal, Nizamabad District

3. G.M.R vasavi industries ltd.,

GMR Industries Limited is the agri-business division of GMR Group. It currently owns and operates three integrated sugar plants in sugarcane growing belts
of Karnataka and Andhra Pradesh with combined a installed crushing capacity of 11,000 TCD, 46 MW of co-generation and 95 KLPD of distillery. The company also holds a license to set up and operate an integrated sugar complex of 3,500 TCD sugar mill at Raibagh in Karnataka. The company also owns land and license to set up another plant in Andhra Pradesh. GMR Industries, listed on BSE and NSE.

4. Kakatiya sugars ltd.,

The industry is situated at a Peruvancha Village, Kalluru Mandal at Khammam Dist., Andhra Pradesh. It started with a plant to manufacture and then diversified with The Sugar Division crushes more than 4.00 lakh MT of sugar cane on an average per year. The cement plant of the Company is located in Nalgonda District of Andhra Pradesh, whereas the sugar and power plants are located in Khammam District.

5. Madhucon sugars and power industries ltd.,

Madhucon Sugar and Power Industries Limited (MSPIL) was a cooperative sector entity since 1983 at Rajeswarapuram in Telangana State. It was formally taken over by Madhucon Group in the year 2002. At the time of acquisition, Realizing the high potential for growth of the sugar factory, the crushing capacity was enhanced to 3500 TCD in the year 2007 from initial 1250 TCD capacity. In addition to this a 24.2 MW co-generation power plant was also added to use the by-product Biogases more effectively and efficiently. Subsequently a 65 KLPD Distillery for producing Ethanol was also added to make use of the byproduct generated i.e., Molasses considering the benefits that accrue due to policy of Government mandating 5% blending of Ethanol with Petrol.

6. Nizam Deccan Sugars Limited., (NDSL)

Nizam Sugar Factory also known as Nizam Deccan Sugars Limited (NDSL) is a sugar factory situated in Bodhan town of Nizamabad district, Telangana, India. The factory is located 25 kilometers from district headquarters, Nizamabad and is known for being the largest sugar factory in Asia. Since recent years the factory has been functioning seasonally.

Nizam Sugar Factory was established in 1937 during the time of the last Nizam of Hyderabad State, Mir Osman Ali Khan. The factory was a major employer
during the Nizam period. As of 2015, the state government owns 49 per cent of the factory, with the remaining controlling stake behind held by Delta Sugars.

7. **NSL krishnaveni sugars ltd.**

   It has commenced its operations at Mahaboobnagar district. Since the Karnataka and Telangana (Mahaboobnagar) sugar business verticals are well established plants will help them to expand into Andhra Pradesh significantly besides increasing their market share in rest of states. The sugar industry is expecting growth in future and its turnover business to touch higher level. The integrated sugar, fuel grade ethanol and co-generation power has been set up at kothakota mandal with an investment of Rs. 350 crores.

8. **Shivashakti Sugars Ltd.**

   Shiv Shakti Sugar Mills (India) Private Limited started in 1999 i.e., company is 16 year old. Average age for main line of business (Manufacture of 'khandsari’ sugar from sugar cane) is 22 years i.e., this company is 6 year younger than its main industry Average age for parent line of business (Manufacture of sugar [manufacture of glucose and other sugars made from starches.  This company is 2 year older than its top level industry Out of 114 companies, Shiv Shakti Sugar Mills (india) Private Limited is 36th oldest company which is primarily involved in Manufacture of 'khandsari’ sugar from sugar cane in India Out of 3 companies, Shiv Shakti Sugar Mills (india) Private Limited is oldest company which is primarily involved in Manufacture of 'khandsari’ sugar from sugar cane in Telangana

9. **Trident sugars ltd.**

   In 2006, Rajshree Sugars & Chemicals Limited acquired Trident Sugars limited – a 2500 TCD sugar mill at Zaheerabad, Medak District in Andhra Pradesh. During the year 2011-12, the factory has crushed 4.07 lakh tons of sugarcane as against 3.97 lakh tons crushed in the previous year. With the expected normal monsoon this year, the sugarcane crushing for the year 2012-13 is expected to be sustained at last year’s level. As part of the expansion program, the company plans to enhance the capacity to 3500 TCD and the work is in progress.