P- 2780

DEVELOPING AN ACTIVITY BASED COSTING MODEL FOR PRICING THE SERVICES IN SOLO KNIT PROCESS PRIVATE LIMITED

A PROJECT REPORT
submitted by

RENU PRIYA. P
Reg.no.0720400033

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

of

MASTER OF BUSINESS ADMINISTRATION

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KCT Business School
Department of Management Studies
Kumaraguru College of Technology
(An autonomous institution affiliated to Anna University, Coimbatore)
Coimbatore-641 006

CERTIFICATE

DEPARTMENT OF MANAGEMENT STUDIES

KUMARAGURU COLLEGE OF TECHNOLOGY

COIMBATORE

BONAFIDE CERTIFICATE

Certified that this project report titled "DEVELOPING AN ACTIVITY BASED COSTING MODEL FOR PRICING THE SERVICES IN SOLO KNIT PROCESS PRIVATE LIMITED" is the bonafide work of **Ms.RENU PRIYA.P (0720400033)** 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.

Faculty Guide

Director

Evaluated and vice-voce conducted on 5.5.2009

Examiner I 5.5.09

Examiner II 5/5/09

KCT BUSINESS SCHOOL
KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE - 641 006

SOLO KNIT PROCESS (P) LTD

Padavalkalvai Village, Ammapet - 638 311. Bhavani Taluk, Erode District.
Ph : 04256 227106, 227107. Fax : 04256 227110

Date: 18.04.2009

PROJECT COMPLETION CERTIFICATE

This is certified that Miss P Renupriya final MBA student of Kumaraguru College of Technology , Coimbatore has done project work on the topic.

Developing activity based costing model for services in Solo Knit Process (P) Ltd , Ammapet in production department of our organization during the period from 11.02.2009 to 18.04.2009.

During the above period her performance conduct and character are found to be good.

We wish all success in her future career.

For Solo Knit Process (P) Ltd.

General Manager

DECLARATION

DECLARATION

I, hereby declare that this project report entitled as **"DEVELOPING AN ACTIVITY BASED COSTING MODEL FOR PRICING THE SERVICES IN SOLO KNIT PROCESS PRIVATE LIMITED"**, has undertaken for academic purpose submitted to Anna University, KCT Business School (Autonomous) in partial fulfillment of requirement 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 Prof. K R Ayyaswamy and Mr. A Senthil Kumar , during the academic year 2008-2009.

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

Place: Coimbatore

Date: ೬.೫.೨೦೦೯

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(RENU PRIYA.P)

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ACKNOWLEDGEMENT

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ABSTRACT

ABSTRACT

Traditional costing model becomes a problematic model in many of the industries especially the service sector industries where most of the activity based job functionality is prevailing. In these types of industries the raw materials used / inventory or stock maintenance are very less. It is little difficult to cost the services offered when compared to that of products offered. Even in certain companies more raw materials are used but the final delivery is the service not the product, in such cases the costing is only for the services offered but it also includes the various other charges involved. Thus, to overcome this problem, activity based costing method is studied and developed for a garment service providing concern. The costing model is developed based on the various activities involved in the production process. Initially, the service rendered is differentiated into various processes. Later the process are analysed and the various activities involved in the process are identified and the cost involved in such activities are estimated.

Activity based costing refines a costing system by identifying individual activities as the functional cost objective. The main objective of this project is to identify such activities involved in the overall process and to establish the cost incurred for such activities. This helps to identify the efficient department or activity involved. Thus, resource allocation can be regulated to such efficient activity or department. This also provides knowledge about the inefficient department or process where that particular activity or department may incur more expenses and produce less profit or the proportion of direct and indirect charges maybe one of the reason for such inefficient activity if this is identified then the cost allocation for such activities can be regulated. Thus, this study projects an overall view about the cost incurred for the various activities and entire process of the company. This also provides an idea about the cost incurred for processing per kg yarn or fabric which helps to identify the raw materials and other charges involved in the processing of per kg yarn.

The costing model that was developed determines the per kg cost of yarn or fabric of each process. The per kg cost are determined by the raw materials, water, air, steam etc used in the process. This study covers the functioning of various departments in the organisation, and focus on the cost aspect of the same. The data collection is from the primary sources i.e. the employees of the organisation, records of the organisation etc.

In view of the above considerations, the project focuses to create an activity based costing model and calculate per kg cost of processed yarn or fabric or cost involved to process per kg yarn or fabric. In this method each process would involve a specific activity thus the costs incurred for those activities in the various processes of SOLO KNIT PROCESS PRIVATE LIMITED could be identified. The findings and suggestions are given and the roles of the various departments in this exercise are also given.

INTRODUCTION

CHAPTER 1

INTRODUCTION

Traditional cost accounting has been criticized for cost distortion and lack of relevance during the last few years. A new costing method, activity based costing (ABC), was developed and has been advocated as a means of overcoming the systematic distortions of traditional cost accounting and for bringing relevance back to managerial accounting. A traditional system reports what money is spent on and by whom, but fails to report the cost of activities and processes. Many organizations including petroleum and semiconductor companies in the manufacturing industry have adopted the new costing method. There are two purposes of activity-based costing. The first purpose is to prevent cost distortion. Cost distortion occurs because traditional costing combines all indirect costs into a single cost pool. This pool is allocated on the basis of some resource common to all of the company's products, typically direct labour.

Cost distortion is prevented in ABC by adopting multiple cost pools (activities) and cost drivers. The second purpose is to minimize waste or non-value-adding activities by providing a process view. This objective can be achieved by activity analysis with multiple cost pools (activities), cost drivers and also by identifying and eliminating waste (non value-adding) activities.

1.1 ABOUT THE STUDY:

1.1(a) ACTIVITY BASED COSTING:-

Activity-Based Costing (**ABC**) is a costing model that identifies activities in an organization and assigns the cost of each activity resource to all products and services according to the actual consumption by each. It assigns more indirect costs (overhead) into direct costs. In this way an organization can establish the true cost of its individual products and services for the purposes of identifying and eliminating those which are unprofitable and lowering the prices of those which are overpriced.

In a business organization, the ABC methodology assigns an organization's resource costs through activities to the products and services provided to its customers. It is generally used as a tool for understanding product and customer cost and profitability. As such, ABC has predominantly been used to support strategic decisions such as pricing, outsourcing and identification and measurement of process improvement initiatives. Traditionally, cost accountants had arbitrarily added a broad percentage of expenses into the direct costs to allow for the indirect costs. However, as the percentages of indirect or overhead costs had risen, this technique became increasingly inaccurate because the indirect costs were not caused equally by all the products.

For example, one product might take more time in one expensive machine than another product, but since the amount of direct labor and materials might be the same, the additional cost for the use of the machine would not be recognized when the same broad 'on-cost' percentage is added to all products. Consequently, when multiple products share common costs, there is a danger of

one product subsidizing another. The concepts of ABC were developed in the manufacturing sector of the United States during the 1970s and 1980s. During this time, the Consortium for Advanced Management-International, now known simply as CAM-I, provided a formative role for studying and formalizing the principles that have become more formally known as Activity-Based Costing.

Robin Cooper and Robert S. Kaplan, proponent of the Balanced Scorecard, brought notice to these concepts in a number of articles published in Harvard Business Review beginning in 1988. Cooper and Kaplan described ABC as an approach to solve the problems of traditional cost management systems. These traditional costing systems are often unable to determine accurately the actual costs of production and of the costs of related services. Consequently managers were making decisions based on inaccurate data especially where there are multiple products. Instead of using broad arbitrary percentages to allocate costs, ABC seeks to identify cause and affect relationships to objectively assign costs. Once costs of the activities have been identified, the cost of each activity is attributed to each product to the extent that the product uses the activity. In this way ABC, often identifies areas of high overhead costs per unit and so directs attention to finding ways to reduce the costs or to charge more for costly products.

Activity-based costing was first clearly defined in 1987 by Robert S. Kaplan and W. Bruns as a chapter in their book," *Accounting and Management. A Field Study Perspective.*" They initially focused on manufacturing industry where increasing technology and productivity improvements have reduced the relative proportion of the direct costs of labor and materials, but have increased relative proportion of indirect costs. For example,

increased automation has reduced labor, which is a direct cost, but has increased depreciation, which is an indirect cost.

Like manufacturing industries, financial institutions also have diverse products and customers which can cause cross-product cross-customer subsidies. Since, personnel expenses represent the largest single component of non-interest expense in financial institutions, these costs must also be attributed more accurately to products and customers. Activity based costing, even though originally developed for manufacturing, may even be a more useful tool for doing this.

1.2 ABOUT THE INDUSTRY:

1.2(a) Global Textile Scenario: -

According to statistics, the global textile market possesses a worth of more than $400 billions presently. In a more globalize environment, the industry has faced high competition as well as opportunities. It is predicted that Global textile production will grow by 25 percent between 2002 and 2010 and Asian region will largely contribute in this regard.

New innovations in clothing production, manufacture and design came during the Industrial Revolution – these new wheels, looms, and spinning processes changed clothing manufacture forever. The 'rag trade', as it is referred to in the UK and Australia is the manufacture, trade and distribution of textiles. There were various stages – from a historical perspective – where the textile industry evolved from being a domestic small-scale industry, to the status of supremacy it currently holds. The 'cottage stage' was the first stage in its history where textiles were produced on a domestic basis. The World Trade Organization (WTO) has taken so many steps for uplifting this sector. In the year 1995, WTO had renewed its MFA and adopted

Agreement on Textiles and Clothing (ATC), which states that all quotas on textile and clothing will be removed among WTO member countries.

However the level of exports in textiles from developing countries is increasing even if in the presence of high tariffs and quantitative restrictions by economically developed countries. Moreover the role of multifunctional textiles, eco-textiles, e-textiles and customized textiles are considered as the future of textile industry. The following tables show the largest oil companies both by production and reserves as of the year 2003. During this period cloth was made from materials including wool, flax and cotton. The material depended on the area where the cloth was being produced.

In the later half of the medieval period in the northern parts of Europe, cotton came to be regarded as an imported fibre. During the later phases of the 16th century cotton was grown in the warmer climes of America and Asia. When the Romans ruled, wool, leather and linen were the materials used for making clothing in Europe, while flax was the primary material used in the northern parts of Europe. Clothing manufactured during the Industrial Revolution formed a big part of the exports made by Great Britain. They accounted for almost 25% of the total exports made at that time, doubling in the period between 1701 and 1770.

The centre of the cotton industry in Great Britain was Lancashire, and the amount exported from 1701 to 1770 had grown ten times. However, wool was the major export item at this point of time. In the Industrial Revolution era, a lot of effort was made to increase the speed of the production through inventions such as the flying shuttle in 1733, the flyer-and-bobbin system, and the Roller Spinning machine by

John Wyatt and Lewis Paul in 1738.During this era, excess cloth was bought by the merchants who visited various areas to procure these left-over pieces. A variety of processes and innovations were implemented for the purpose of making clothing during this time. These processes were dependent on the material being used, but there were three basic steps commonly employed in making clothing. These steps included preparing material fibbers for the purpose of spinning, knitting, weaving.

During the Industrial Revolution, new machines such as spinning wheels and handlooms came into the picture. Making clothing material quickly became an organized industry – as compared to the domesticated activity it had been associated with before. A number of new innovations led to the industrialization of the textile industry in Great Britain. Lewis Paul later came up with the carding machine in 1748 and in 1764 the spinning jenny was also developed. The water frame was invented in 1771 by Richard Arkwright. The power loom was invented in 1784 by Edmund Cartwright.

In the initial phases, textile mills were located in and around the rivers since they were powered by water wheels. After the steam engine was invented, the dependence on the rivers ceased to a great extent. In the later phases of the 20th century, shuttles that were used in the textile industry were developed and became faster and thus more efficient. This led to the replacement of the older shuttles with the new ones. Today, modern techniques, electronics and innovation have led to a competitive, low-priced textile industry offering almost any type of cloth or design a person could desire. With its low cost labour base, China has come to dominate the global textile industry.

1.2(b) INDIAN TEXTILE INDUSTRY:-

The Indian textile industry is one of the oldest and most significant industries in the country. This is evident from the fact that the textile industry accounts for around 4 per cent of the gross domestic product (GDP), 14 per cent of industrial production and 16 per cent of the country's total export earnings. In fact, it is the largest foreign exchange earning sector in the country. Moreover, it provides employment to over 35 million people. With direct linkages to the rural economy and the agriculture sector, it is estimated that one out of every six households in the country depends on this sector, either directly or indirectly, for its livelihood.

The Indian textile industry is estimated to be around US$ 52 billion and is likely to reach US$ 115 billion by 2012. The domestic market is likely to increase from US$ 34.6 billion to US$ 60 billion by 2012. It is expected that India's share of exports to the world would also increase from the current 4 per cent to around 7 per cent during this period. India's textile exports have shot up from US$ 18.71 billion in 2006-07 to US$ 20.25 billion in 2007-08, registering a growth of over 8 per cent.

1.2(b) (i) The India Advantage:

The textiles and apparels sector is a major contributor to India's economy in terms of foreign exchange earnings and employment. Moreover, certain natural advantages and external factors have fuelled the growth of this industry with a clear competitive edge.

India has overtaken the US to become the world's second largest cotton producing country, after China, according to a study by

International Service for the Acquisition of Agri-biotech Application. BT cotton was a major factor contributing to higher rate of production, from 15.8 million bales in 2001-02 to 31 million bales in 2007-08.

- India is the largest exporter of yarn in the international market and has a share of 25 per cent in world cotton-yarn exports.
- India accounts for 12 per cent of the world's production of textile fibres and yarn.
- In terms of spindle age, the Indian textile industry is ranked second, after China, and accounts for 23 per cent of the world's spindle capacity.
- The country has the highest loom capacity, including handlooms, with a share of 61 per cent in world loom age.
- India is the largest producer of jute in the world.
- It is the second largest producer of silk and the only country to produce all four varieties of silk – mulberry, tusar, eri and muga.
- India is the fifth largest producer of synthetic fibres/yarn.

1.2(b) (ii) INDIAN TEXTILE INDUSTRY: CHANGING PROFILE

The Indian textile industry has embarked on an ambitious programme of modernisation and technological up gradation in recent years to transform the textile sector from a state of low-technology level to a producer of high-technology products. Technological up gradation in India has resulted in -

- A shift from commodity-based trading to high value-added fashion garments.
- Vertical integration and horizontal consolidation of production process leading to lowering of manufacturing costs.
- Improved productivity gains.

- Efficient supply chain management.
- Development of economies of scale.

1.2(b) (iii) Textiles and Apparel Trade

The global textiles and apparel trade is estimated at US$ 450 billion and is expected to touch US$ 700 billion by 2010. Of the US$ 52-billion Indian textile and apparel industry, the domestic industry accounts for US$ 30 billion and the remaining is accounted for by exports. Total exports increased to US$ 20.25 billion in 2007-08 from US$ 14.03 billion in 2004-05. Currently, India has a 3.5-4 per cent share in the world's export of textiles and 3 per cent in clothing exports. As per the latest figures available with the Ministry of Textiles, India exported textiles worth US$ 10.518 billion during the first six months (April-September) of 2008-09, an increase of 7.15 per cent over the corresponding period last year.

Indian textiles, handlooms and handicrafts are exported to more than a 100 countries. As per the latest figures available with the Ministry of Textiles, during the April-September period of 2008-09, the US continued to be the single largest buyer of Indian textiles with a 20.31 per cent share. The US is followed by UAE with 8.27 per cent share, UK with 7.53 per cent, Germany with 6.11 per cent and France with 3.80 per cent. The other countries that make the top 10 include Italy (3.76 per cent), China (2.54 per cent), Spain (2.76 per cent), Bangladesh (2.45 per cent) and Netherlands (2.44 per cent). Readymade garments (RMG) are the largest export segment, accounting for almost 45 per cent of total textile exports and 8.2 per cent of India's total exports. This segment has benefitted significantly with the termination of the Multi-Fibre Arrangement (MFA) in January 2005. RMG exports from India were worth US$ 8.87 billion in 2007-08.

During April-May 2008-09 RMG exports were worth US$ 1.567 billion, an increase of 11.56 per cent over the corresponding period of 2007-08.

Another segment in which India has excelled in the export market is carpets. Exports of carpets have increased from US$ 654.32 million in 2004-05 to US$ 919.70 million in 2007-08. During April-May 2008-09 carpet exports (including silk carpets) stood at US$ 152.92 million, an increase of nearly 25 per cent over the corresponding period last year. Exports of cotton textiles have increased by nearly 42 per cent to US$ 1.075 billion in April-May 2008-09, up from US$ 756.16 million in the corresponding period of the previous fiscal. Moreover, export of manmade textiles has increased by almost 47 per cent to US$ 604 million in April-May 2008-09 from US$ 410 million in the corresponding period last fiscal. During April-May 2008-09, exports of silk increased by 16.65 per cent to US$ 117.35 million, export of wool increased by 28.67 per cent to US$ 75 million and exports of jute increased by 35.31 per cent to US$ 55.44 million. Significantly, apparel is the second largest retail category in India. It accounts for about 10 per cent of the US$ 37 billion Indian retail market, and with the continuing boom in consumer demand, is estimated to grow at the rate of 12-15 per cent annually. In fact, reflecting the huge opportunity in this segment, AT Kearney's 'Retail Apparel Index' ranks India as the third most attractive market for apparel retailers.

1.2(b) (IV) INVESTMENTS IN THE TEXTILE SECTOR:-

India's liberalized policies and the government's decision to allow 100 per cent FDI in the emerging textiles industry has led to an increase in the investment inflows into the sector. The domestic textiles and apparels market in India is witnessing strong growth owing to a

young population, an increase in disposable incomes and a rapid growth in organized retail, which has fuelled the growth of the textiles market.

Consequently, the domestic market is estimated to grow to over US$ 50 billion by 2014. Significantly, the textile sector is estimated to offer an incremental revenue potential of no less than US$ 50 billion by 2014 and over US$ 125 billion by 2020. No wonder this industry has been attracting huge investments. As per the Ministry of Textiles, during the three years - 2004-05 to 2006-07 - investments in the textile sector have increased from US$ 2.94 billion to US$ 7.85 billion. The total investments in the textiles sector were estimated to be US$ 16.32 billion during this period.

The government has also increased the plan allocation for textiles by 66.27 per cent in 2007-08 over that of 2006-07, making it one of the only two ministries that have seen such a high level of increase in budgetary support.

1.2(b) (v) TEXTILE AND APPAREL SOURCING:-

India is fast establishing itself as a global textile and apparel-sourcing hub with its abundant multi-fibre raw material base, well established production bases, design capability and skilled labour force. According to the Confederation of Indian Industry–Ernst & Young Textiles and Apparel Report 2007, the Indian sourcing market is estimated to grow at an annual average rate of 12 per cent from an expected market size of US$ 22 billion-25 billion in 2008 to US$ 35 billion-37 billion by 2011. Simultaneously, world's cutting edge fashion brands such as Hugo Boss, Diesel and Liz Claiborne are stepping up their sourcing from India.

Hugo Boss has unveiled a sourcing deal with Hyderabad-based Pokarna Group, makers of Stanza brand, in a move to boost India's stature as a value-added player among apparel-sourcing markets globally. Industry sources believe that the Hugo Boss contract, to begin with, may involve shipments of over 300,000 shirts annually. There are more international brands queuing up to source from India, through vendors or wholly-owned units. German kids wear brand Kanz, Ireland's biggest linen manufacturer Baird McNutt and Finnish textile major Ahlstrom are buying into the India garment story. Even consumer spending on apparel in India has grown over the last five years, touching the global benchmark of 5 per cent of the total income, according to consultancy firm McKinsey.

Khadi—the widely-revered handspun and hand-woven cloth—has held a special place in the Indian textile industry right from pre-independence days when Mahatma Gandhi made it popular. However, in recent years the popularity of Khadi had waned. Now the Asian Development Bank (ADB) has offered to lend US$150 million to India to help revive the popularity of Khadi. The revival of Khadi industry is expected to bolster employment opportunities in India, particularly in the rural areas where 73 per cent of the country's poor live. India's Eleventh Five Year Plan notes Khadi production has huge employment prospects, particularly for women and minorities. A US$ 2 million grant will be provided by the Japan Special Fund through ADB to support the implementation and monitor the progress of the Khadi industry reform package funded by the ADB loan.

1.2(b) (vi) TECHNICAL TEXTILES:-

Technical or functional textiles are those textiles that have some functional properties attached to it and are different from

traditional textiles that are merely used for adoration. Even as the government has set off measures to mitigate the problems of exporters and the industry, technical textiles have become an 'emerging industry' with the Indian market size of technical textiles likely to jump to US$ 12.46 billion by 2010. Keeping this in mind, the government has designed Centres of Excellence for agrotech, buildtech, meditech and geotech group of technical textiles at an outlay US$ 8.97 million. The government will shortly launch a US$ 122.42 million Technology Mission on Technical Textiles and also create a Development Council for Technical Textiles.

Besides, in order to promote technical textiles further, the Federation of Indian Chambers of Commerce and Industry (FICCI) has called for stronger industry-defence partnership and exchanges to develop a sufficiently large domestic manufacturing base and promote innovation in various segments of technical textiles.It is known as the pearl of Indian textiles with its cool appearance and soft, light feel. It is a natural fiber of vegetable origin, like linen, jute or hemp. The art of weaving and dyeing of cotton had been known in India since 5000 years and has found mention in the epics. It was an export even during very early times. The export of cotton textiles have been steadily increasing over the years. There are 23 different varieties of cottons found in India and thousands of cotton weaving centers. Cotton is used in producing a wide range of items like saris, salwars, bed sheets, covers, napkins, shirts, summer wear, tablemats etc. The traditional Indian cotton weaving revolves around 'Khadi'. Khadi is a cloth woven by hand using handspun yarn only. Fine cotton fabrics are also referred as Muslin. 'Mulmul khas', the royal muslin is the fabled and most famous cotton weave. Cotton fabrics are more popular among the

people of India. The brilliance of cotton is visible in a variety of weaves in their traditional weaving patterns in the different states of India.

Among elaborate styles in cotton, 'jamdani' of West Bengal - the light weight cottons in delicate and subtle patterns is one of the best known traditional cotton fabric. Jamdani (inlay) technique was also developed at Tanda in Uttar Pradesh. This technique of patterning is found in most cotton producing centers like Venkatagiri in Andhra Pradesh, Morangfi in Manipur and Kodialkaruppar in Tamil Nadu. West Bengal is also famous for their Tangail cottons and Daccai sarees woven by weavers who migrated from Bangladesh.

Andhra Pradesh is also known for Ponduru Khadi, which is obtained from wild variety of cotton and Upadha Jamdhani sarees. It is used in shirting and furnishings. Madhya Pradesh is famous for its delicate weaves in Paithani Technique such as Chanderi cotton and Maheshwari sarees. Rajasthan is known for Kota doria sarees which is woven in a small district named Kota. Chickan work in cotton sarees is a traditional embroidery style from Lucknow. Also popular are the cotton check lengths of Mamallapuram, used as 'lungis' or sarongs by men. Kerala has special Karalkkudi sarees of unbleached cotton with rich broad gold borders and pallus. The tribal regions of Madhya Pradesh are also known for their cotton saris or Gamchhas. These saris come in a variety of colours and traditional motifs inspired by nature.

1.3(a) ABOUT THE COMPANY:

1.3(a) COMPANY HISTORY:-

1.3(a) (i) SOLO International:

Solo International has been at the forefront of catering to the ready-made garment requirements of the people. The world of fashion undergoes rapid changes. People with different tastes seek out fits that suit their taste and style. Solo, in a short span of time, has won the hearts of many by providing world class ready-made garments at affordable prices. Solo offers comprehensive range that includes T-shirts, Vests, Briefs, Panties, Nightees, Sportswear and colourful ready-mades for kids. The clothing designed are very much eco-friendly and hence skin friendly to the wearer.

Solo products are processed and finished with state-of-the-art machines imported from the leaders in the respective fields. Solo products are accredited with world famous Oeko-Tex Standard-100 of the Swiss Textile Institute, Zurich. In view of the superior practices and standards followed by Solo, its end products to the consumer are of international quality and are well accepted all over the country and abroad. Solo International has showrooms in Chennai, Coimbatore, Salem and Tirupur. Apart from the show rooms, the company also promotes its product to special sales counters, periodic exhibitions and distribution network throughout India.

Comfort, Style, Attitude is the fashion statement of Solo which according to Mr. Jayabal, the Managing Director of Solo International, would be the Fashion mantra in the new millennium too. In one of the major statement release by the company, the Managing Director asserts that the Solo Product would continue to deliver quality and

value for money and also remain in the hearts of the customers as their trusted brand.

1.3(a) (ii) Solo exports:

SOLO, as the name suggests, stands distinctively ALONE in a crowd of mushrooming knitted garment manufacturers in Tirupur, which is the KNIT-CITY of India. SOLO stands alone in terms of its superior international quality, timely delivery. SOLO supplies quality garments to the leading Global retail chains, meeting stringent international norms on environment required by the international consumers.

SOLO meets with stringent pollution control norms and its products are Azo free and eco- friendly. SOLO keeps up with the OEKO TEX STANDARD 100 of the Swiss Textile Testing Institute of Zurich. SOLO has rich experience of about 25 years in Hosiery field. SOLO was established by Mr.S.Jayabal in the year 1975, when the Hosiery Industry in Tirupur was in its infancy. Today, Tirupur City has become the Knit City of India contributing Lion's share in the export of Hosiery products from India. Keeping in pace with the growth of Tirupur, Solo has also grown leaps and bounds over the years and has become one of the leading players in the Hosiery field in Tirupur.

1.3(a) (iii) FINISHING:

Solo has a separate division - Solo Fashions which undertakes the following work.

1. Embroidery work: This is done in our latest 9color, 20 head Barudan Machine imported from Japan.

2. Shearing work: This is done in the latest machinery from Taiwan for producing international quality winter garments.

3. Compacting – Our Tube-tex compacting machine has a capacity of 4000 kgs/day with this machine we are able to control shrinkage up to 3%.

Solo's various factories are located in areas where raw materials, skilled and technical labour are available for the respective factories.

1.3(a) (iv) Brushing:

Our Chien-lun brushing machine helps us in producing international quality winter garments. The overall capacity of the brushing machine is about 2200 Kgs/day.

1.3(a) (v) Production:

With the imported sewing machines and existing facilities the company would be able to export over 200,000 pieces/month. The Quality of garments produced by the company would meet all international standards. The company has over 200 power table machines and about 250 singer machines for the production process. In a view to keep the quality consistent the company has employed their own laborers in all of their factories. This is a unique feature with the company which will not be the case with others. SOLO not only fulfilled the social objective of abolition of child labour, its management has actively been engaged in setting up a school/hospital for providing education/health to orphan children. The school and the hospital are role models in Tirupur and have set an example to others.

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1.3(b) SERVICES OFFERED:

1.3(b) (i) Mercerizing:-

The mercerizing process is essential for high quality pre-treatment. Consumption of dye stuff can be reduced by 30%, levelness in dyeing is improved and a higher brilliance is achieved. The luster is enhanced, strength and dimension stability increased. Furthermore, the handle of the fabric improves. Mercerizing can be carried out at various stages during pre-treatment, i.e., after desizing, scouring or after bleaching. Each of these process sequences has its own merits. The chainless mercerizer is the most universal reliable and economic option. Brugman has supplied these machines world-wide. The Brugman mercerizing unit has the following characteristics:

- Guaranteed uniform application of chemicals
- Reproducibility under all conditions
- Thorough penetration of chemicals
- Integrated cleaning system
- Correct fabric temperature achieved before dwelling
- Maximum energy utilization
- Tension controlled fabric transport
- Excellent fabric widening and centering
- Excellent fabric dimension stability
- Easy operation
- Minimal maintenance

1.3(b) (ii) Washing:-

The demands of the market are continuously changing. Brugman is anticipating on this with various innovations. A good example is the development of the revolutionary open width washing

machine Brubo-Matic. A machine that provides excellent washing results on the full spectrum of woven fabrics. This machine is also beneficial for plant economies: the Brubo-Matic is efficient, reduces costs and is user friendly; all due to the reproducible programs. Even under the highest production pressures the machine runs extremely smoothly without any difficulty. For applications requiring a relaxation section, the Brubo-Dwell execution has been developed. The Brugman Brubo-Matic has the following characteristics:

- Excellent washing efficiency
- Extremely sturdy construction
- Quiet running
- Low energy consumption
- Ease of operation
- Maximum contribution to environmental issues
- Fully automated
- Virtually maintenance free
- Fast and simple installation

1.3(b) (iii) Bleaching:-

Stringent requirements are imposed on pre-treatment machinery with respect to uniform bleaching results and reproducibility. The market demands flexibility in coping with smaller batches and high standards for whiteness, absorbency and residual strength must be met. Ever since the introduction of the world's first combi-steamer in 1978, Brugman had improved and set standards in reliable bleaching equipment. With its modular concept Brugman offers a wide range of semi-continuous or continuous bleaching ranges. The bleaching program comprises the Brubo-Sat bleach concept with a chemical applicator, dosing system and steamer as well as the Brubo-Matic

washing system. With these modules Brugman builds ranges that fulfill the demands of any customer. A Brugman continuous bleaching range has the following characteristics:

- Uniform impregnation
- Reproducible process conditions
- Flexibility in fabric widths
- Low initial investment
- Low water and energy consumption
- Robust construction
- Easy operation
- Minimal maintenance

1.3(b) (iv) Dyeing:-

In the current market the number of meters per shade is continuously decreasing and there is an ongoing demand for reproducible quality. Dyeing quality depends on numerous factors in the total treatment process. In this field Brugman is known for its pre-developments and excellent results over many years. For dyeing, Brugman produces pad-batch and pad-steam ranges that guarantee the required reproducibility. Moreover, the Brugman ranges offer flexibility to perform various dyeing processes, each with their specific demands. With its modular concept Brugman offers a wide range of choices for continuous pad-steam dyeing ranges. Our pad-steam dyeing program consists of padders, boosters, steamers, air passages as well as various washers. With these modules Brugman constructs ranges that fulfill any customer's demand. The Brugman dyeing range has the following characteristics:

- Guaranteed. uniform padding

- Optimum fixation
- Accurate process control
- Modular set-up
- Efficient washing
- Extremely sturdy construction
- Ease of operation

1.3(b) (v) Drying:-

Drying is the logical end to wet finishing processes. Therefore, the equipment for drying is a part of the Brugman manufacturing program. Compared to other drying methods cylinder drying is cost effective and suitable for most fabrics. It is easy to synchronize and takes only a limited amount of space. Moreover, modern drying techniques guarantee a sufficient drying capacity without compromising on fabric tension. Logically therefore Brugman continuous wet finishing ranges can be equipped with a cylinder dryer. The capacity of the machine can be increased and the energy consumption reduced by enclosing the dryer. Active air circulation and energy recovery systems are available to boost the efficiency of the dryer further. Brugman Cylinder Dryers have the following characteristics:

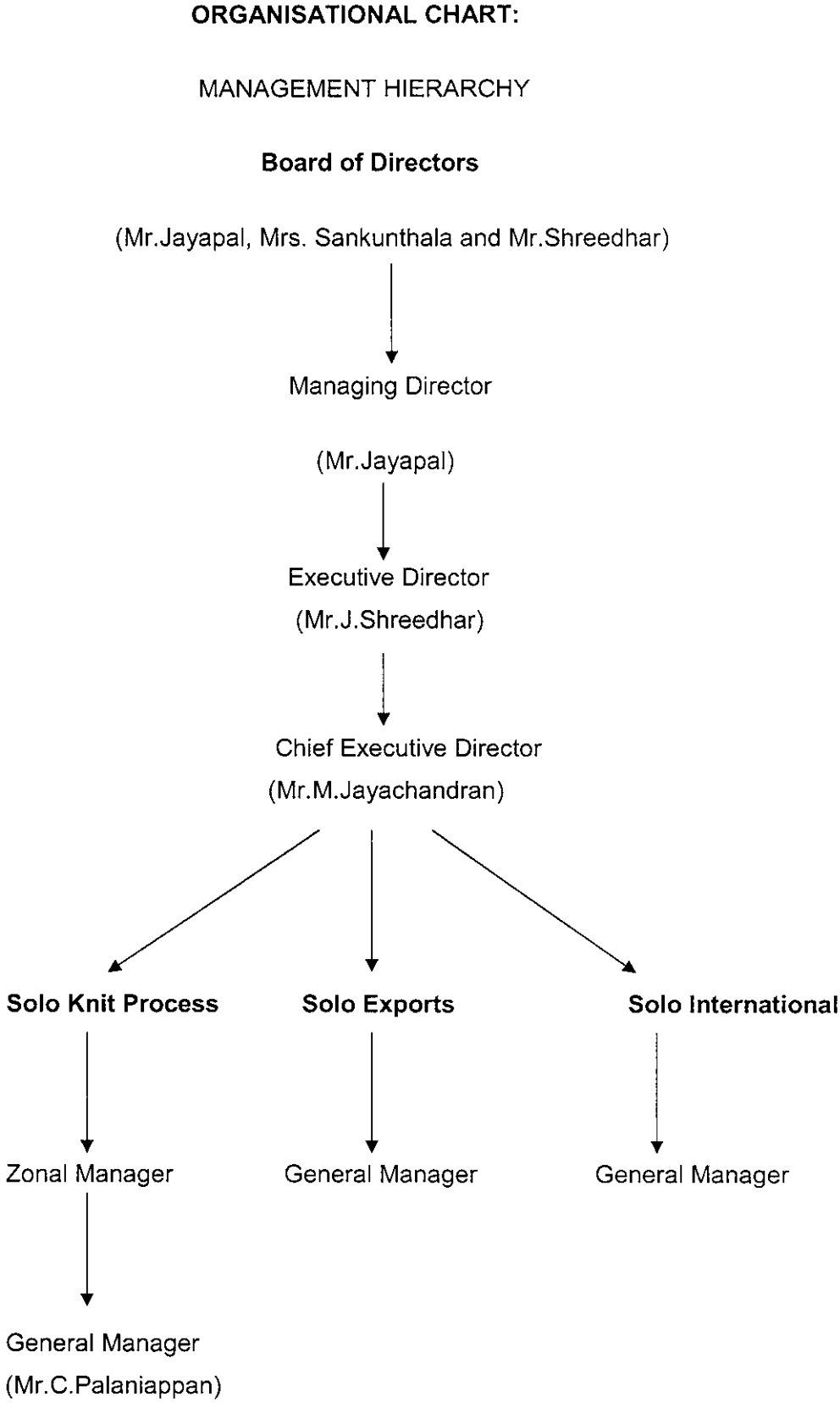
- Excellent fabric running resulting from cylinders with accurate concentricity
- Constant fabric tension due to AC drives on individual cylinders
- Minimum heating time because of large capacity steam supply pipes, rotary joints and special steam traps with large vents
- Minimum maintenance, rugged construction

1.3(b) (vi) Pollution control measures:-

In order to meet the stringent international eco-norms, SOLO's Process House has invested heavily on Pollution Control Equipment with most modern technology available in the country. The Process House has been one of the first and very few, who have received the clearance from the State Government's Pollution Control Board, in view of its strict adherence to the norms stipulated by the Government. At present, the treatment of effluents undergoes various processes such as screening, equalization, color removal and pH reduction, settlements in Primary tank, aeration, secondary settlement, sand filtering , activated carbon filtering, etc., and finally , the treated water is let into our irrigation land, where teak trees are grown primarily.

In view of SOLO's adherence to pollution control norms, its Process House is receiving lot of enquiries from leading exporters from Tirupur with a request to undertake their processing work. In order to meet the increased demand as well as to meet its own expanding requirements, SOLO has envisaged further investment for improving the pollution control systems, particularly in the area of removing salt in the water effluents. For this purpose, SOLO is in the process of identifying suitable foreign companies of global reputation, mainly from the USA for technical assistance. With this in view, Mr.Jayabal had recently visited USA as one of the very few delegates from Tirupur under aegis of US-AEP (United States – Asia Environmental Partnership Program). The suitable collaborator has been identified and SOLO will complete the modernization of the pollution treatment in another 6 months time. Once this is completed, SOLO would become a leader in the area of modernizing pollution control plant as well.

ORGANISATIONAL CHART:



MAIN THEME OF THE PROJECT

CHAPTER 2

MAIN THEME OF THE PROJECT

The existing costing model is not dynamic, activity based and up to date to address the decision making problems related to pricing amidst heavy competition. Hence, drafting an activity based costing model is needed to resolve the situation.

2.1 OBJECTIVES OF THE PROJECT:

2.1(a) Primary Objective:

- To study and create the activity based costing model for making decisions on pricing.

2.1(b) Secondary Objective:

- It helps to identify efficient and inefficient product, department and activity.
- It helps to allocate more resources on profitable product, department and activity.
- It helps to control the cost at individual level and on departmental level.

2.2(a) SCOPE OF THE STUDY:

This study covers the various process involved in the company and individual activities proceeded in each process. This also provides information about the cost involved in each activity which helps to identify the efficient and effective process prevailing.

2.2(b) Limitations:

- The study was conducted for a limited period only.

- As the operations of the company are vast it was not possible to completely cover all the areas and approximation was made where ever required.

2.3 METHODOLOGY:

2.3(a)Types of the Study:

There are three types of research design, they are

- Exploratory research
- Descriptive
- Analytical research design

The study comes under the analytical research design. In analytical research paper, the researcher will do research to become an expert on a topic so that the researcher can restructure and present the parts of the topic from his or her own prospective.

2.3(b) Method of Data Collection:

The data for the study was collected through two methods, they are as follows;

- Primary data:

  The primary data was collected by conducting unstructured interviews with the employees, labors and buyers and also by receiving the financial statements maintained in the firm. This proved to be the first hand information from the organization.

- Secondary Data:

  The secondary data was collected from the internet using the company website, www.solo knit.com.

2.3(c) Tools for Analysis:-

- Customized costing model developed using Microsoft Excel

2.4 REVIEW OF LITERATURE:-

According to William D.J. Cotton .et.al[1] " This study provides an insight into ABC in NZ, data on trends in ABC experiences between two countries of widely differing size and geographic location, and suggestions for further research Activity-based-costing (ABC) is a well-known technique for costing products and providing management information. of the two surveys. Adoption rates were found to be similar, with NZ companies showing slightly lower rates of implementation of ABC than UK companies. However, once they had implemented the method, NZ companies demonstrated greater commitment to ABC across more areas of the firm than UK companies. ABC systems in NZ tended to display less complexity than their UK counterparts. Strong correlations were found in the different uses of ABC by industry sector, but there were contrasting perceptions on the success and importance of some ABC applications".

Trond Bjornenak.et.al[2] deals with "an analysis of the Activity-based-costing literature which has been accumulated in the UK and USA accounting journals over the fourteen year period since the first articles on ABC emerged. This evidence is used both longitudinally and cross sectionally to gain insights into how ABC started, how it has been communicated, how it has been researched, how it is constituted, how it has generated attention and how it has developed and changed. From the analysis conclusions are drawn on these issues and on the role of academic research when confronted by a new practical innovation of this type"

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[1] *William D.J. Cotton , et.al"Note on a New Zealand Replication of the Innes et al UK Activity Based Costing Survey" Management Accounting Research, Vol. 14, No. 1, March 2003.*

[2] *Trond Bjornenak "The Development of Activity Based Costing Journal Literature 1987-2000" European Accounting Review, Vol. 11, No. 3, 2002.*

Michael Bromwich et. al[3] in their article "derives in a comprehensive but informal way the essential conditions for activity based costing (ABC) and for costs proportional with output volume (CVO), such as variable material and component costs, to measure economic costs defined as incremental costs. Without this property these costing systems may give incorrect signals in decision making, such as in pricing, in altering the product portfolio, in make or buy and outsourcing decisions and in cost management. In contrast to the existing literature, these conditions are found to be extensive and to require a fairly detailed exploration of the complex and multifaceted nature of technology. Essential conditions on the input market and the costing system are also considered. It will be indicated that a perfect market for inputs is required and that cost drivers are required to be linear homogeneous in the inputs in their cost pools. It is also shown that the type of cost function that can be entertained is restricted by those permissible technologies which allow incremental costs to be generated. These assumptions are thus imported into all the uses of these methods. Failure to satisfy these conditions suggests that many costs cannot be easily treated using ABC or CVO. Such failure also leads to distorting accounting numbers away from economic costs".6

Narcyz Roztocki et.al[4] in thier paper proposes "a framework for evaluating information technology investments, integrating value chain analysis with activity based costing and fuzzy logic. The proposed method should be particularly useful for businesses in emerging economies, where an uncertain economic environment is often combined with a lack of dependable, historical accounting data. The framework is illustrated by means of a hypothetical manufacturing company and a triangular fuzzy set membership function".

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[3] *Michael Bromwich "Activity Based Costing" Systems and Incremental Costs" Management Accounting Research, Vol 10, No 1, March 1999*

[4] *Narcyz Roztocki "Evaluating Information Technology Investments: A Fuzzy Activity Based Costing Approach, Journal of Information Science and Technology, Vol. 2 No. 4, pp. 30-43, 2005*

Lino Cinquini[4] *et.al.*.in their paper addresses an important but neglected issue - the nature of and evidence for success in management accounting. The case of activity based costing/management (ABC/M) is used to explore how researchers have gathered evidence of this technique's success. A variety of approaches have been adopted and all have shortcomings. The problems of obtaining reliable evidence of success suggest that a profile of evidence is likely to be the most appropriate basis on which to make success judgments about management accounting.

Douglas Cagwin et.al[5] This study investigates the improvement in financial performance that is associated with the use of Activity based costing (ABC), and the conditions under which such improvement is achieved. Internal auditors furnish information regarding company financial performance, extent of ABC usage, and enabling conditions that have been identified in the literature as affecting ABC efficacy. Confirmatory factor analysis and structural equation modeling are used to investigate the relationship between ABC and financial performance. Results show that there indeed is a positive association between ABC and improvement in ROI when ABC is used concurrently with other strategic initiatives, when implemented in complex and diverse firms, when used in environments where costs are relatively important, and when there are limited numbers of intra-company transactions. In addition, measures of success of ABC used in prior research appear to be predictors of improvement in financial performance.

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[4]*Lino Cinquini and Falconer Mitchell "Success in Management Accounting: Lessons from the Activity-Based Costing/Management Experience" Journal of Accounting & Organizational Change, Vol. 1, No. 1, pp. 63-77, 2005*

[5]*Douglas Cagwin and Marinus J. Bouwman "The Association Between Activity Based Costing and Improvement in Financial Performance" Management Accounting Research, Vol. 13, No. 1, March 2002 .*

Kim, Jipyo[6] in their research paper explains about enterprise resource planning (ERP) which has been widely adopted since its first appearance in the early 1990s, there is a lack of research regarding ERP investment justification and performance evaluation. In this paper, based on an activity-based costing (ABC) analysis, we propose a framework to quantify the cost savings that the implementation of an ERP system should achieve in order to make the investment justifiable. Exploiting the ability of ABC to trace costs to activities and products, ERP resource costs and activities are identified and the cost structure of products is analysed. It is also shown that the ABC approach can enhance the visibility of business processes with various activities and cost drivers and provide information about actions to be taken to raise profits by cost savings or increased revenues. Finally, a numerical example is used to demonstrate how an ERP system is utilized on activities and how it affects the cost of products. An extensive analysis follows to address how the results can be used to direct process improvement toward corporate goals

White, Larry [7]in their article presents resource consumption accounting (RCA), a management accounting methodology that focuses on the manager—not the external financial statement—as the primary user of its information. Based largely on German management accounting methods in use for at least 60 years, it incorporates the best insights of activity-based costing (ABC), the theory of constraints (TOC), and traditional management accounting thinking.

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[6]*Kim, Jipyo*[1] *"Activity-based framework for cost savings through the implementation of an ERP system" International Journal of Production Research; Vol. 47 Issue 7, p1913-1929, 17p Apr2009*

[7]*White, Larry*[1] *"Resource consumption accounting: Manager-focused management accounting" Journal of Corporate Accounting & Finance (Wiley);Vol. 20 Issue 4, p63-77, 15p, 8 diagrams May/Jun2009*

Bushong, J et. al[8] Cornell and David W.[3] explains that In recent years, accounting educators have responded to pressure from various stakeholders to improve the skills of accounting graduates. The skills demanded by these constituencies are consistent and include analytical thinking, problem-solving, and communication skills. The purpose of this paper is to describe our approach to addressing these issues in our undergraduate cost/managerial accounting classes by supplementing textbooks with an activity-based costing (ABC) case. The case is unstructured and students are required to prepare both first and second stage allocations, interpret the information, and suggest how management can use the information. An unstructured problem is an ideal setting for activity-based costing because of the difficulties in its implementation. In particular, this case illustrates one of the difficulties encountered in implementing ABC, which occurs when companies collect costs in the general ledger in the traditional functional manner instead of by major production activity.

According to Manoj Anand[9] "Difficult time has its own merits. This is as much true for an individual as much it is for an organization. During this time the entire organization gets an opportunity to display its resilience through its innovative skills and creative abilities which otherwise would decay in dark anonymity in the brightness of prosperity. CIL has passed through the 'survival phase', 'chasing capacity and chasing growth phase', and 'cost effectiveness phases' during the last one and a half decade. Further, British Petroleum (BP) acquired 71% equity stake in CIL in March 2000. The cost management systems of CIL have undergone a sea change during this period".

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[8]Bushong, J. Gregory[1]Talbott, John C. and Cornell, David W "Instructional Case—Activity-based Costing Incorporating both Activity and Product Costing" Accounting Education; Vol. 17 Issue 4, p385-403, 19p Dec2008

[9]Manoj Anand "Activity Based Costing at Castrol India Limited" Management And Labour Studies, Vol. 29, No. 3, pp. 225-237, August 2004.

According to Richard E. Brown et..al[10] "Activity-Based Costing(ABC) is at the center of the larger management perspective known as Activity Based management, or ABM. Despite its popularity in the literature, relatively little is still known about the details of ABC, especially in government circles. There are many unanswered questions relating to the details of how to go about implementing ABC, its possible uses, and its costs and benefits. Indeed, it is still unclear to many whether it is even appropriate to use ABC in government, given the reality that many governmental programs do not sell their services. This article attempts to address these concerns by presenting the conceptual underpinnings and details of ABC, contrasting the system with more traditional cost accounting systems, discussing the fit of ABC in government, and considering in some detail how one small city might benefit from implementing ABC".

David Andrew Brown et.al..[11] *in their* "present paper examines one set of potential reasons for the paradox as to why so few firms have adopted Activity-Based Costing (ABC) despite the demonstrated benefits of this costing system. A cross-sectional survey of Australian firms is used to examine the influence of seven technological and organizational factors on firms' initial interest in ABC and their decision to adopt it or not. The organizational factors of top management support, the support of an internal champion, and organizational size were shown to be associated with initial interest in ABC. The decision to adopt or reject ABC had one organizational factor associated with it, the support of an internal champion

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[10] *Richard E. Brown , Mark Myring* and *Cadillac G. Gard* "Activity Based Costing *in Government: Possibilities and Pitfalls"* Public Budgeting & Finance, Vol. 19, pp. 3-21, June

[11] *David Andrew Brown , Peter Booth* and *Francesco Giacobbe* "*Technological and Organizational Influences on the Adoption of Activity Based Costing in Australia"* Accounting and Finance, Vol. 44, pp. 329-356, November 2004

According to Daniel R. Mullins et..al[12] "Activity Based costing (ABC) has been embraced by the public sector as an analytical tool that can be used to improve the efficiency of government operations, especially in the area of the privatization of operations. Despite claims that ABC can greatly enhance the evaluation of how to most efficiently deliver services; there are significant obstacles that must be overcome before ABC can be effectively implemented. In order to underscore the challenges facing successful ABC execution in the public sector, the use of Activity based cost accounting by the City of Indianapolis for its privatization initiatives is discussed. Generally ABC is not up to challenge of providing local governments with tool necessary to comprehensively evaluate direct services and determine which are candidates for contracting out or privatization".

According to John Innes Falconer et..al..[13] in their "paper reviews the results of two UK surveys of Activity based costing (ABC) in the UK's largest companies. These provide an opportunity to assess the changes which have occurred in the ABC adoption status of companies over a recent five year period. For the ABC users, some comparative information is provided on the nature of the ABC systems in use, their designers, the uses to which they have been put and the levels of success and importance which participants attribute to them. For the non-users the reasons for their lack of commitment to ABC are explored".

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[12] *Daniel R. Mullins and C. Kurt Zorn "Is Activity-Based Costing up to the Challenge when it comes to Privatization of Local Government Services?" Public Budgeting & Finance, Vol. 19, pp. 37-58, June 1999*

[13] *John Innes , Falconer Mitchell and Donald Sinclair " Activity Based Costing in the UK's Largest Companies: Comparison of 1994 and 1999 Survey Results" As published in Management Accounting Research, Vol 11, No 3, September 2000*

According to David Harriy et..al..[14] " Activity based Costing (ABC) is generally viewed as a costing system that provides valuable managerial insights. Notwithstanding these insights, students often experience difficulties and frustration learning its methods, strengths and fundamental concepts. This paper reports on the students' use of a profits-driven business simulation as an alternative, active learning tool to learn and utilize ABC-derived information effectively, and make better ABC-supported business decisions, even without preliminary ABC training. The simulation, an interactive, computerized business game, uses active and discovery learning techniques to provide students practical and lasting insights into ABC's methods and strengths. Playing the game, allows students to follow their own instincts in unraveling ABC's mysteries. Incorporating active, discovery- based learning experiences in the classroom, especially activities involving technology, improves student understanding and retention of all overhead costing methods, and is consistent with recent observations by the accounting profession".

According to Peter C[15]*. Brewer* "This research uses Geert Hofstede's taxonomy of work-related cultural values to examine the relationship between national culture and Activity Based Costiing (ABC) systems. Hofstede's work is used to formulate six predictions about how international cultural diversity could affect an ABC implementation. Two of these six predictions are then applied to the case of Harris Semiconductor (HS), which has implemented an ABC system at plants located in Malaysia and the United States. The findings indicate that HS's "top-down" implementation approach coupled with ABC's inherent emphasis on cross-functional team-based work arrangements may have contributed to a higher level of ABC success at HS's plant in Malaysia relative to its U.S. plants"

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[14]*David Harrison , J. Gregory Jenkins and Michael Ritchie "Employing Active Learning in the Discovery of Activity Based Costing "The Icfai University Journal of Accounting Research, Vol. 7, No. 3, pp. 7-26, July 2008*

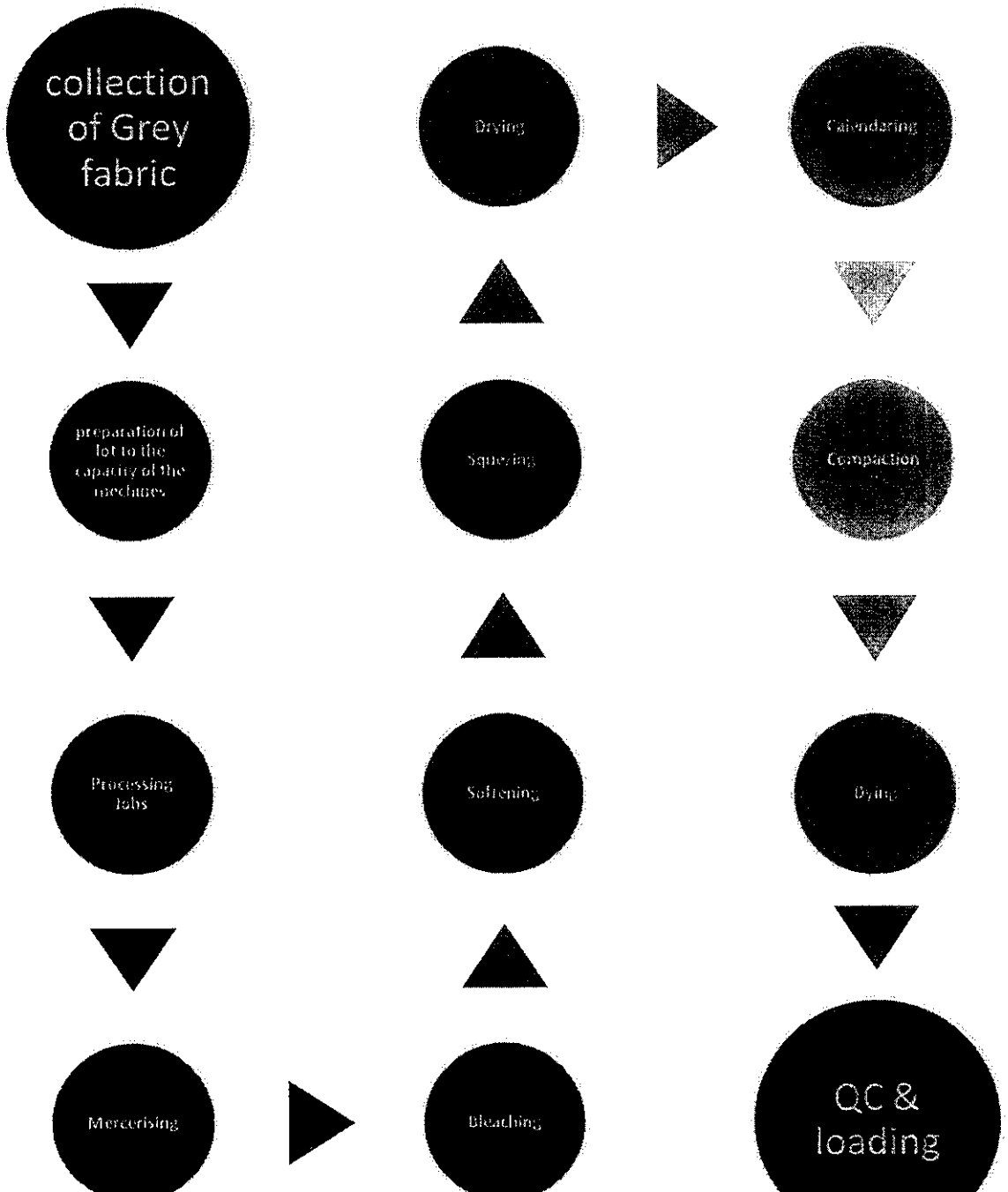
[15]*Peter C. Brewer "National Culture and Activity-Based Costing System: A Note" Management Accounting Research, Vol 9, No 23, June 1998*

DATA ANALYSIS & INTERPRETATION

Chapter -3

Data Analysis and Interpretation

Cost flow system:

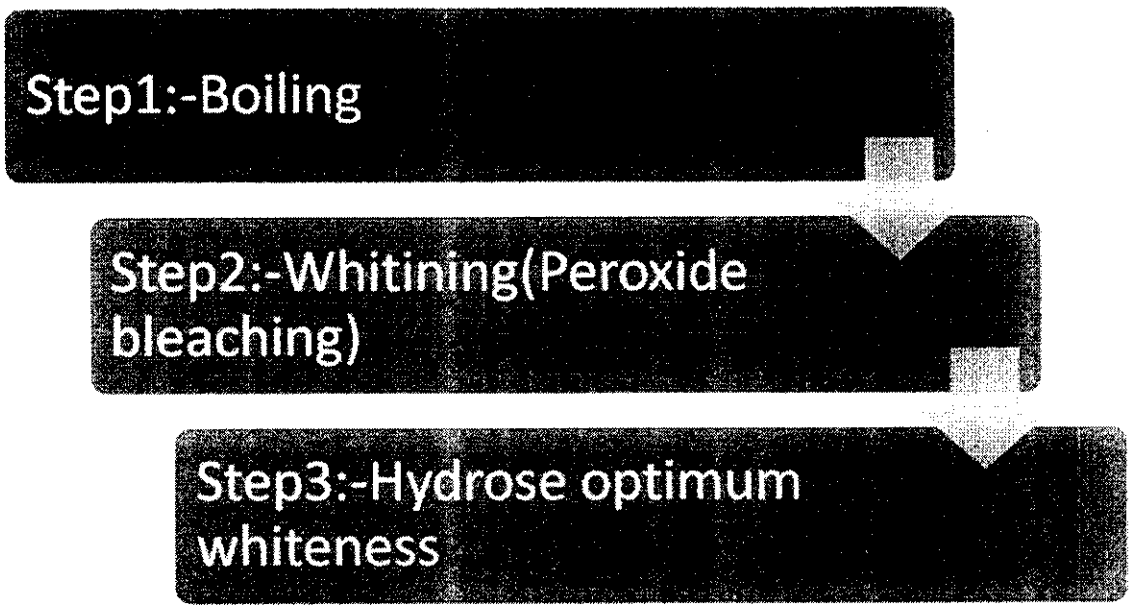


Grey fabric- Uncolored but knitted

Mercerizing -Straightening the cotton fiber of the yarn to control shrinkage with mercerizing costic soda lye & wetting agent.

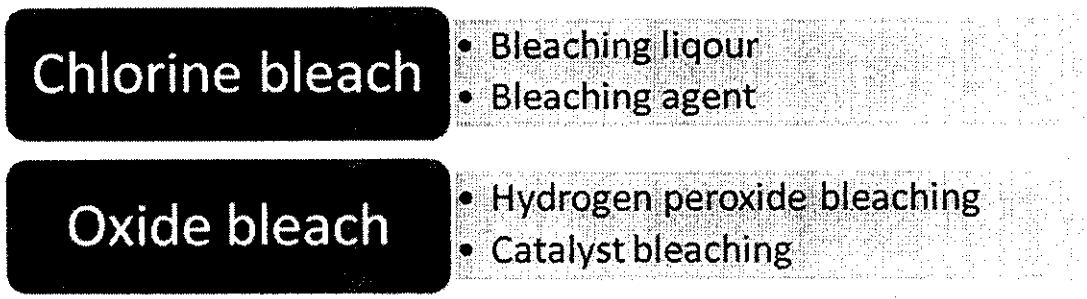
Bleaching:-

To remove the foreign particles and wax materials



Types of Bleaching:-

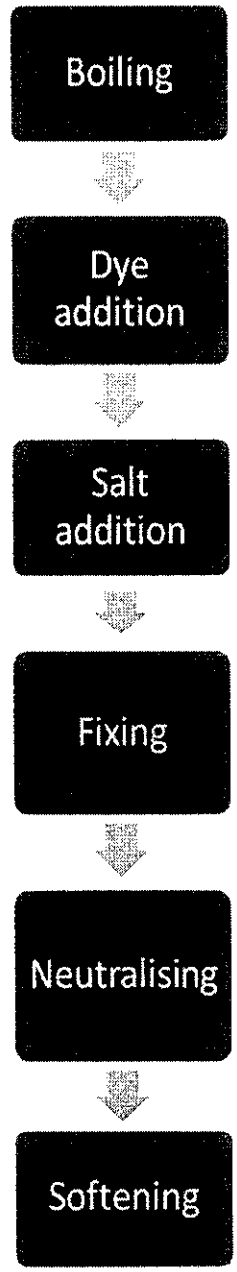
There are two types of bleaching process. They are as follows;



Dyeing:-

Salts acts as an electrol and add color to the fibers

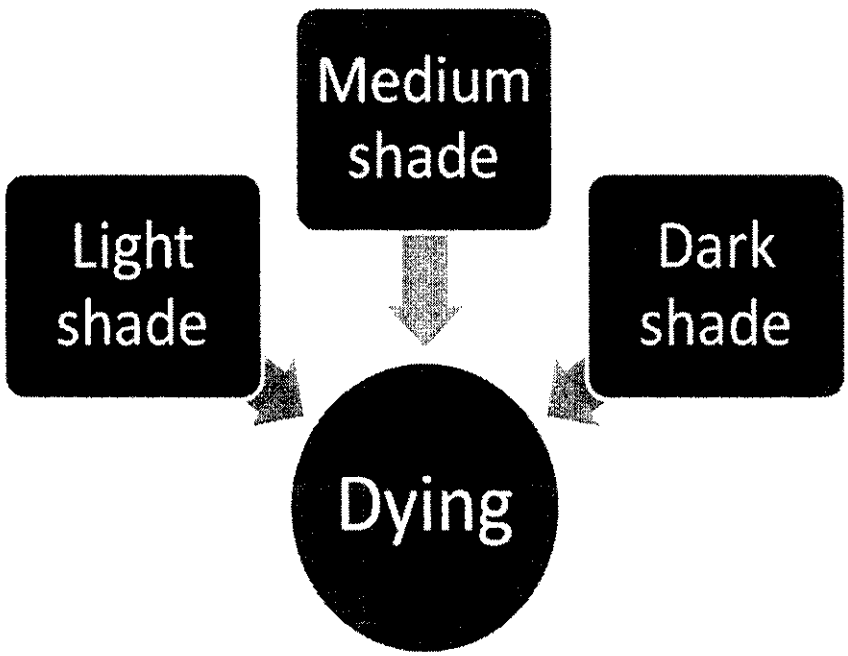
Process:-


Boiling
Dye addition
Salt addition
Fixing
Neutralising
Softening

Classification of Dyes:-

High Temprature	Medium Temprature	Low Temprature
• High Exuhast • 85°C	• Medium Exuhast • 60	• Cold Brand • 50

Classification of Dyeing:-



Light shade:-

Dyes used up to 1% called light shade.

Medium shade:-

Dyes used between the ranges of 1-2% called medium shade.

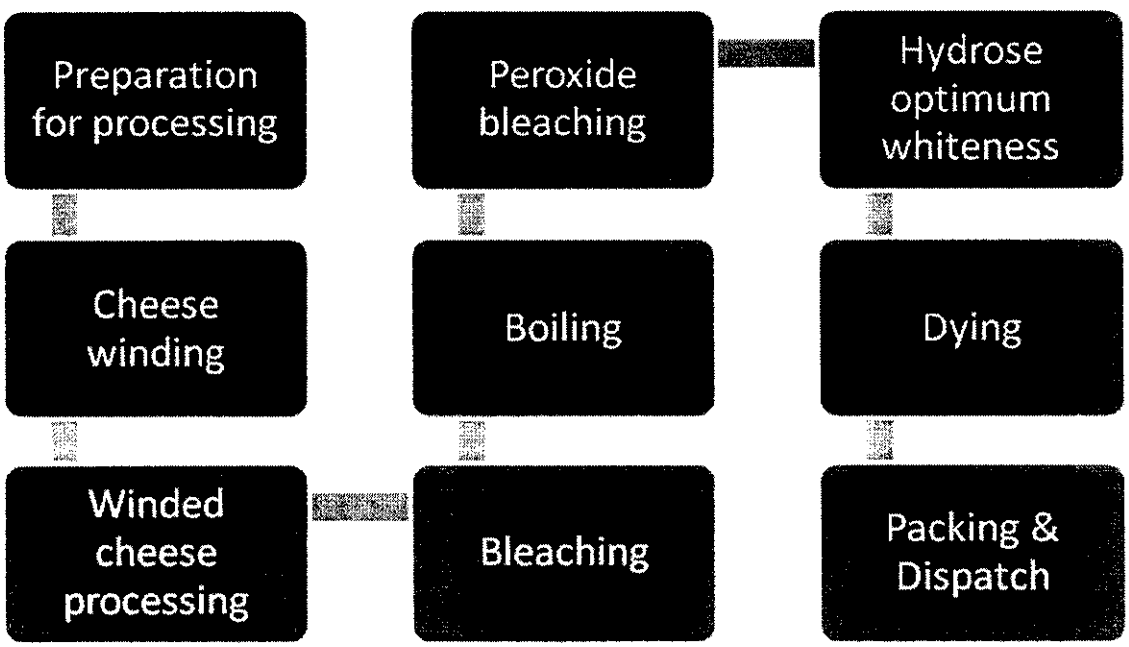
Dark shade:-

Dyes used between the ranges of 2-7% called Dark shade.

Note:-

Above 8% cannot be fixed.

Yarn Processing:-



Cheese Winding:-

While winding proper density must be maintained so as to dye solution, the penetration should be evenly spreaded.

Winded cheese processing:-

Winded cheese loaded in carriers & pressing, then locking in each spindle.

Arrangements for processing:-

Power:

To operate the motors & winches.

Water:

Water process-theory1:

Water softening using Resin coated which observes the hardness in the water.

Water recycling-Theory2:

Effluent water treatment & Chemical treatment to reduce the TDS

Steam:

- To raise the temperature
- To maintain the heater
- To maintain the boilers

Air:

- To compressor pipes
- To boilers
- To effective maintenance of motors

Transport:

Using vans to transport

- Transport raw materials
- Transport finished goods

Existing Cost allocation system:-

Cost Involved

Net cost Statement:-

Particulars	Amount
Total cost	Xxx
Total income	Xxx
Surplus/Deficit	Xxx

Existing cost allocation:-

1. Chemical purchase
2. Fuel (boiler)
3. Labor Charges
4. Power
5. Water

Water cost

Power cost for water product

River motor 5HP	3.30 units/hr
Vacuum pump 5HP	3.30 units/hr
Softener motor 5HP	3.30 units/hr
Softener motor 10HP	6.00 units/hr
Softener motor 15HP	12.70 units/hr
Over head tank motor 5HP	3.90 units/hr
Thies pump 10HP	6.00 units/hr
Bore well compressor	4.50 units/hr
Total	43.00units/hr

43 units/hourx4.25Rs/hour=182.75

TABLES

BLEACHING- BRIGHT WHITE				
RS 40/- BRIGHT WHITE INDEX VALUE 158%				
SL	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	1	102.7	1.03
3	Hydrose	0.5	550.76	2.75
4	Newalol PFN	0.3	150.8	0.45
5	Saracrease c	1	16.47	0.16
6	Caustic soda flakes	3	37.44	1.12
7	Hydrogen peroxide	8.4	43	3.61
8	Alkaliser Awni	1.2	46.8	0.56
9	Sara White HA	0.5	240.2	1.2
10	Sara White col	0.2	349.44	0.7
11	Acetic Acid	0.7	56.5	0.4
12	Super Cone 2100	4	22.36	0.89
	Total chemical cost			13.64
SL	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	15		
2	Chemical addition	10		
3	60*c tem+ running PH ch	10		
4	Drain and water filling	10		
5	Chemical addition	5		
6	60*c tem+ running PH ca	5		
7	temperature rise 80*c	10		
8	HA addition at 80*c	20		
9	COL addition a 90*c	10		
10	temperature rise 98*c	15		
11	boiling 98*c	75		
12	cooling 80*c	5		
13	over flow cold wash	5		
14	drain and watr filling	10		
15	hot wash 80*c	20		
16	drain and water filling	10		
17	acetic acid	15		
18	PH check 510	0		
19	temperature rise 55*c	10		
20	chemical addition	60		
21	drain and water filling	10		
22	softner mixing	10		
23	softner running	15		
24	unloading	45		
	Total hours	400		
Sl	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	1.15		
5	AIR cost	4		
6	Water treatment	0.94		
7	Transport labours	1.5		
8	Labour	5.6		
9	other cost	15.14		
10	Chemical cost	13.64		

EACHING-NEW TIMES				
45/- NEW TIMES WHITE INDEX VALUE 158%				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	1	102.7	1.03
3	Hydrose	0.3	130.7	0.39
4	Newalol PFN	0.3	150.8	0.45
5	Saracrease c	0.5	16.47	0.08
6	Caustic soda flakes	3	37.44	1.12
7	Hydrogen peroxide	9	43	3.87
8	Alkaliser Awni	1.3	46.8	0.61
9	Sara White HA	1.2	240.2	2.88
10	Sara White col	0.2	349.44	0.7
11	Acetic Acid	0.7	56.5	0.4
12	Super Cone 2100	4	22.36	0.89
	Total chemical cost			13.18
	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	15		
2	Chemical addition	10		
3	60*c tem+ running PH chec	10		
4	Drain and water filling	10		
5	Chemical addition	5		
6	60*c tem+ running PH caus	5		
7	temperature rise 80*c	10		
8	HA addition at 80*c	20		
9	COL addition a 90*c	0		
10	temperature rise 98*c	15		
11	boiling 98*c	75		
12	cooling 80*c	5		
13	over flow cold wash	5		
14	drain and watr filling	10		
15	hot wash 80*c	30		
16	drain and water filling	10		
17	acetic acid	15		
18	PH check 510	0		
19	temperature rise 55*c	10		
20	chemical addition	20		
21	drain and water filling	10		
22	softner mixing	10		
23	softner running	15		
24	unloading	45		
	Total hours	35		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	1.15		
5	AIR cost	4		
6	Water treatment	0.75		
7	Transport labours	0.75		
8	Labour	5.6		
9	other cost	15.14		
10	Chemical cost	13.18		
11	40% Margin	11.33		

ITE PROCESSING CHARGES DETAILS:				
40/-MOTHER CARE WHITE INDEX VALUE 154%				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	1	102.7	1.03
3	Maxcel	4	22.36	0.89
4	Newalol PFN	0.3	150.8	0.45
5	Saracrease c	2	16.47	0.33
6	Caustic soda flakes	3	37.44	1.12
7	Hydrogen peroxide	9	43	3.87
8	Alkaliser Awni	1.3	46.8	0.61
9	TUBOBALANCE COL	1.1	283.73	3.12
10	Sara White col	0.2	399.73	0.8
11	Acetic Acid	0.7	56.5	0.4
	Total chemical cost			13.37
	BLEACHING-MOTHER CARE WHITE			
	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	15		
2	Chemical addition	10		
3	60*c tem+ running PH ch	10		
4	Drain and water filling	10		
5	Chemical addition	5		
6	60*c tem+ running PH ca	5		
7	temperature rise 80*c	10		
8	HA addition at 80*c	20		
9	COL addition a 90*c	10		
10	temperature rise 98*c	15		
11	boiling 98*c	75		
12	cooling 80*c	5		
13	over flow cold wash	5		
14	drain and watr filling	10		
15	hot wash 80*c	20		
16	drain and water filling	10		
17	acetic acid	15		
18	PH check 510	0		
19	temperature rise 55*c	10		
20	chemical addition	15		
21	drain and water filling	45		
	Total hours	315		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	1.15		
5	AIR cost	4		
6	Water treatment	0.94		
7	Transport labours	0.75		
8	Labour	0.75		
9	other cost	15.14		
10	Chemical cost	13.37		
11	40% Margin	11.4		

ACHING- 40 WHITE				
40/- WHITE INDEX VALUE 158 %				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	1	102.7	1.03
3	Maxcel	0.3	56.5	0.17
4	Newalol PFN	0.3	150.8	0.45
5	Saracrease c	0.5	16.47	0.08
6	Caustic soda flakes	3	37.44	1.12
7	Hydrogen peroxide	9	43	3.87
8	Alkaliser Awni	1.3	46.8	0.61
9	TUBOBALANCE COL	1.2	240.24	2.88
10	Sara White col	0.2	349.44	0.7
11	Acetic Acid	0.45	56.5	0.25
12	Super cone 2100	4	22.36	0.89
	Total chemical cost			12.82
	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	15		
2	Chemical addition	10		
3	60*c tem+ running PH check	20		
4	Drain and water filling	10		
5	Chemical addition	5		
6	60*c tem+ running PH caustic additio	5		
7	temperature rise 80*c	10		
8	HA addition at 80*c	20		
9	COL addition a 90*c	10		
10	temperature rise 98*c	15		
11	boiling 98*c	75		
12	cooling 80*c	5		
13	over flow cold wash	5		
14	drain and watr filling	10		
15	hot wash 80*c	20		
16	drain and water filling	10		
17	acetic acid	15		
18	PH check 510	0		
19	temperature rise 55*c	10		
20	chemical addition	15		
21	drain and water filling	45		
	Total hours	330		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	1.15		
5	AIR cost	4		
6	Water treatment	0.94		
7	Transport labours	0.75		
8	Labour	0.75		
9	other cost	15.14		
10	Chemical cost	12.82		
11	40% Margin	11.18		
12	Total	39.14		

EACHING-30 WHITE				
30/- WHITE INDEX VALUE 142%				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PF	0.5	150.8	0.75
2	Saraquest A	0.5	16.47	0.08
3	Maxcel	1.5	37.44	0.56
4	Newalol PF	3.5	43	1.51
5	Saracrease	0.5	46.8	0.23
6	Caustic soc	0.4	240.24	0.96
7	Hydrogen p	0.3	130	0.39
8	Alkaliser AV	0.45	56.5	0.25
9	Sara White	4	22.36	0.89
	Total chemical cost			5.64
	PROCESSIN	TIMING(min)		
1	Loading+W	15		
2	Chemical a	5		
3	60*c tem+	5		
4	Drain and v	10		
5	Chemical a	20		
6	60*c tem+	15		
7	temperatu	75		
8	HA additio	5		
9	COL additic	5		
10	temperatu	10		
11	boiling 98*	30		
12	cooling 80*	10		
13	over flow c	15		
14	drain and v	0		
15	hot wash 8	10		
16	drain and v	15		
17	acetic acid	45		
	Total hours	290		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	1.15		
5	AIR cost	4		
6	Water trea	0.94		
7	Transport l	0.75		
8	Labour	5.6		
9	other cost	15.14		
10	Chemical c	5.54		
11	40% Margi	8.27		
12	Total	28.95		

EACHING-35 WHITE				
35/- WHITE INDEX VALUE 150%				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PF	0.5	150.8	0.75
2	Saraquest A	0.5	16.47	0.08
3	Maxcel	1.5	37.44	0.56
4	Newalol PF	6	43	2.58
5	Saracrease	0.85	46.8	0.4
6	Caustic soc	0.7	240.24	1.68
7	Hydrogen p	0.3	130	0.39
8	Alkaliser Av	0.45	56.5	0.25
9	Sara White	4	22.36	0.89
	Total chemical cost			7.6
	PROCESSIN	TIMING(min)		
1	Loading+W	15		
2	Chemical a	5		
3	60*c tem+	5		
4	Drain and v	10		
5	Chemical a	20		
6	60*c tem+	15		
7	temperatu	75		
8	HA additio	5		
9	COL additic	5		
10	temperatu	10		
11	boiling 98*	30		
12	cooling 80	10		
13	over flow c	15		
14	drain and v	0		
15	hot wash 8	10		
16	drain and v	15		
17	acetic acid	45		
	Total hours	290		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	1.15		
5	AIR cost	4		
6	Water trea	0.94		
7	Transport I	1.5		
8	Labour	5.6		
9	other cost	15.14		
10	Chemical c	7.6		
11	40% Margi	9.09		
12	Total	31.83		

EACHING-WHITE PROCESSING				
40/- WHITE INDEX VALUE 153%				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	0.5	16.47	0.08
3	Maxcel	1.5	37.44	0.56
4	Newalol PFN	6	43	2.58
5	Saracrease c	0.85	46.8	0.4
6	Caustic soda flakes	0.5	240.24	1.2
7	Hydrogen peroxide	0.2	349.44	0.7
8	Alkaliser Awni	0.45	56.5	0.25
9	Sara White HA	4	22.36	0.89
	Total chemical cost			7.42
	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	15		
2	Chemical addition	5		
3	60*c tem+ running PH check	5		
4	Drain and water filling	10		
5	Chemical addition	20		
6	60*c tem+ running PH caustic addi	30		
7	temperature rise 80*c	75		
8	HA addition at 80*c	5		
9	COL addition a 90*c	5		
10	temperature rise 98*c	10		
11	boiling 98*c	30		
12	cooling 80*c	10		
13	over flow cold wash	15		
14	drain and watr filling	0		
15	hot wash 80*c	10		
16	drain and water filling	15		
17	acetic acid	45		
	Total hours	295		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	0.75		
5	AIR cost	4		
6	Water treatment	0.94		
7	Transport labours	0.75		
8	Labour	5.6		
9	other cost	15.14		
10	Chemical cost	7.42		
11	40% Margin	9.02		
12	Total	31.58		

EACHING-45 WHITE:				
40/- WHITE INDEX VALUE 158 %				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	0.5	16.47	0.08
3	Maxcel	3	37.44	1.12
4	Newalol PFN	9	43	3.87
5	Saracrease c	1.3	46.8	0.61
6	Caustic soda flakes	1.2	240.24	2.88
7	Hydrogen peroxide	0.7	56.5	0.4
8	Alkaliser Awni	0.25	349.44	0.87
9	TUBOBALANCE COL	4	22.36	0.89
	Total chemical cost			11.48
	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	15		
2	Chemical addition	5		
3	60*c tem+ running PH check	5		
4	Drain and water filling	10		
5	Chemical addition	20		
6	60*c tem+ running PH caustic	15		
7	temperature rise 80*c	75		
8	HA addition at 80*c	5		
9	COL addition a 90*c	10		
10	temperature rise 98*c	30		
11	boiling 98*c	10		
12	cooling 80*c	15		
13	over flow cold wash	15		
14	drain and watr filling	0		
15	hot wash 80*c	30		
16	drain and water filling	5		
17	acetic acid	15		
18	PH check 510	20		
19	temperature rise 55*c	45		
	Total hours	345		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	0		
4	Drying cost	1.15		
5	AIR cost	4		
6	Water treatment	0.94		
7	Transport	0.75		
8	Labour	0.75		
9	other cost	5.6		
10	Chemical cost	15.14		
11	40% Margin	11.48		

RCERISING-BRIGHT WHITE				
40/- BRIGHT WHITE INDEX VALUE 158%				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	1	102.7	1.03
3	Maxcel	1	56.5	0.57
4	Newalol PFN	0.3	150.8	0.45
5	Saracrease c	0.5	16.47	0.08
6	Caustic soda flakes	1.5	37.44	0.56
7	Hydrogen peroxide	7.2	43	3.1
8	Alkaliser Awni	1	46.8	0.47
9	Sara White HA	0.7	240.2	1.68
10	Sara White col	0.2	349.44	0.7
11	Acetic Acid	0.7	56.5	0.4
12	Super Cone 2100	6	22.36	1.34
13	Caustic lye	0.55	31.2	17.16
	Total			31.71
14	Floranit CA	0.035	98	3.43
	PROCESSING	TIMING(min)		
1	Loading+Wetting 50	20		
2	Chemical addition	10		
3	60*c tem+ running P	10		
4	Drain and water fillin	20		
5	Chemical addition	10		
6	60*c tem+ running P	5		
7	temperature rise 80	5		
8	HA addition at 80*c	10		
9	COL addition a 90*c	20		
10	temperature rise 98	20		
11	boiling 98*c	15		
12	cooling 80*c	75		
13	over flow cold wash	5		
14	drain and watr filling	5		
15	hot wash 80*c	10		
16	drain and water fillin	20		
17	acetic acid	10		
18	PH check 510	15		
19	temperature rise 55	0		
20	chemical addition	10		
21	drain and water fillin	15		
22	softner mixing	45		
	Total hours	345		
	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	4		
5	AIR cost	0.75		
6	Water treatment	0.94		
7	Transport labours	0.75		
8	Labour	5.6		
9	other cost	25.22		
10	Chemical cost	31.71		
11	40% Margin	22.7		

ERCERISING-27 DIA WHITE				
60/- BELOW 27 DIA				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	55	31.2	17.16
2	Saraquest AE	3.5	99.3	3.48
3	Maxcel	2	21.4	0.43
4	Newalol PFN	3	6.24	0.19
5	Saracrease c	0.3	28.08	0.08
	Total chemical cost			21.33
	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	20		
2	Chemical addition	10		
3	60*c tem+ running PH chec	25		
4	Drain and water filling	10		
5	Chemical addition	25		
6	60*c tem+ running PH caus	10		
7	temperature rise 80*c	15		
8	CHECK PH	0		
9	unloading	30		
	Total hours	145		
	Description			
1	Water cost	0.4		
2	Power cost	1.9		
3	Steam cost	1.5		
4	Drying cost	4		
5	AIR cost	0.94		
6	Water treatment	1.25		
7	Transport labours	1.29		
8	Labour	0.6		
9	other cost	6		
10	Chemical cost	21.33		
11	40% Margin	15.68		
12	Total	54.89		
	Total processing cost Rate/Kg 54.89			

ERCERISING-WASH ONLY				
60/- BELOW 27 DIA				
	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PF	0.5	150.8	0.75
2	Saraquest A	2	16.47	0.33
3	Maxcel	4	46.68	1.87
4	Newalol PF	0.2	56.5	0.11
	Total chemical cost			3.06
	PROCESSIN	TIMING(min)		
1	Loading+W	20		
2	Chemical a	25		
3	60*c tem+	10		
4	Drain and v	10		
5	Chemical a	10		
6	60*c tem+	15		
7	temperatu	0		
8	CHECK PH	0		
9	unloading	30		
	Total hours	120		
	Description			
1	Water cost	0.2		
2	Power cost	1		
3	Steam cost	0.75		
4	Drying cost	4		
5	AIR cost	0.5		
6	Water trea	0.4		
7	Transport I	0.6		
8	Labour	3.5		
9	other cost	10.95		
10	Chemical c	3.06		
11	40% Margi	5.6		
12	Total	19.61		
	Total processing cost Rate/Kg 19.61			

MERCERISING-SILICON WASH CHARGES DETAILS:				
S 60/- BELOW 27 DIA				
L	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PF	55	31.2	17.16
2	Saraquest A	3.5	98	3.43
3	Maxcel	4	56.5	2.26
4	Newalol PF	2	46.68	0.93
5	Saracrease	0.2	56.5	0.11
6	Caustic lye	1	410.99	4.11
	Total chemical cost			28.01
L	PROCESSIN	TIMING(min)		
1	Loading+W	15		
2	Chemical a	15		
3	60*c tem+	10		
4	Drain and v	10		
5	Chemical a	10		
6	60*c tem+	15		
7	temperatu	0		
8	CHECK PH	0		
9	unloading	30		
	Total hours	105		
I	Description			
1	Water cost	0.2		
2	Power cost	1		
3	Steam cost	0		
4	Drying cost	4		
5	AIR cost	0		
6	Water trea	0.4		
7	Transport I	0.75		
8	Labour	4		
9	other cost	21.93		
10	Chemical c	28.01		
11	40% Margi	19.97		
12	Total	69.91		
	Total processing cost Rate/Kg 69.91			

MERCERISING- NEW TIMES				
S 45/- NEW TIMES WHITE INDEX VALUE 158%				
L	NAME	%gpl	Rate/Kg	Per/kg
1	Newalol PFN	0.5	150.8	0.75
2	Saraquest AE	1	102.7	1.03
3	Hydrose	1	56.5	0.57
4	Newalol PFN	0.3	150.8	0.45
5	Saracrease c	0.5	16.47	0.08
6	Caustic soda flakes	1.5	37.44	0.56
7	Hydrogen peroxide	7.2	43	3.1
8	Aikaliser Awni	1	46.8	0.47
9	Sara White HA	0.7	240.2	1.68
10	Sara White col	0.2	349.44	0.7
11	Acetic Acid	0.7	56.5	0.4
12	Super Cone 2100	6	22.36	1.34
13	Caustic soda flakes	0.55	31.2	17.16
14	Floranit CA	0.035	98	3.43
	Total chemical cost			31.71
L	PROCESSING	TIMING(min)		
1	Loading+Wetting 50*c	20		
2	Chemical addition	10		
3	60*c tem+ running PH check	10		
4	Drain and water filling	20		
5	Chemical addition	10		
6	60*c tem+ running PH caustic addition	5		
7	temperature rise 80*c	5		
8	HA addition at 80*c	10		
9	COL addition a 90*c	20		
10	temperature rise 98*c	10		
11	boiling 98*c	20		
12	cooling 80*c	20		
13	over flow cold wash	15		
14	drain and watr filling	75		
15	hot wash 80*c	5		
16	drain and water filling	5		
17	acetic acid	10		
18	PH check 510	20		
19	temperature rise 55*c	10		
20	chemical addition	15		
21	drain and water filling	0		
22	softner mixing	10		
23	softner running	15		
24	unloading	45		
	Total hours	345		
I	Description			
1	Water cost	0.2		
2	Power cost	1.75		
3	Steam cost	1.15		
4	Drying cost	4		
5	AIR cost	0.94		
6	Water treatment	0.75		
7	Transport labours	0.75		
8	Labour	5.6		
9	other cost	25.22		
10	Chemical cost	31.71		
11	40% Margin	22.77		

YING COST			
TER COST			
1	**POWER COST FOR WATER PRODUCTION**	UNITS / HOUR	
	RIVER MOTOR 5 HP	3.3	
	VACCUM PUMP 5 HP	3.3	
	SOFTNER MOTOR 5 HP	3.3	
	SOFTNER MOTOR 10 HP	6	
	SOFTNER MOTOR 15 HP	12.7	
	OVER HEAD TANK MOTOR 5 HP	3.9	
	THIES PUMP 10 HP	6	
	BORE WELL COMPRESSURE	4.5	
		43	
	Rs / UNIT	4.25	
	43 UNITS / HOUR * 4.25 Rs / UNIT		182.75
2	**SALT COST FOR SOFTNER**		
	A. SOFTNER NO : I		
	FLOW RATE - 15000 lits / HOUR		
	SERVICE TIME - 15 HOURS		
	SALT CONSUMPTION = 80 kgs / 15 HOURS	5.4	
	FOR ONE HOUR = 5.4 kgs * 1.28 Rs	6.912	
	B. SOFTNER NO : II		
	FLOW RATE - 24000 lits / HOUR		
	SERVICE TIME - 12 HOURS		
	SALT CONSUMPTION = 160 kgs / 12 HOURS	13.4	
	FOR ONE HOUR = 13.4 kgs * 1.28 Rs	17.152	
	C. SOFTNER NO : III		
	FLOW RATE - 40000 lits / HOUR		
	SERVICE TIME - 6.3 HOURS		
	SALT CONSUMPTION = 160 kgs / 6.30 HOURS	24.6	
	FOR ONE HOUR = 24.6 kgs * 1.28 Rs	31.488	
	SALT COST FOR ONE HOUR		55.552
	WATER PRODUCTION		
	SOFTNER NO : I - 15000 lits / Hour		
	SOFTNER NO : II - 24000 lits / Hour		
	SOFTNER NO : III - 40000 lits / Hour		
	79000 lits / Hour		
	CONSIDER 80% - 63200 lits / Hours		
	TOTALLY WATER COST FOR ONE LITRE		
	POWER COST = 182.75 Rs / Hour		
	SALT COST = 55.55 Rs / Hour		
	WATER TAX = 10.02 Rs / Hour		
	= 248.32 Rs / Hour		
	FOR ONE LITRE = 248.32 / 63200 lits	**0.00393 Rs**	

EAM COST		
	6 TON BOILER	
	STEAM PRODUCTION = 4500 Kgs / Hour	
	OIL CONSUMPTION = 320 lits / Hour X 6.00 Rs	1920
	WATER CONSUMPTION = 4500 lits / Hour X 0.00393 Rs	17.69
	POWER COST = 19.4 Units / Hour X 4.25 Rs	82.45
	OIL TANK PUMP = 3.07 Units / Hour X 4.25 Rs	13.05
	CONDENSER PUMP WATER = 1.3 Units / Hour X 4.25 Rs	5.53
		2038.72
	FOR ONE KG STEAM PRODUCTION = 2038.72 Rs / 4500Kgs	0.453 Rs
	ONE KG OF STEAM = 0.46 Rs	
	AIR COST	
	AIR COMPRESSURE	
	POWER COST = 26.5 UNITS / HOUR X 4.25 Rs	112.63
	OIL COST =	
	(1/2 lits / Day = 32.50 Rs)	
	FOR ONE HOUR = 32.50 Rs / 24 HOUR	1.35
		113.98
	CONSIDER 6000 Kgs PRODUCTION PER DAY FOR AIR CONSUMPTION	
	ONE HOUR FABRIC PRODUCTION = 250 Kgs	
	FOR ONE KG FABRIC AIR COST	
	113.98 Rs / 250 Kgs	0.455
	0.455 Rs / ONE KG FABRIC	

FLUENT WATER TREATMENT		
E.T.P II - 25000 lits / Hour		
	UNITS / HOUR	Rs
WER COST		
W WATER PUMP - I	2.4	
W WATER PUMP - II	2.4	
SH MIXER	0.9	
M MOTOR - I	0.6	
M MOTOR - II	0.6	
RATER	5.47	
DGE MOTOR - I	1.8	
DGE MOTOR - II	1.8	
PTIC TANK MOTOR	0.9	
AR TANK MOTOR	3.07	
CHARGE MOTOR - I	2.4	
CHARGE MOTOR - II	2.4	
	24.74	
74 / UNITS / HOUR X 4.25 Rs	105.145	
R ONE LITRE POWER COST = 105.145 / 25000 lits		**0.0042**
EATMENT COST		
DYEING WATER - 25000 lits / Hour		
VIROFLOC = 150 Kgs / Hour X 1.02 Rs =	153	
E = 75 Kgs / Hour X 4.00 Rs =	300	
	453	
R 1 LITRE = 453 Rs/ 25000 lits = .018		
WER COST = .0042		
= .0222		
NG WATER ONE LITRE TREATMENT COST		**.023 Rs**
BLEACHING WATER - 8000 lits / Hour		
L = 10 lits / Hour X 5 Rs =	50	
R 1 LITRE = 50 Rs/ 8000 lits = .006		
WER COST = .0042		
= .0102		
NG WATER ONE LITRE TREATMENT COST		
ITE WATER ONE LITRE TREATMENT COST		**0.0102**
MERERISING WATER - 25000 lits / Hour		
R 1 LITRE = 20gms HCL X 5.50 Rs		
WER COST = .0042		
= .0102		
ERERISING WATER ONE LITRE TREATMENT COST		**0.1142**

	TRANSPORT COST	
1	VAN	
	RUNNING = 250 kms / day	
	1 LITRE DIESEL = 6.6 km	
	DIESEL CONSUMPTION =(250 kms / day) / (6.6 km / litre Diesel)	
	37.8 lits	
	38 lits diesel X 11.85 X 3 vans	1350.9
	JEEP	
	RUNNING = 300 kms / day	
	1 LITRE DIESEL = 10 km	
	DIESEL CONSUMPTION =(300 kms / day) / (10 km / litre Diesel)	
	30 lits	
	30 lits diesel X 11.85	355.5
2	DRIVERS SALARY	
	SALARY + BONUS + ALLOWANCE / MONTH = 20000.00 Rs	
	FOR ONE DAY = 20000.00 Rs / 26 DAYS = 770 Rs	
3	CLEANERS SALARY = 3 VANS X 60 Rs / DAY	180
4	F.e AND OTHERS	
	30000 Rs / YEAR X 4 NOS = 120000 Rs	
	FOR ONE MONTH = 120000 Rs / 12 MONTHS	
	= 10000 Rs	
	FOR ONE DAY = 10000 Rs / 26 DAYS = 384.60 Rs	385
	TOTAL COST FOR ONE DAY	3041.4
	PRODUCTION = 6000 kgs / day	
	For 1 kg FABRIC TRANSPORT COST = 30414.40 / 6000 kgs	0.5
	CONSIDER 0.50 FOR COSTING	

BOUR COST		
ONTH OF DECEMBER		
TAL PRODUCTION	Kgs	
BRIC DYING UNIT	131689.14	
RN DYING UNIT	16347.4	
	148036.54	
LARY	Rs	
AFF	195987	
BOURS	234472.25	
THERS	11324.6	
	441783.85	
ONUS	110445.96	
LOWANCE	73630.64	
VIL	137679.3	
CURITY	32630	
VERTIME	20000	
TAL	816169.75	
BOUR COST FOR 1 KG FABRIC	816169.75 / 148036.54	
	5.51	

	DRYING COST	
1	FEEDER	
	(PRODUCTION 100 Kgs / Hour)	
	POWER COST = 0.68 Units / Hour * 4.25 Rs / Units	2.89
	STICHING MACHINE = 0.6 Units / Hour * 4.25 Rs / Units	2.55
		5.44
	for 1 kg of fabric = 5.44 Rs / 100 Kgs	0.0544
2	EXP - 125	
	(PRODUCTION 100 Kgs / Hour)	
	POWER COST = 11.80 Units / Hour * 4.25 Rs / Units	50.15
	for 1 kg of fabric = 50.15 Rs / 100 Kgs	0.5015
3	4 ROLL PAB	
	(PRODUCTION 200 Kgs / Hour)	
	POWER COST = 9.72 Units / Hour * 4.25 Rs / Units	41.31
	for 1 kg of fabric = 41.31 Rs / 100 Kgs	0.206
4	CENTRIFUGE	
	(PRODUCTION 70 Kgs / Hour)	
	POWER COST =11.30 Units / Hour * 4.25 Rs / Units	48.025
	for 1 kg of fabric = 48.025 Rs / 70 Kgs	0.686
4	DRUM DRYER	
	(PRODUCTION 300 Kgs / Hour)	
	POWER COST =85.73 Units / Hour * 4.25 Rs / Units	364.3525
	STEAM COST	
	1st SECTION 2 DRUMS = 540 Kgs * .55 Rs / Kg	297
	2nd SECTION 2 DRUMS = 540 Kgs * .55 Rs / Kg	297
		594
		958.3525
	for 1 kg of fabric = 958.352 Rs / 300 Kgs	3.195
	TOTALLY FOR 1 KG OF FABRIC DRYING COST	
	FEEDER	0.0544
	CENTRIFUGE	0.686
	DRUM DRYER	3.195
		3.94

	AFTER DRYING-BLEACHING COST	Rs
1	CHEMICALS COST (CHEMICAL LIST ENCLOSED)	6.59
2	WATER COST 30 LITRES / Kg * .00393 Rs	0.12
3	POWER COST	1.18
4	STEAM COST 2.4 Kgs * .46 Rs	1.1
5	DRYING COST	3.61
6	AIR COST	0.46
7	WATER TREATMENT COST 30 LITRES * 0.0102	0.31
8	TRANSPORT COST	0.5
9	LABOUR COST	4.8
	TOTAL COST	18.67
	OVER HEAD CHARGES	7.47
	FINAL COST	**26.14**

	BLEACHING - CHEMICAL COST					
S. NO	CHEMICALS	GPL	POR 100 KG	QTY IN	RATE PER KG	CHEMICAL
			FABRIC	WEIGHT BASIS		COST
1	SILCORIL 0025	0.2	200 ML	200 GMS	153	36.72
2	LENITOL HPLF	0.5	500 ML	500 GMS	232	139.2
3	CAUSTIC FLAKES	0.5	500 GMS	500 GMS	14	9.75
4	H2O2	4	4 LIT	4.8 KGS	40	192
5	SODA ASH	2	2 KGS	2 KGS	12.2	24.4
6	ALKALISER ALUNI	0.3	300 ML	360 GMS	27.95	10
7	ACETIC ACID	0.8	800 ML	960 GMS	32	30.72
8	SODA ASH	0.2	200 GMS	200 GMS	12.2	2.44
9	AMARTONE A2	0.462	462 GMS	462 GMS	102.96	47.56
10	GLABOUR SALT	0.33	330 GMS	330 GMS	8.5	2.8
11	ROSE+BLUE	0.22	220 ML	220 ML	0	0.99
12	SURINOL N1	4	4 KG	4 KG	34.79	139.16
13	NY PREMIUM	0.5	500 GMS	500 GMS	61.35	30.68
						666.42
	FOR 100 Kgs = 666.42 Rs					
	FOR 1 Kg = 666.42 Rs / 100 Kgs					
	6.6642					

	DYEING COST				
. NO		LIGHT	MEDIUM	DARK	REMARKS
		SHADE	SHADE	SHADE	
1	PRE TREATMENT	7.58	7.58	6	
2	DYEING	2.38	2.8	3.22	
3	AFTER TREATMENT	5.89	5.92	9.76	
4	DRYING COST	3.47	3.47	3.47	
5	AIR COST	0.35	0.35	0.35	
6	EFFLUENT WATERTREATMENT COST	2.08	2.24	2.56	
7	TRANSPORT COST	0.45	0.45	0.45	
8	LABOUR COST	5.51	5.51	5.51	
	TOTAL COST	27.71	28.32	31.32	
	DYES, SALT, SODA COST	7.45	15.75	30.17	
		38.41	47.36	65.3	
	OVER HEAD CHARGES 40 %	15.36	18.94	26.12	
		53.77	66.3	91.42	
	MARGEN 20%	10.75	13.26	18.28	
		64.52	79.56	109.7	
	INTEREST 20 %	12.9	15.91	21.94	
	FINAL COST	**77.42**	**95.47**	**131.64**	

	PRE TREATMENT BOILING					
NO	CHEMICALS	GPL	FOR 100 K FABRIC	QTY IN WEIGHT BASIS	RATE PER	CHEMICAL COST
1	DEPSOLUPE ACA	0.5	500ML	600GMS	173.65	83.35
2	LENITOL HPLF	0.5	500 ML	600 GMS	232	111.36
3	CAUSTIC FLAKES	3.5	3.5KGS	3.5 KGS	19.5	68.25
4	SODA ASH	0.5	500 GMS	500 GMS	12.2	4.88
5	ACETIC ACID	2.5	2.5 LIT	3 KGS	32	76.8
6	DEKOL SN	0.3	300 ML	360 GMS	81.03	29.17
						354.32
	FOR 1 KG FABRIC	**4.43 Rs**				
	PEROXIDE BOILING					
1	DEPSOLUPE ACA	0.5	500ML	600GMS	173.65	83.35
2	LENITOL HPLF	0.5	500 ML	600 GMS	232	111.36
3	CAUSTIC FLAKES	3.5	3.5KGS	3.5 KGS	19.5	31.2
4	SODA ASH	0.5	500 GMS	500 GMS	12.2	4.88
5	ACETIC ACID	2.5	2.5 LIT	3 KGS	32	76.8
6	DEKOL SN	0.3	300 ML	360 GMS	81.03	23.33
7	UNISCAVE	1	1 LIT	1.2 KGS	0	96
8	H2O2	2	2 LIT	2.4 KGS	40	76.8
9	ALKALISER AWNI	0.3	300 ML	360 GMS	27.95	8.04
						511.76
	FOR 1 KG FABRIC	**6.40 Rs**				

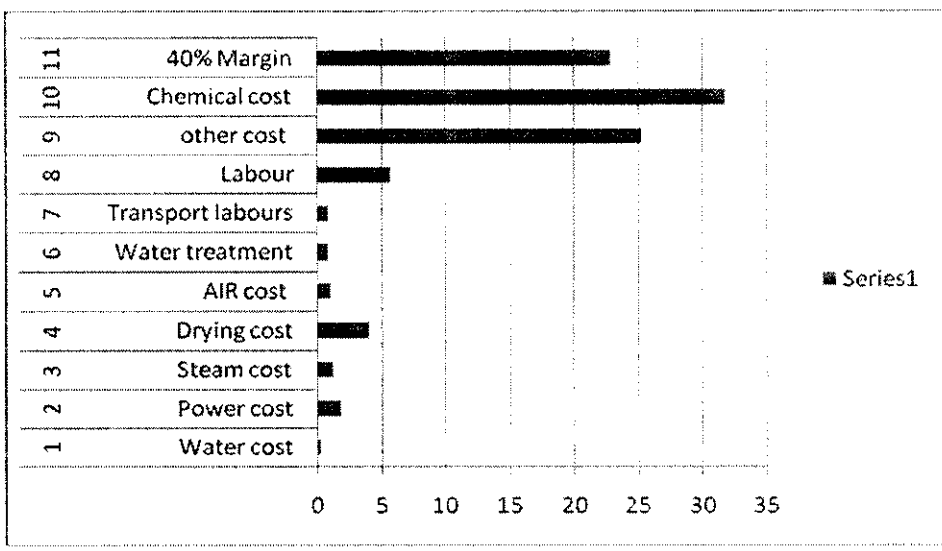
	I - UPTO 4% DEPTH SHADE					
S. NO	CHEMICALS	GPL	FOR 100 KG	QTY IN	RATE PER KG	CHEMICAL
			FABRIC	WEIGHT BASIS		COST
				kgs		
1	ACETIC ACID	2	2 LITRES	2.4	32	61.44
2	SAROTEX	2.5	2.5 LITERS	3	28.04	67.29
3	AMIGEN	2	2 LITRES	2.4	60.32	115.8
4	X.L.SOFT C.S	4	4 KG	4	31.9	102.08
5	ACETIC ACID	0.4	400 ML	460 GRAMS	32	10.24
6	NY PREMIUM	0.5	500 GMS	500 GRAMS	73.45	29.37
						386.22
	100 kgs FRABIC = 482.80 Rs					
	1 kg FABRIC = 482.80 Rs/100 kgs					
	= 4.83 Rs					
	II - ABOVE 4% DEPTH SHADE					
1	ACETIC ACID	2	2 LITRES	2.4	32	61.44
2	SAROTEX	2.5	2.5 LITERS	3	28.04	67.29
3	D.PASTE	2	2 KG	2	82.14	131.42
4	AMIGEN	2	2 LITRES	2.4	60.32	115.8
5	AMIGEN	2	2 LITRES	2.4	60.32	115.8
6	X.L.SOFT C.S	4	4 KG	4	31.9	102.08
7	ACETIC ACID	0.4	400 ML	480 GRAMS	32	10.24
8	NY PREMIUM	0.5	500 GMS	500 GRAMS	73.45	29.37
						633.44
	100 kgs FRABIC = 791.84 Rs					
	1 kg FABRIC = 791.84 Rs/100 kgs					
	= 7.92 Rs					

3.5(a) MERCERISING -95 WHITE PROCESSING

Table 3.5(a) MERCERISING -95 WHITE PROCESSING

Sl	Description	Rs
1	Water cost	0.2
2	Power cost	1.75
3	Steam cost	1.15
4	Drying cost	4
5	AIR cost	0.94
6	Water treatment	0.75
7	Transport labours	0.75
8	Labour	5.6
9	other cost	25.22
10	Chemical cost	31.71
11	40% Margin	22.77

Chart 3.5(a) MERCERISING -95 WHITE PROCESSING



INTERPRETATION:-

The above table shows the individual expenditure involved in every activity to complete the mercerizing process.

INFERERENCE:-

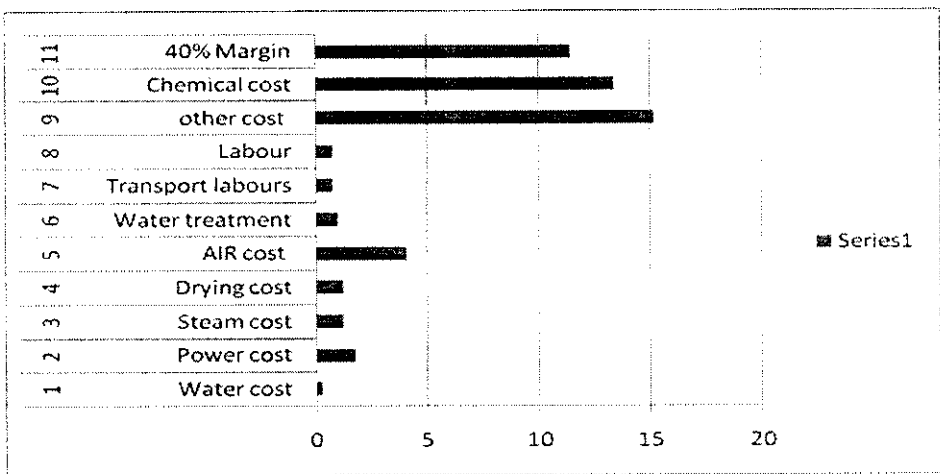
Margin amount, chemical cost and other cost are very high when comparing with other cost. Water cost is very low in this process.

3.5(b) BLEACHING-MOTHER CARE WHITE:

Table 3.5(b) BLEACHING-MOTHER CARE WHITE:

Sl	Description	Rs
1	Water cost	0.2
2	Power cost	1.75
3	Steam cost	1.15
4	Drying cost	1.15
5	AIR cost	4
6	Water treatment	0.94
7	Transport labours	0.75
8	Labour	0.75
9	other cost	15.14
10	Chemical cost	13.37
11	40% Margin	11.4

Chart 3.5(b) BLEACHING-MOTHER CARE WHITE:



INTERPRETATION:-

The above table shows the individual expenditure involved in every activity to complete the bleaching process.

INFERERENCE:-

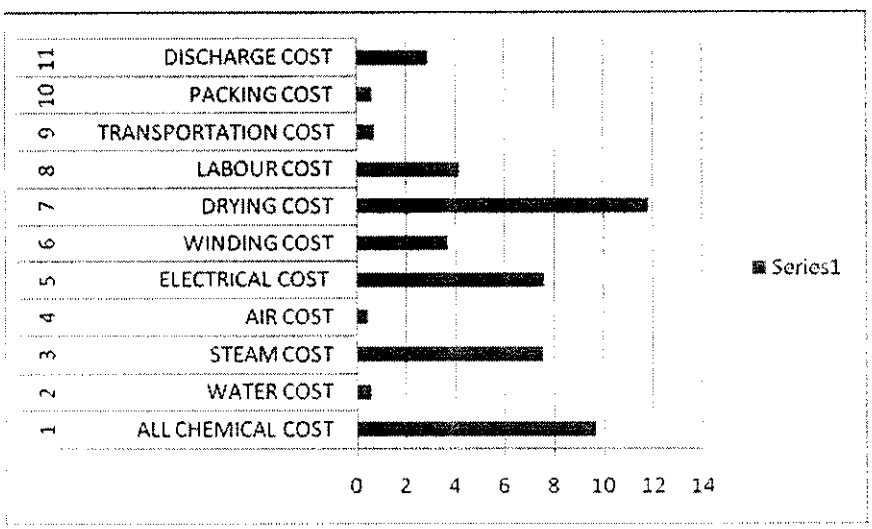
In bleaching process, the other cost which involves overhead charges is high when compared with all the other activities. Apart from this water cost, labor cost and water treatment costs are also low.

3.4(c) OVERALL DYING PROCESS:

Table 3.4(c) OVERALL DYING PROCESS:

SL.NO	CORRESPONDING STEPS	CHARGES IN RS
1	ALL CHEMICAL COST	9.67
2	WATER COST	0.58
3	STEAM COST	7.55
4	AIR COST	0.48
5	ELECTRICAL COST	7.6
6	WINDING COST	3.7
7	DRYING COST	11.8
8	LABOUR COST	4.16
9	TRANSPORTATION COST	0.73
10	PACKING COST	0.63
11	DISCHARGE COST	2.9

Chart 3.4(c) OVERALL DYING PROCESS:



INTERPRETATION:

The above table shows the expenditure involved in the overall dyeing process.

INFERERENCE:-

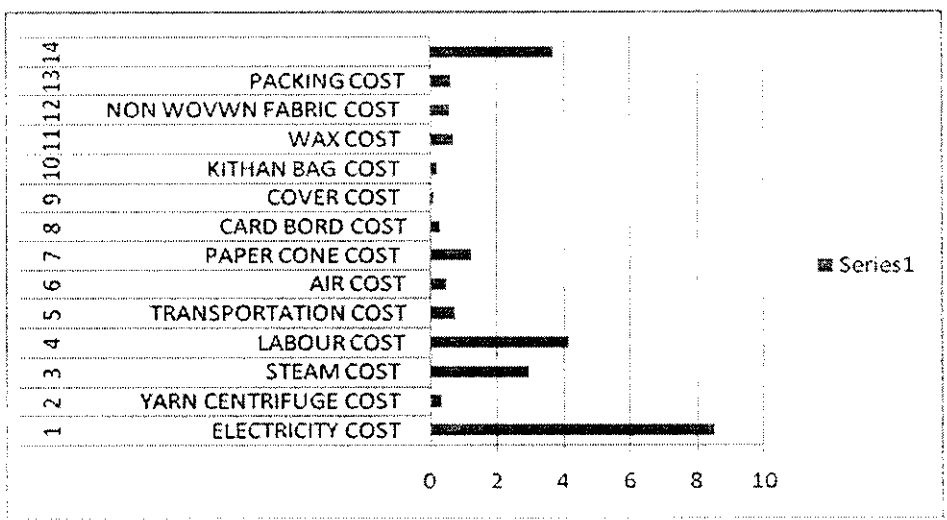
In this process drying cost is very high when compare to that of other process. Air cost, water cost and packing cost are comparatively high when compare to that of the other cost involved.

3.5(d) OVERALL DRYING PROCESS:

Table 3.5(d) OVERALL DRYING PROCESS:

SL.NO	CORRESPONDING STEPS	CHARGES IN RS
1	ELECTRICITY COST	8.5
2	YARN CENTRIFUGE COST	0.35
3	STEAM COST	2.95
4	LABOUR COST	4.16
5	TRANSPORTATION COST	0.73
6	AIR COST	0.48
7	PAPER CONE COST	1.23
8	CARD BORD COST	0.29
9	COVER COST	0.1
10	KITHAN BAG COST	0.24
11	WAX COST	0.72
12	NON WOVWN FABRIC COST	0.6
13	PACKING COST	0.63
14	A+ B = WINDING COST FOR ONE Kg OF YARN	3.7

Chart 3.5(d) OVERALL DRYING PROCESS:



INTERPRETATION:

The above table shows the expenditure involved in the overall drying process

INFERERENCE:-

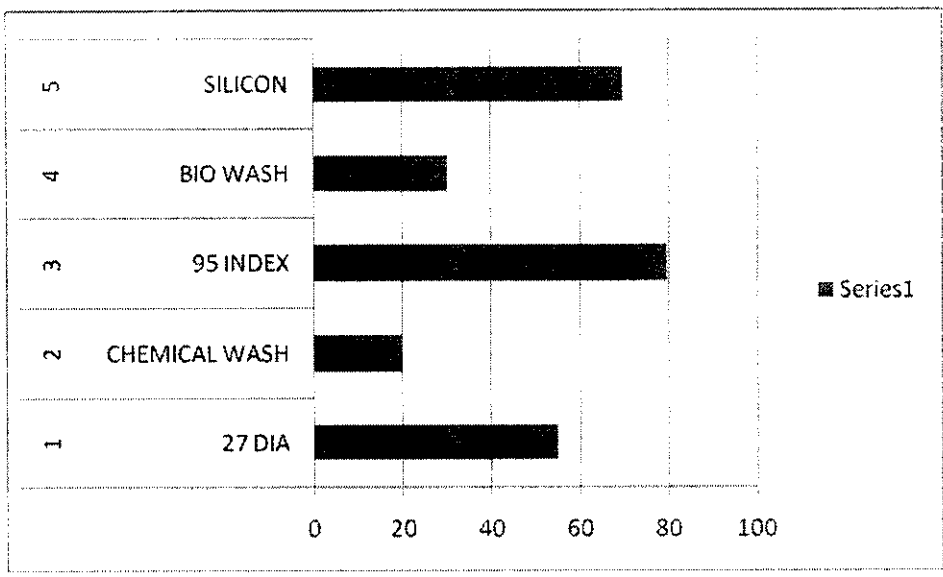
In this process all the cost other than the electricity cost and labor cost are less. Electricity cost is extremely high when compared with all other cost.

3.5(d) PROPORTION OF EVERY INDUVIDUAL MERCERISING PROCESS:

Table 3.5(d) PROPORTION OF EVERY INDUVIDUAL MERCERISING PROCESS:

SL	PARTICULARS	COST
1	27 DIA	54.89
2	CHEMICAL WASH	19.61
3	95 INDEX	79.7
4	BIO WASH	30.01
5	SILICON	69.91

Chart 3.5(d) PROPORTION OF EVERY INDUVIDUAL MERCERISING PROCESS:



INTERPRETATION:

The above table explains about the cost involved in the various types of mercerizing process.

INFERERENCE:-

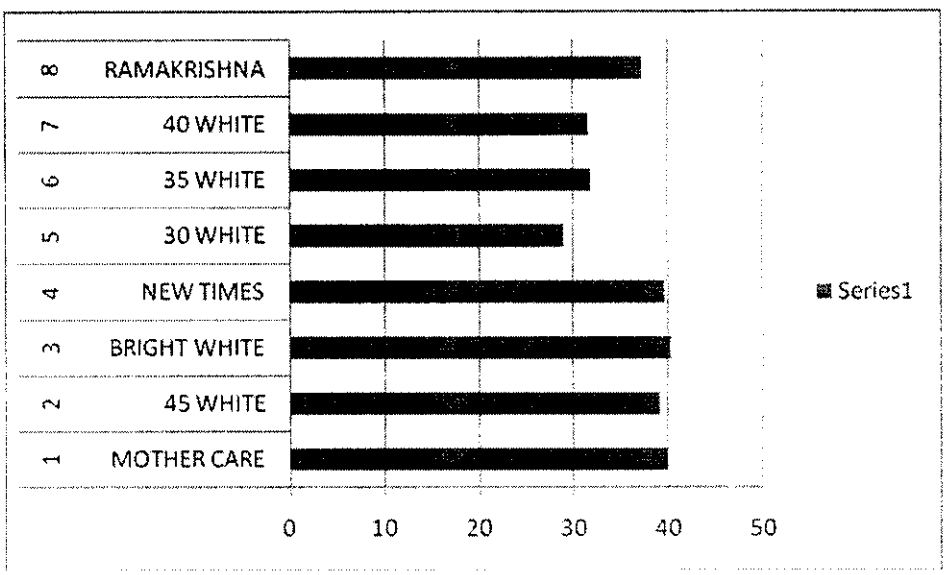
In the various varieties of mercerizing process involved, chemical wash involves very less cost where 95 index model involve very high cost when compared to that of all other process.

3.5(e) PROPORTION OF EVERY INDUVIDUAL BLEACHING DETAILS:

Table 3.5(e) PROPORTION OF EVERY INDUVIDUAL BLEACHING DETAILS:

SL	PARTICULARS	CHARGES
1	MOTHER CARE	39.91
2	45 WHITE	39.14
3	BRIGHT WHITE	40.29
4	NEW TIMES	39.65
5	30 WHITE	28.95
6	35 WHITE	31.83
7	40 WHITE	31.58
8	RAMAKRISHNA	37.27

Chart 3.5(e) PROPORTION OF EVERY INDUVIDUAL BLEACHING DETAILS:



INTERPRETATION:

The above table explains about the cost involved in the various types of bleaching process.

INFERERENCE:-

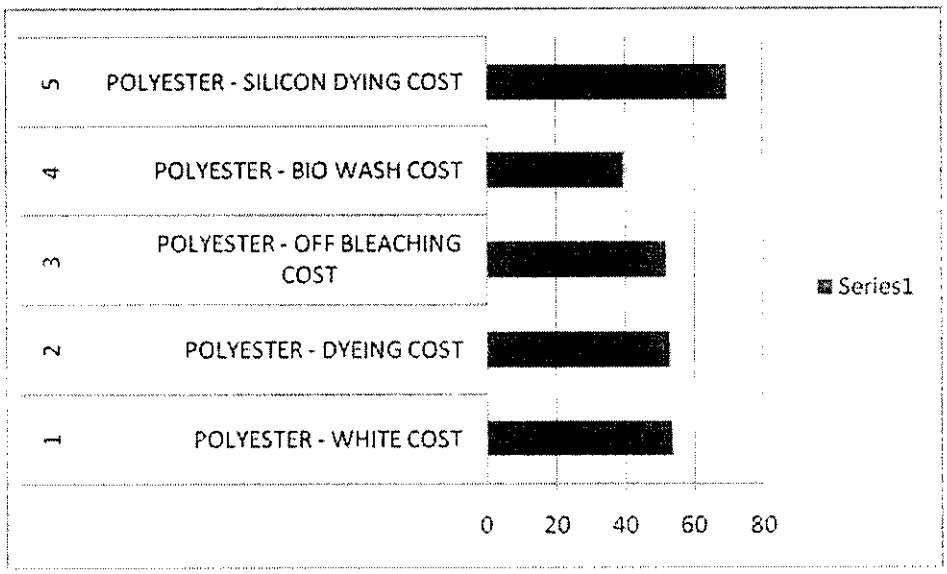
In the various varieties of bleaching process involved almost all the products involve the same cost were new times and bright white occupies the majority. This is the process which involves more variety of activities.

3.5(f) PROPORTION OF EVERY INDUVIUAL DYING PROCESS:

Table 3.5(f) PROPORTION OF EVERY INDUVIUAL DYING PROCESS:

SL	PARTICULARS	COST
1	POLYESTER - WHITE COST	53.78
2	POLYESTER - DYEING COST	52.9
3	POLYESTER - OFF BLEACHING COST	51.98
4	POLYESTER - BIO WASH COST	39.75
5	POLYESTER - SILICON DYING COST	69.72

Chart 3.5(f) PROPORTION OF EVERY INDUVIUAL DYING PROCESS:



INTERPRETATION:

The above table explains about the cost involved in the various types of drying process.

INFERERENCE:

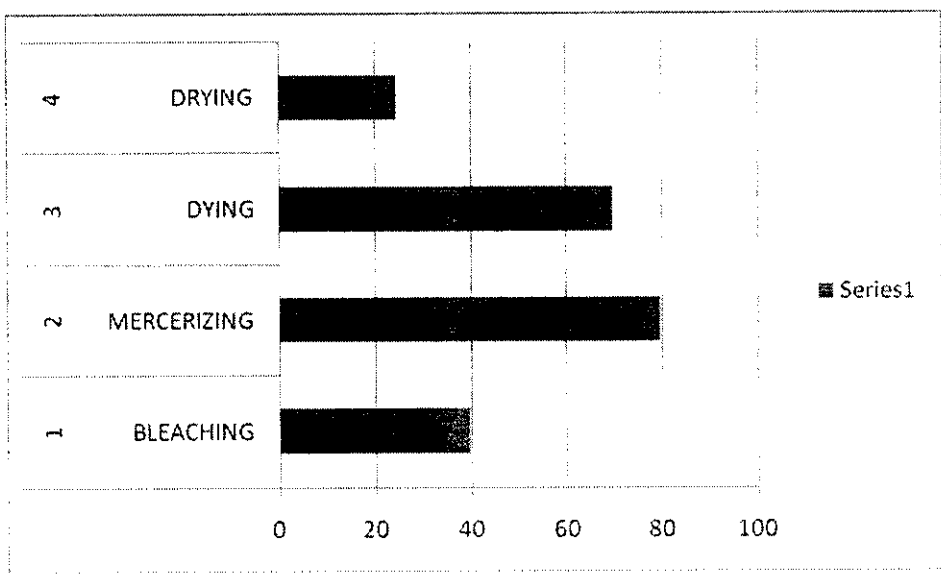
In the various varieties of drying process involved, polestar silicon dying involves more cost where polyester bio wash cost less when compared to other process involved.

3.5(g) OVERALL PROCESS OF THE COMPANY:

Table 3.5(g) OVERALL PROCESS OF THE COMPANY:

SL	CORRESPONDINGS	AMOUNT
1	BLEACHING	39.91
2	MERCERIZING	79.7
3	DYING	**69.72**
4	DRYING	24.68

Chart 3.5(g) OVERALL PROCESS OF THE COMPANY:



INTERPRETATION:

This table shows the overall process involved in the company and indicates their cost proportion in the overall expenditure

INFERERENCE:

In the overall process involved in the company mercerizing sounds high cost involved process, dyeing stands next to it, bleaching and finally drying which involves low cos

FINDINGS & SUGGESTIONS

CHAPTER - 4

FINDINGS AND SUGGESTIONS:

Activity based costing model for pricing of services offered is created by studying the actual flow of the expenses and income if any, from the company directly. Format for collecting the monthly data for salaries, water, steam, air etc., is given as annexure.

Since, there is a chance for price fluctuation in the raw materials used and there are large varieties of chemicals used as raw materials in the process the model created can be modified at any stage making any of the change. The study is conducted for the minimum periods, while some approximations were made due to shortage of time and non availability of data in the required format, so the model created may be accurate. Any changes or correction can be effected to the model as and when required and when the improvement of the information technology and adoption of the same in the industry, this model can be inbuilt in to its accounting/production or ERP package itself.

4.1 FINDINGS:

- As per each process is concerned the other cost which involves the overhead cost is very high when compare to that of all other expenses.
- The chemical cost involved in the mercerizing process is very high and this can be regulated using various other substitutes
- Labor cost, steam cost, air cost are generally less and regulated
- For the purpose of calculating electricity cost , in the existing system a common meter is maintained and the cost is proportionate based on the units but not so accurate
- Waste water treatment involves more expenditure.
- In the overall process of the concern, mercerizing is the most cost involved process.
- Drying cost is very less when compared to that of all the other process.

4.2 SUGGESTIONS:

- As per the consideration of 95 index process, the highly cost incurred process is mercerizing and it is better to regulate the cost involved in the electricity.
- It is recommended to maintain separate electricity meter for each unit and record the units consumed by the particular unit on the monthly basis. It helps the company to apportion the cost correctly for each process. Moreover it helps the company to take decision for minimizing the excess cost, when the market condition is dull.
- Calculating the generator expenses, electricity consumed by each unit should be accounted separately and the cost incurred on the generator should be allocated on the basis of power concerned by various units. Maintenance of a watt-hour meter at the generator to monitor the total production of electricity and consumption at various sheds and other utilities with the farm. The excess cost on electricity could be minimized and monitored.
- Actual labors should be considered for calculating the salaries and wages.
- Since the company has more assets and costly machines the overhead cost is high and this should be regulated.
- Bio-wash can be used in dyeing process where other process involves more chemicals and electricity.
- It is recommended for the organization to develop accounting software in future to automate the data collection.

The following persons will be having their respective roles which are as follows:-

1. Marketing manager- should know how the activity based costing is made to make correct decisions on sales price etc.
2. Accounts manager - properly record and maintain the cost sheet, by getting the data from the various processing unit. Advise the management on profitably, rate and volume of sale relationship, project management etc.
3. Production manager- regularly record the expenses incurred in the processing unit and enter into the cost sheet/register as and when incurred.

When the market faces any unexpected changes in terms of currency fluctuation and price changes decision to produce or outsource or lease additional facility can be taken by comparing the existing cost in the organization with that of the market price. The profitable one can be sorted out by the company.

CONCLUSION

4.3 CONCLUSION:

Costing forms a crucial part in the accounting operation of any organization. The dynamism of costing reflects an organizations ability to effectively price its products. SOLO KNIT PROCESS PRIVATE LIMITED is a one-roof organization that specializes in the garment industries. The existing cost systems don't reflect expenses based on the activity involved in the various process of the concern. The researcher has taken this as a research problem and conducted an analytical study by collecting the details and cost data for all the four process involved.

The study enables the researcher to develop an activity based costing model that segregates the overall cost involved in different stages of production of yarn and fabrics. The study also analyzed the cost involved for each process and helps to identify the efficiency of the services and also helps to identify the inefficient process prevailing. The researcher had made some suggestions that would address the anomalies that exist with the present costing system.

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