

**Cost Optimization for Procurement of Milk at Numax Foods Private Limited,  
Coimbatore.**

**G.P.PRIYANKA**

**(13PBM018)**

**A Major Project Report submitted to**

**Avinashilingam Institute for Home Science and Higher Education for Women,  
Coimbatore- 641043**

**In partial fulfillment of the requirements for the Master Degree in Business  
Administration.**

**March, 2015**

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CERTIFIED AS BONAFIDE RESEARCH WORK

Signature of the  
HOD (I/C)

Signature of the  
Supervisor

**Numax Foods Pvt. Ltd.,**

**Nutra<sup>®</sup>**

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January 31, 2015


**To whomsoever it may concern**

This is to certify that Ms. G.P.Priyanka (Reg. No. 13PBM018), student of Avinashilingam School of Management Technology, Coimbatore, has done her project work in our organization, **Numax Foods Private Limited**, on the topic "**Cost Optimization through Procurement Route Planning**" during the period from December 11,2014 to January 31, 2015.

During this period her character and conduct were found good.

**We wish her all success.**

For Numax Foods Private Limited

  
(S.Dakshinamoorthy)

Director

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**Milk that nourishes your family**

## ACKNOWLEDGEMENT

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## **SYNOPSIS**

Numax Foods Private Limited is engaged in dairy manufacturing. The company needs to increase profit, in order to increase profit the company decided to minimize the expenses that incurred in procurement. To control cost of procurement two techniques are used in the study namely Critical Path Method (CPM) and Program Evaluation Review Technique (PERT). The techniques used for planning, scheduling, controlling and implementing that may minimize the troubles and delays. This study helps the today's manager to make a decision on procurement cost control with minimal time of the project.

The objective of the study is to optimize the procurement cost. The study is based on the secondary data and the required data is collected from the financial report of the company for two months from December 2014 to January 2015.

Various routes were suggested for the purpose of reduction in cost procurement, which in turn reduces the cost of milk.

# **CHAPTER I**

## **INTRODUCTION**

### **1.1 DAIRY INDUSTRY**

Today, India is 'The Oyster' of the global dairy industry. It offers opportunities galore to entrepreneur worldwide, who wish to capitalize on one of the world's largest and fastest growing markets for milk and milk products. A bagful 'pearls' awaits the international dairy processor in India. The Indian dairy industry is rapidly growing, trying to keep pace with the galloping processor around the world. As this expands overseas operations to India many profitable options awaits. The transfer of technology, sign joint ventures or use India as a sourcing center for regional exports. The liberalization of the Indian economy beckons to MNC's and foreign investors alike.

India's dairy sector is expected to triple its production in the next 10 years in view of expanding potential for export to Europe and the west. Moreover with WTO regulations expected to come into force in coming years all the developed countries which are among big exporters today would have to withdraw the support and subsidy to their domestic milk products sectors. Today India today is the cost producer of per liter of milk in the world, at 27 cents, compared with the U.S 63 cents, Japan's \$2.8 dollars. In order to take advantage of this lowest cost of milk production and increasing production in the country multinational companies are planning to expand their activities in India. Some of these milk producers have already obtained quality standards certificates from the authorities. This will help them in marketing their products in foreign countries in processed form.

India now has indisputably the world's biggest dairy industry- at least in terms of milk production; last year India produced close to 100 million tones of milk, 15% more than the US and three times as much as the- heralded new growth champ, china. The dairy sector in the India has shown remarkable development in the past decade and India has now become one of the largest producers of milk and value-added milk products in the world.

Indian Dairy is a “full-service” dairy that processes and fills gallons of milk a week. It operates around the clock, 365 days a year, to provide the freshest dairy products to customer every day. Under the name of “Indian Dairy” it manufactures skimmed milk powder, whole milk powder, dairy whitener and pure ghee and many more.

## **FRESH MILK CONTAINS**

Over 50% of the milk produced in India is buffalo milk and 45% is cow milk. The buffalo milk contribution to total milk produce is expected to be 54%. The buffalo milk has 3.6% protein, 7.4% fat, 5.5% milk sugar, 0.8% ash and 82.7% water whereas cow milk has 3.5% protein, 3.7% fat, 4.9% milk sugar, 0.7% ash and 87% water.

Packaged milk can be divided according to fat contents as follows,

- ❖ Whole (full cream) milk- 6% fat
- ❖ Standardized (toned) milk – 4.5% fat
- ❖ Doubled toned (low fat) milk – 3% fat
- ❖ Another category of milk, which has a small market, is flavored milk

India, world’s largest milk producer, according for more than 16% of world’s to total milk production, is the world’s largest consumer of dairy products. The total amount of milk produced has tripled from 23 million tones back in 1973 to 95 million tones in 2008 and expected a production level of 135 million tons by 2015 but the projected demand for milk by 2021-22 estimated at 180 million tones which imply that milk production would have to be doubled.

Milk production is growing at 3.3% while consumption is growing at 5% leaving a gap between demand and supply. In order to meet the rapid growing demand and to increase the milk production, union government has started a central scheme National Dairy Plan – phase 1, for a period of 2011 – 12 to 2016 – 2017. This scheme will be implemented with a total investment about 2242 core. This scheme main objective is to help provide rural milk greater access to the organized mil – processing sector and thus to bridge the gap between the demand and supply of the milk in the country.

The share of the total milk processing capacity by the private sector is 44% of total installed capacity of 73 million liters per day in the country. Therefore, the total share of the organization sector, both cooperatives as well as the private sector is barely 12%. Therefore, disquieting is that as much as 88% share of the total milk production is commanded by the unorganized sector. In order to attract promote dairy more investment in this sector, government has also reduced the excise duty of 16% to zero on dairy processing machineries.

The untapped potential of the dairy sector is immense and opportunity to setup a new dairy venture is greasmilk in India. And there is vast potential for the export of dairy products, as the cost of milk production in India being the lowest. These factors are attracting huge amount of investment in dairy processing, manufacturing dairy equipment and equipments for bio technology related dairy industry.

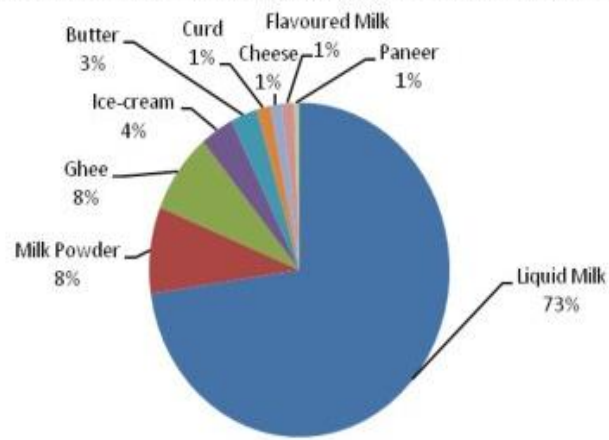
India is one of the leading manufacturer & exporter of skimmed milk powder, ghee, condensed milk, casein full cream milk powder, dairy whitener, palm kernel oil, white butter, lactose, glucose, dematerialized whey powder and all kinds of dairy products.

## **CONSUMER HABITS AND PRACTICES IN INDIA**

Milk has been an integral part of Indian food for centuries. The per capita availability of milk in India has grown from 291 grams per day in 2011-12. This is increased to 300 grams per day.

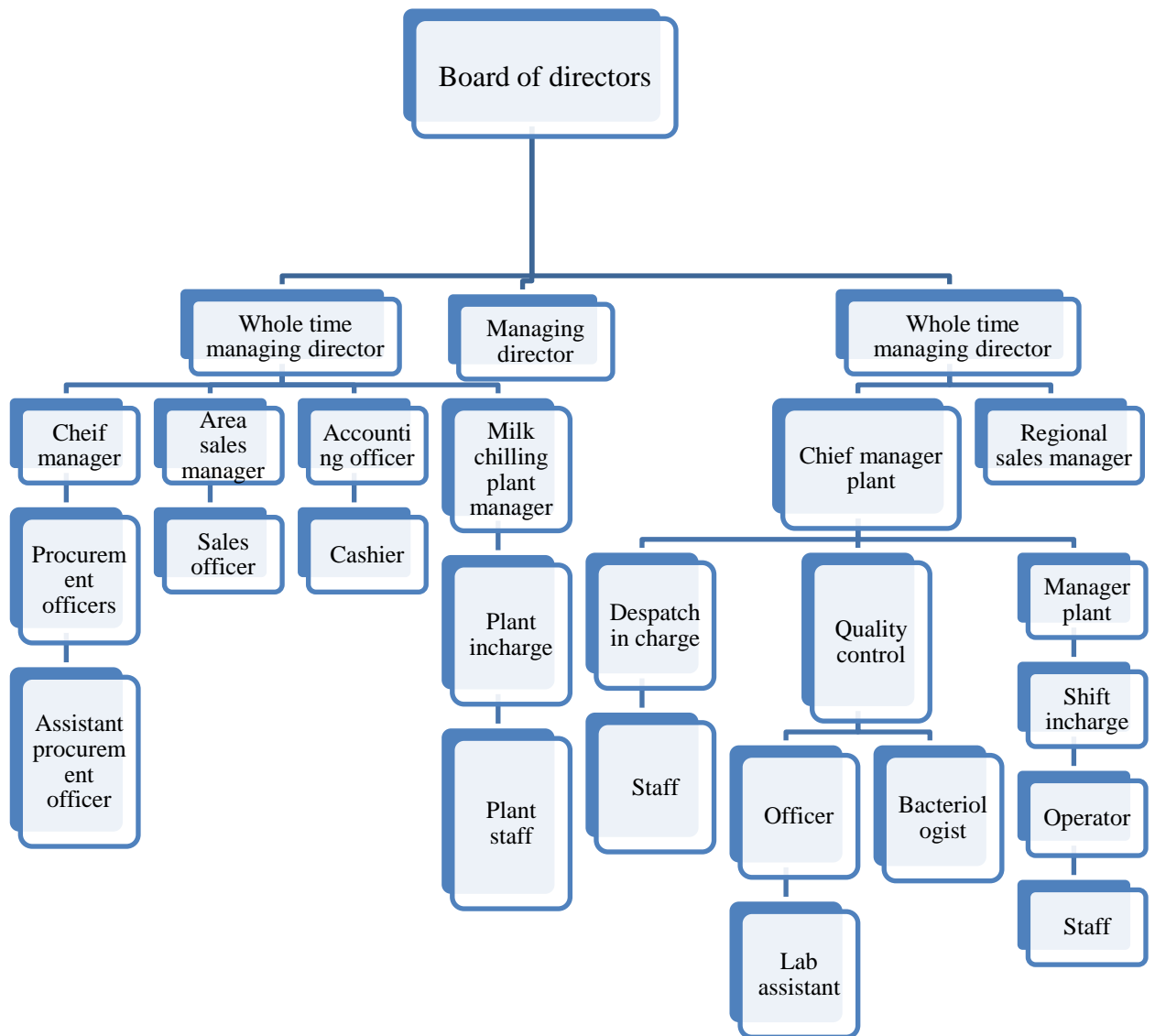
<b>PRODUCT</b>	<b>PERCENTAGE</b>
Fluid milk	46%
Ghee (clarified butter)	27.5%
Butter	6.5%
Yogurt	7.0%
Khoa (dehydrated condensed milk)	6.5%
Milk powder	3.5%
Paneer (cottage cheese)	2.0%
Other, including cream, ice cream	1.0%

Market share of milk and milk products in FY13 in terms of total sales value



## 1.2 NUMAX FOODS PRIVATE LIMITED

Numax foods private limited company was incorporated in 2003, and commenced its commercial operations in 2004 with installed capacity of 30000litres per day. The three boys came from the rural background investigated and successfully preceding this company. The group is involved in multifarious business activities spanning, manufacturing, distributing and exports. The Directors and Partners of the group companies are first generation technocrat professional businessmen.



## **VISION**

“The Vision of the Company is best encapsulated in our brand name Numax which is an abbreviated amalgam of the words Maximum & Nutrition.

The aim is to provide easy access to quality milk and milk products to consumers.

The company has been committed to keeping pace with constantly evolving demands of the farmers, retailers and consumers so as to provide value addition to each stakeholders of our business model.”

## **MISSION**

“The company will be a preeminent private milk producer who, while providing attractive return to our investors, will engage all stakeholders in our business super structure to benefit from our business practices.

The farmer and channels of distribution will see value in our business model while the consumer will have easy access to high quality milk and milk product from a socially responsible company.”

## **AWARDS AND RECOGNITION**

- ▶ The company has been awarded CRISIL RATING “A” all over India in 2013.
- ▶ CNBC TV has awarded best MSME sector award all over India in 2014.

## **INSTALLED CAPACITY**

The company’s unit has an installed capacity to daily process 75000 liters of milk, 5000 liters of butter milk and 5000 kg of curd. The company uses around 80 percent of the current installed capacity.

## **PEAK SEASON**

The company produces butter in summer (from February to May), while milk and curd are produced throughout the year.

## **PRICING**

The price of the products:

<b>Product name</b>	<b>MRP in Rs</b>
Cow milk	39.00 per liter
Double toned milk	34.00 per liter
Toned milk	36.00 per liter
Standardized milk	40.00 per liter
Full cream milk	44.00 per liter

## **INVENTORY HOLDING PERIOD**

The company maintains an average inventory of 9-12 hours for milk and curd; 18-24 for butter milk, as the product are perishable in nature.

## **TARGETS**

Around 96 percent of the company's products are sold through distributor's commission basis (C&F agents, distributors, agents and dealers) across Tamil nadu and Kerala. The remaining products are sold to direct customers. Around 80 percent of the company's turnover is trough dairy products sold across Tamil nadu and the remaining sold across Kerala. The company's products are sold on commission across Tamil nadu and Kerala through agents and distributors.

<b>Particulars</b>	<b>Total no</b>
C&F agents	5
Distributors	74
Commission agents and dealers	240

## QUALITY TESTING

The company has an in-house quality control department with a testing laboratory and 11 personnel headed by an in-charge, which undertakes quality checks at all stages of production and before dispatch.

## LABOUR SHIFTS

The company operates in three shifts of eight hours each.

## SWOT ANALYSIS

The dairy industry has its own strengths and weakness to build on present scenario for future growth. Opportunities and threats are the externalities of the future situation, not only within the country, but also expected from outside the borders.

<p style="text-align: center;"><b>STRENGTH</b></p> <ul style="list-style-type: none"><li>▶ Fast growing economy</li><li>▶ Trained human resource</li><li>▶ Largest milk producer</li><li>▶ Annual highest milk production growth</li><li>▶ New food safety and standard law</li><li>▶ Heritage of fresh milk consumption</li></ul>	<p style="text-align: center;"><b>WEAKNESS</b></p> <ul style="list-style-type: none"><li>▶ low dairy plants efficiency</li><li>▶ Inappropriate milk collection system in certain areas.</li><li>▶ Poor raw milk quality</li><li>▶ Lack of control over milk yield</li><li>▶ Poor export market and fluctuating prices for milk</li></ul>
<p style="text-align: center;"><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"><li>▶ Large rural market</li><li>▶ Uncontrolled use of antibiotic</li><li>▶ Increased farmer income by exploiting the high demand</li><li>▶ Better returns because of increased awareness in consumer about quality</li><li>▶ Cost of milk production in India is low</li></ul>	<p style="text-align: center;"><b>THREATS</b></p> <ul style="list-style-type: none"><li>▶ Low productivity and scattered production leading to high cost of transportation.</li><li>▶ Emphasis on milk fat and not on SNF content maintaining relativity lower prices of milk.</li><li>▶ Seasonal fluctuations in milk production.</li><li>▶ Risk of infections and disease</li></ul>

## **PRODUCT PROFILE**

### **NUTRA SUPER DOUBLE TONED MILK**

Double toned milk has obtained by adding skimming milk powder to whole milk. Under PFA rules, the double toned milk contains a minimum of 1.5% fat content and maximum milk SNF 9.0% of solids. The milk has been produced under the ultra-high temperature.

### **NUTRA SLIM TONED MILK**

Nutra slim toned milk is producing from the pure milk to get smooth consistency, and to preventing the cream layer. Milk has sterilized through UTH process and needs to it pack aseptically to keep its freshness. The milk which is having maximum fat is 0.5% and minimum SNF of 8.7%. This is approximately free from 95% fat as compared to cow or buffalo milk.

### **NUTRA DELITE COW MILK**

Nutra delite Cow milk is a pure form of milk which has been processing and packing in convenient pack sizes of 250 ml and 500 ml without spoiling the natural quality of cow milk. But the milk has preserved in high temperature to preserve the freshness of milk.

### **NUTRA PREMIUM STANDARDISED MILK**

Nutra premium standardized milk contains balanced amount of cream neither more nor less fat, the milk which fat 4.5% and milk SNF is 8.5%.

### **NUTRA RICH FULL CREAM MILK**

Nutra rich full cream milk contains 6% fat and 9% solids. A rich, creamier and tastier milk, ideal for preparing homemade sweets, curds and savories

### **NUTRA CURD**

To get nutra curd, toned milk has to keep in highly hygienic condition and passed through stringent quality checks. It has all the inherent goodness of toned milk and no added preservatives. Good for health.

## **NUTRA CUP CURD**

We are specialized in the manufacturing of cup curds and low fat with rich in calcium. The curd which has prepared in the company is preserved under proper temperature to meet the quality of the product. The curd is very lite which helps for easy digestion. This can alleviate the problems of stomach infection.

## **NUTRA BUTTERMILK**

Butter milk is a liquid; obtain from churning butter out of cream. This type of buttermilk is known as traditional buttermilk. In ancient days, people used to produce Butter milk by this way.

## **ADDITIONAL PRODUCTS**

### **NUTRA BUTTER**

Butter is made by churning fresh milk. It is generally used as a spread a condiment as well as in cooking, such as baking, pan frying. Butter consists of butterfat, milk proteins and water.

### **NUTRA CHEESE**

Making cheese from milk is origin and it has been an excellent method of preserving the nutrient of milk cheese is now manufactured large industry in the west and it is very popular article of food. Cheese is neither a common nor a popular product of consumption in India. The climate condition is conducive for its preparation and it is made on a very small scale, and only in certain areas of the country. And the company produces this product as a seasonal product.

### **NUTRA PANNER**

Panner is milk product. Panner is made by coagulating the milk. Critically, by using citric acid. Citric acid helps in coagulating the milk which contains 87% of water and 13% of total solid. In this panner, the total solids are taken and other 87% of water has to drain off. Panner contains 87% of milk added sugar has been preserved.

## **YOGURT**

The yogurt is made up of lactose, by these bacteria produces lactic acid, which acts on milk protein. It contains 4.7% of carbohydrates 3.3% of milk fats and 3.7% proteins. This is prepared by the cow's milk which has high protein. Yogurt is called as "the foods of god".

## **1.3 ABOUT THE PROJECT**

### **KEY RAW MATERIAL**

The company procures milk from a collective network of 550 vendors and collection centers across Tamil nadu (Coimbatore, Tirupur, Namakkal, Erode and Trichy). Milk procured at collection centers the main processing unit in two conditions:

- ▶ If the distance of collection center is less than 40 kilo meter from the main processing dairy unit, the milk is sent through cans. Then milk is chilled (below 4 degree celsius) at the main processing dairy unit.
- ▶ If the distance of collection centers is more than 40 kilometer from the main processing dairy unit, the milk is sent to the nearest chilling plant, within four hours of milking. From the chilling plant, the milk is sent through tankers (maintaining temperature below 4 degree Celsius) to the main processing dairy unit for processing.
- ▶ Chilling centers are at Negamam, Kangeyam, Musiri and Neikarapatti.

The company has three chilling plants (around 65, 70 and 140 km away from the processing unit) and two bulk-milk coolers (around 140 and 180 km away from the processing unit), in addition to the in-house chilling facility.

### **PROCUREMENT**

The process of obtaining goods and services from providers who are outside the organization is called procurement. It includes

- ▶ Purchase planning
- ▶ Specifications development
- ▶ Standards determination
- ▶ Making the purchase
- ▶ Supply contract administration
- ▶ Inventory control

Commodities are common products that are purchased based on the lowest bid. Vendors who can produce these products bid for a contract. The awarding of a contract can include price, ability to meet the project schedule, the fit for the purpose of project.

## **PROCUREMENT ROUTE**

Procurement is the process of purchasing goods or services. There are many different routes by which the design and construction of a building can be procured. The selected procurement route should follow a strategy which fits the long-term objectives of the business plan. Considerations are likely to include

- ▶ Speed
- ▶ Cost
- ▶ Quality
- ▶ Risk
- ▶ Asset ownership
- ▶ Financing

## **PROCUREMENT STEPS**

The company follows Procurement life cycle in the business it usually consist of four important steps;

**Identification of need:** This is an internal step for a company that involves understanding of the company needs by establishing a short term strategy followed by defining the technical direction and requirements.

**Supplier identification:** Once the company has answered important like identify the suppliers then it needs to identify who can provide the required product and service.

**Supplier communication:** When one or more suitable suppliers have been identified, request for quotation, request for proposal, request for information that needed by the company.

**Logistics management:** Supplier preparation, delivery and payment price are completed based on contract terms.

## **MILK PROCUREMENT COST**

The cost of milk procurement was ascertained by taking into account the costs of collection, transportation, chilling and delivery of the milk at the reception dock. Transportation cost has been founded from 8 routes which cover 132 points in and around Coimbatore. Based on the quantity of raw milk procured the cost is allocated to the contractors. The company is also procuring milk from other districts which has been chilled in the local places. The chilling cost is fixed amount per liter.

## **MARKETING COST**

The company includes the marketing cost it comprises of cost on milk procurement, processing cost and distribution of dairy products.

## **CRITICAL PATH METHOD**

The Critical Path Method, sometimes referred to as Critical Path Analysis was developed in the 1950's by DuPont Corporation and Remington Rand Corporation. It was specifically developed to manage power plant maintenance project. They wanted to develop to manage power plant maintenance projects. They wanted to develop a management tool that would help in the scheduling of chemical plant shut downs for maintenance and then restarting them once maintenance was complete. The CPM method saved the company one million dollars in the first year of use.

CPM is for projects that are made up of a number of individual "activities". If some of the activities require other activities to finish before they can start, then the project becomes a complex web activity. Risk analysis modules can be used as an enhancement of CPM. In such case, the assumption is that deterministic analysis can provide a solid basic schedule and budget. Either way, potential risk events, their likelihoods, and their anticipated effect are listed in a risk register.

Critical path is the sequence of activities which add up to the longest overall duration. It is the shortest time possible to complete a work. Any delay of an activity on the critical path directly impacts the planned project completion date.

## **PROGRAM EVALUATION REVIEW TECHNIQUE**

Separate but similar work was also being conducted in the mid 1950's by the United States Navy. The US government discovered the Russians were developing their own missile technology, and because national security was at stake the Navy immediately launched their own program. The project was enormous, and so it was important for the navy to conduct a research on planning and controlling complicated project. In February of 1958, Dr. C.E.Clark, from PERT team, introduced the first arrow diagram. PERT later referred to as the Program Evaluation Review Technique.

Program (Project) Evaluation Review Technique is a project management tool used to scheduled, organizes, and coordinate tasks within a project. It is basically a method to analyze a task involved in completing a given project, especially the needed to complete each task, and to identify the minimum time needed to complete the total project. PERT assumes a beta probability distribution for the time estimates.

Using the estimated time and cost of each activity, the network is analyzed in the same manner as the CPM method. The PERT method assumes that the sum of the completion time of activities on the critical path is normally distributed. This allows the calculation of the probability of completing the project within a given time period.

The PERT method of crashing a network is identical to the CPM method, using the mean completion time of each activity and ignoring its distribution.

## **1.4 OBJECTIVES**

### **Primary objectives**

- ▶ To optimize the procurement cost.

### **Secondary objectives**

- ▶ To minimize procurement distance.
- ▶ To control expenses incurred in the procurement

## **1.5 SCOPE**

The need is to increase profit and revenue has forced many establishments to try to optimize their resources. All most all companies are adopting CPM and PERT methodologies for the optimization of the time taken for completion of work. The format of the manufacturing industry has differed from the other industries. Based on the expenses incurred in the past the projections for the future can be made.

## **1.6 LIMITATION**

- ▶ Time period of the study is only 2 months December 2014 to January 2015.
- ▶ The data used is secondary data and the limitation applicable to the secondary data will also be applicable to this study.
- ▶ Since the study is done for only one organization it cannot be generalized.

## CHAPTER II

### REVIEW OF LITERATURE

Since the development of PERT and CPM in the 1950's, the techniques have been a subject of many of research papers. Research has generally been focused on PERT, since the deterministic CPM present few problem of interest. The research on PERT can be categorized into five problems interest. The first category includes research on the error and bias due to PERT assumption made. The second category involves findings the distribution function  $F(T)$  of the project completion times through an exact analysis, approximation, and bounding methods. Third, Monte Carlo sampling has been used to study the distribution of the PERT networks. The fourth category involves resource allocation problem and loading levels. The fifth area of research is the crashing of PERT networks. The literature review will focus on the research most directly related to this study; Monte Carlo simulation and crashing of PERT networks.

**Van Slyke (1963)<sup>1</sup>** was the first of many researchers to apply Monte Carlo simulations to study PERT. Van Slyke had demonstrated several advantage of using simulation, including more accurate estimation of the true project length, flexibility in selecting any distribution for activity times, and the ability to calculate "Criticality indexes" which we the probability of various activities being on the critical path.

**Pritsker and Happ (1966)<sup>2</sup>** developed and modified form of PERT called as the Graphical Evaluation and Review technique (GERT). GERT allowed in activity time to follow several different distributions. Project completion time distributions were computed through Monte Carlo simulation. Kennedy Thrall (1976) developed a modified of GERT into Project Length Analysis and Evaluation Technique (PLANET). PLANET added the ability to calculate the probability of activities being critical and to find the distribution of completion time for each activity.

**Honsinger (1968)<sup>3</sup>** used PERT/CPM as a network technique for planning, scheduling, and controlling the progress of a project, usually in a large and complex project such as the construction, conversion, or overhaul of a ship.

**Benson and Sewall (1972)**<sup>4</sup> reported on FASNET, a program which used the CPM model and allowed data to enter as the project progresses. The network had reanalyzed each time and updated the new data. Moore et al. (1978) and Hannan (1978) reformulated the problem by using goal programming. Goal programming was a modification of linear programming which could solve problems with multiple objectives. It allowed goals, in addition to, the cost minimization had added to the problem. Because of conflicting objectives, not all goals are achieved completely. Foldes and Soumis (1993) presented a reformulation of crashing networks when the cost-time tradeoffs were represented by a non-linear, non-differentiable convex function.

**Krogstad et al., (1977)**<sup>5</sup> had applied PERT in scheduled work. And allocated resources, cost with completed time. A model for the PERT cost methods shows how it adds to PERT the cost methods showed how it added to PERT the capability for planning, monitoring, and controlling the cost and for analyzing time and cost tradeoffs. These managerial tools were intended for persons who had improved in planning and control assignment.

**Herbert (1979)**<sup>6</sup> suggested the reason for the lack of such research stems from the fact that “seems unlikely that the effort required gathering the data and this only estimate data needed to be specified stochastic tradeoff functions for each activity in a large project could be justified on the basis of anticipated improvement in performance.”

**Antill et al., (1982)**<sup>7</sup> had suggested different reasons. It is obvious that PERT compression yields indefinite results, indicating only the areas within the project that can be considered for probable compressions. In effect, the overall compression characteristic of the network model was too vague to provide other than an approximate forecast of the time-cost behavior.

**Kost et al., (1986)**<sup>8</sup> conducted a case study on the usage of Critical Path Method and Program Evolution review Technique in planning and managing the cost. The researcher illustrated the utility and efficiency of this network planning technique by means of PERT analysis, the project was kept on track, despite overly optimistic estimates of the completion time. The initial demand is to use new monitoring techniques.

**Ameen (1987)**<sup>9</sup> developed Computer Assisted PERT Simulation program developed as a teaching tool to teach project management techniques. Students used the program to evaluate decision making under uncertainty and cost-time relationships and trade-offs. Ameen reported that result has been reacted very favorably to participating in the computer-assisted PERT simulation project.

**Johnson and Schou (1990)**<sup>10</sup> used simulation to compare three rules for crashing stochastic networks;

1. Select the lowest cost slope that will shorten the critical path(s). The CPM developed rule for crashing a project. It reflects the common approach taken to expenditure of cost.
2. Select the activity with the highest criticality index. In case of ties, choose the alternative that cost least per unit of time to reduce. The criticality index should ideally be recomputed at each step in crashing a project.
3. Select the least cost activity first. This rule is a combination of the first two rules. It reflects the idea of selecting the least cost expected value. This crashing will helps to reduce the cost and time critically.

**Badiru (1991)**<sup>11</sup> reported the developed simulation program for project management, called STARC. STARC allowed the user to calculate the probability of completing the project by a specified dead line. It also allowed the users to enter “duration risk coverage factor”. That was a percentage over which the time range of activities are extended. It allowed some probability of generating activity times above the pessimistic time and below the optimistic time.

**Foldes et al., (1993)**<sup>12</sup> presented a reformulation of crashed networks when cost-time tradeoff is represented by a non-linear, non-differentiable convex function. Very little research has been conducted which addresses crashing in a stochastic environment. That was very helpful in the distribution activities.

**Peng et al., (1993)**<sup>13</sup> scheduled that the cooperative tasks have been reassigned to a set of processing nodes in a distributed system, when each task is assumed to consist of several modules. During the course of their execution, the task communicates with each other to collectively accomplish a common goal. The objective of this scheduling is to minimize the maximum normalized task response

time. Real time task are the precedence of constraint among them is expressed in a PERT/CPM. Lower-bound cost were estimated and used to bind the search.

**Luttman et al (1995)<sup>14</sup>** studied the changes in health care and focused their attention on new for planed and managed clinical processes. The researchers adopted the use of one tool in particular, clinical pathways in their planning and management processes and this has shown tremendous results. And this helps in procurement which was indirectly helped in health care.

**Kirl et al., (1996)<sup>15</sup>** applied PERT on logic designer. They substituted a formalized statistical method, which determines: (1) expected or probable delays, (2) critical path timings, (3) timing slack allowable between various inputs and (4) probability of achieving on output by a certain time. From these data the designer can make a meaningful judgment regarding the reliability.

**Hatush et al., (1997)<sup>16</sup>** used the PERT model as a methodology for assessing and evaluating contractor data for the purpose of pre qualification and bid evaluation presentation. The PERT approach is used to develop a PERT model for the assessment of contractor data. The model incorporates a multiple ratings permitting the uncertainty in contractor data to be evaluated. An empirical study investigating the importance of different contractor criteria is described.

**Newbold (1998)<sup>17</sup>** by concentrating on the most critical tasks it can be ensured that the project is on time and is keeping pace with the schedule set up. Critical Path Method “is a technique for analyzing projects by determining the longest sequence of task (or the sequence of task with the least slack) through a project network.”

**Cottrell (1999)<sup>18</sup>** has developed a test, simplified version of PERT for project planning. The simplification has been understood to reduce the number of estimates required activity durations from three, as in conventional PERT, to two. This is accomplished by applying the normal distribution, rather than the beta distribution to activity duration.

**Herroelen et al., (2002)<sup>20</sup>** suggested that “usually in the form of an advance warning, are placed whenever a resource has to perform an activity on critical chain activity is done by a different resources.” And that could perform the activity of managed resource.

**MindTools (2004)**<sup>20</sup> used the Critical Path analysis formally identified tasks which must be completed on time for the whole project to be completed on time, and also identified which tasks could be delayed for a while if resource needs to be reallocated to catch up on missed task. The CPM could identify the path that taken to accelerate a project to be completed prior to its due date or identified the shortest possible time or the least possible cost that is needed to complete a task.

**Trent (2004)**<sup>21</sup> had involved in completed supply chain process in project also impact from critical paths. Supply chain in any organization is generally identified as a group of organizations or individual department upstream or downstream, linked together to help move any product from the source to the supplier. A facility to be constructed, for example, it had to rely on a structural contractor, an electrical contractor, plumbing and heating in addition to the construction is received on time for the process.

**Coleman (2009)**<sup>22</sup> used CPM/PERT to analyze warehouse expansion project. The objective was to analyze the relationship between the activities. He developed a report that present the activity scheduled and expected project completion time for the warehouse expansion project. The feasibility and probability of requirement which was for the completion of project and supposed that activity times be shortened to provide an 80% chance of meeting the last week. The at last the activity has been crashed to meet the deadline.

The review has helped the researcher to gain knowledge about the topic. It has also helped the researcher to know the various perceptions of the other researchers in the field and had also helped the researcher to know the various methods and techniques used by them in handling the problem that are prevailing in the field.

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## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **MEANING**

Research is the search of knowledge. It is scientific and systematic for pertinent information or a specific topic. Research is the systemized effort to gain new knowledge. It is a careful investigation or inquiry especially through search for new facts in any branch of knowledge. It is the systematic approach concerning generalization and the formulation of a theory.

#### **RESEARCH METHODOLOGY**

Research methodology is a way to systematically solve the research problem by applying various research techniques along with logic behind the problem.

#### **RESEARCH DESIGN**

Research design is the arrangement of condition for collection and analysis of data in a manner that aim to combine with relevance to the research purpose with economy in procedure. The research design is analytical and descriptive in nature.

#### **ANALYTICAL RESEARCH**

Analytical research attempts to explain why and how. It is usually concerns itself with cause-effect relationships among variables. The research attempts to analyze the situation and make critical evaluation.

#### **DESCRIPTIVE RESEARCH**

Descriptive research studies are those studies, which are concerned with describing characteristics of a particular individual or of a group. In order to analyses it, the descriptive study has been under taken.

#### **SOURCES OF DATA**

The data utilized for the study is secondary in nature. The data had been collected from the annual reports of the company.

## **PERIOD OF STUDY**

The procurement cost sheet of Numax Foods Private Limited is taken for December 2014 to January 2015.

## **TOOLS USED FOR ANALYSIS**

- ▶ PERT (Program Evolution Review Technique)
- ▶ CPM (Critical Path Method)

## **CHAPTER IV**

### **ANALYSIS AND INTERPRETATION**

The data after collection has to be processed and analyzed in accordance with the outline laid down for the purpose at the time of developing the research plan. The term analysis refers to rearrangement of data i.e. simplification of data by methodological classification of the data collected. Interpretation refers to explaining the meaning and significance of the data so simplified.

Both analysis and interpretation are interlinked and complementary to each other. Analysis is not complete without interpretation. Thus to make the presentation of information more purposeful and meaningful, both analysis and interpretation are to be considered.

Thus, “in the process of analysis, relationships or difference supporting or conflicting with original data should be subjected to statistical test of significance to determine with what validity data can be indicated results in any conclusions”.

The company fixes some amount to the contractors for the procurement and for diesel.

## **COMPANY ALLOCATION FOR CONTRACTORS**

### **DEPRECIATION COST FOR VEHICLE AS PER COMPANY**

<b>Kilometer per day</b>	<b>Amount per day</b>
0 – 50	Fixed amount Rs 600 per km
51 – 99	Rs 150
100 – 129	Rs 125
130 – 149	Rs 100
150 – 159	Rs 75
160 – 200	Rs 40
>200	Rs 0

### **DIESEL COST PAID BY THE COMPANY TO THE CONTRACTOR AS FIXED AMOUNT**

<b>Vehicle</b>	<b>Diesel cost / km</b>
Auto	Rs 5.78
Tata ace	Rs 6.23

## LOCAL ROUTE

### 4.1.1 EXISTING ROUTE A

EXISTING NETWORK 4.1.1

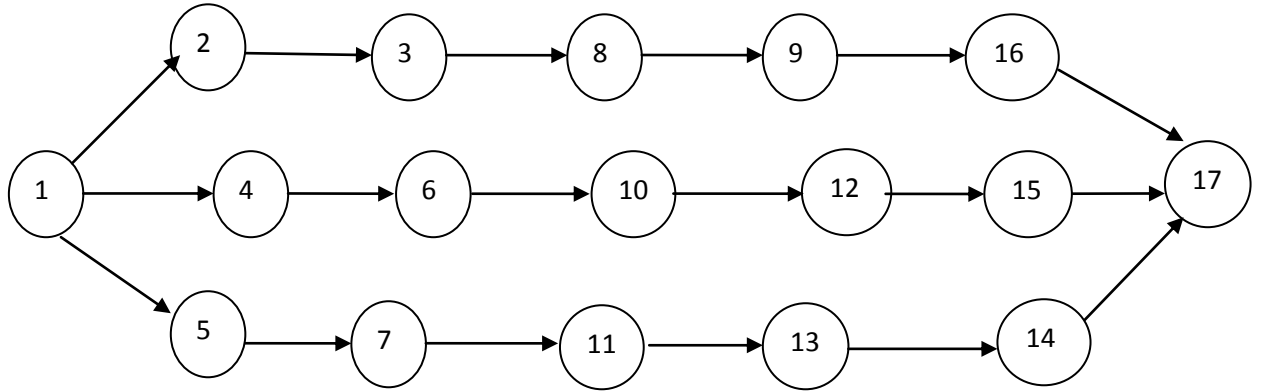


TABLE 4.1.1

NUMBER	PLACE	KILOMETER
1	Plant	0km
2	Ellapalayam	3.4 km
3	Mondikaliputhur	8.1 km
4	Thathampalayam	1.6 km
5	Kumaran nagar	14 km
6	China padiyanoor	12.9 km
7	Vadavalli	7.5 km
8	China puthur	9.5 km
9	Amman kovil	18.3 km
10	Kathavukarai	3.2 km
11	Teachers colony	16.9 km
12	Chikkarampalayam	11.2 km
13	Karichipalayam	10.0 km
14	Onnipalayam	12.4 km
15	Sengalipalayam	12.4
16	Periyaputhur	7.0 km
17	Plant	110 km

#### 4.1.1 SUGGESTED ROUTE A

SUGGESTED NETWORK 4.1.1

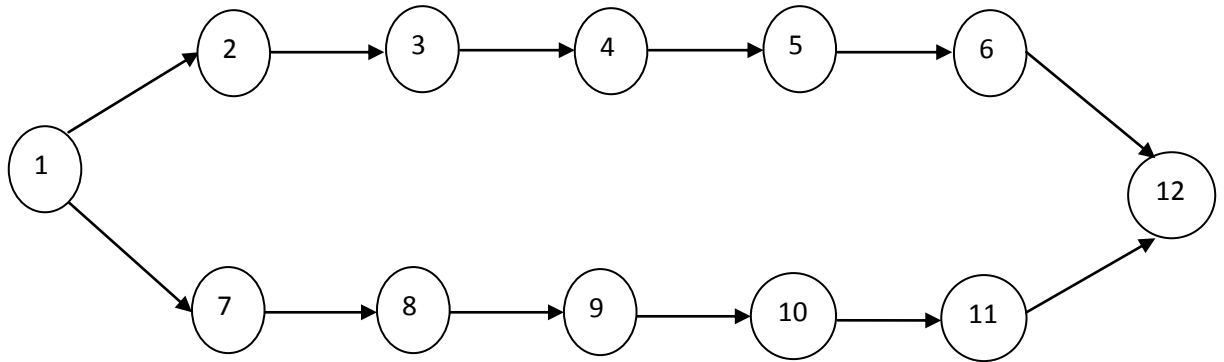


TABLE 4.1.1

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Amman kovil	18.3 km
3	Periya puthur	7.0 km
4	Onnipalayam	12.4 km
5	Kalipalayam	5.9 km
6	Vadavalli	7.5 km
7	Teachers colony	16.9 km
8	Chikkarampalayam	11.2 km
9	China padiyanoor	12.9 km
10	Mathampalayam	21.7 km
11	Karichipalayam	10.0 km
12	Plant	80.0 km

#### 4.1.1 COST TABLE ROUTE A

TABLE 4.1.1

	Total amount paid (Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(km)
<b>Existing route</b>	19747	0	19747	40392	0.48	110
<b>Suggested route</b>	14472	0	14472	40392	0.35	80

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 40392 lit as per December

Kilometer for a day = 160 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	160*5.78	924.8 per day
For 15 days	924.8 *15	13872
Depreciation	40 * 15	600

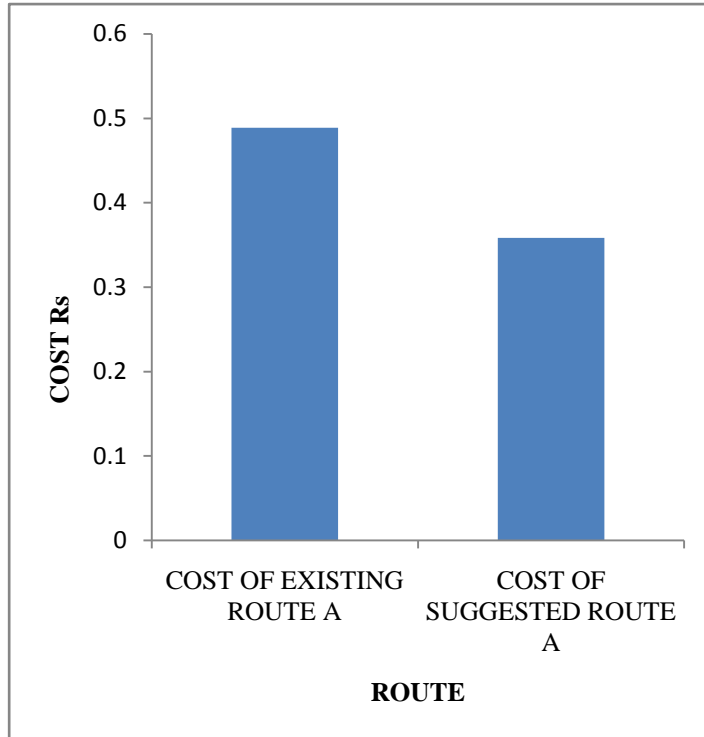
Total amount paid = 13872 + 600 = Rs 14472.

$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs 0.35

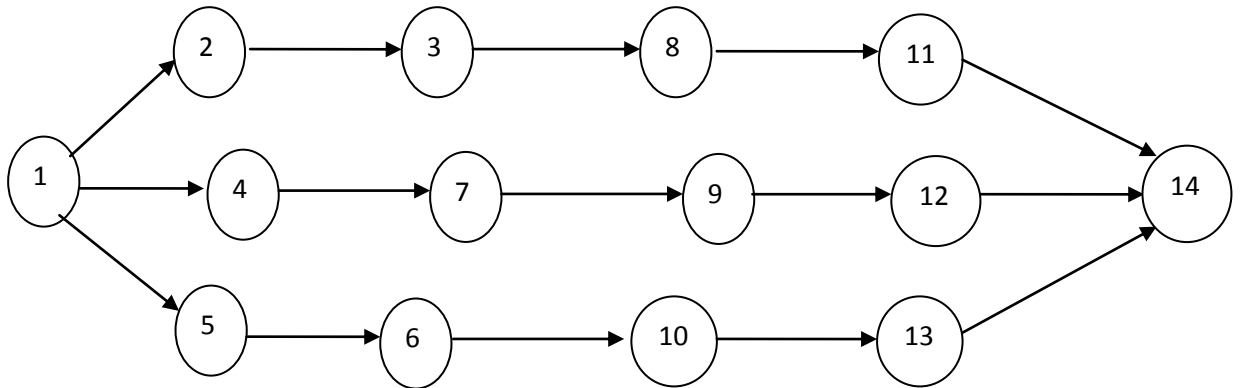
The existing route of the company runs for 220 km per day with some repetition. In the suggested route the repeated places are excluded and they were included in some other route by which the cost of procurement and cost of the milk has been reduced by Rs.0.13per liter. So the company saves up to Rs. 10128 per month.

**CHART 4.1.1**  
**COST TABLE ROUTE A**



#### 4.1.2 EXISTING ROUTE B

**EXISTING NETWORK 4.1.2**



**TABLE 4.1.2**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Saravanampatti	17.3 km
3	Pallipalayam	21 km
4	Vellanaipatti	18.9 km
5	Ramaiahpalayam	23 km
6	Pachapalayam	25 km
7	Senthampalayam	8.7 km
8	Arugampalayam	21.2 km
9	Kovilpalayam	7.8 km
10	Kunnathur	6.5 km
11	Ganeshapuram	4.3 km
12	Semanachettipalayam	3.8 km
13	Ellapalayam	2.1 km
14	Plant	80.0 km

#### 4.1.2 SUGGESTED ROUTE B

SUGGESTED NETWORK 4.1.2

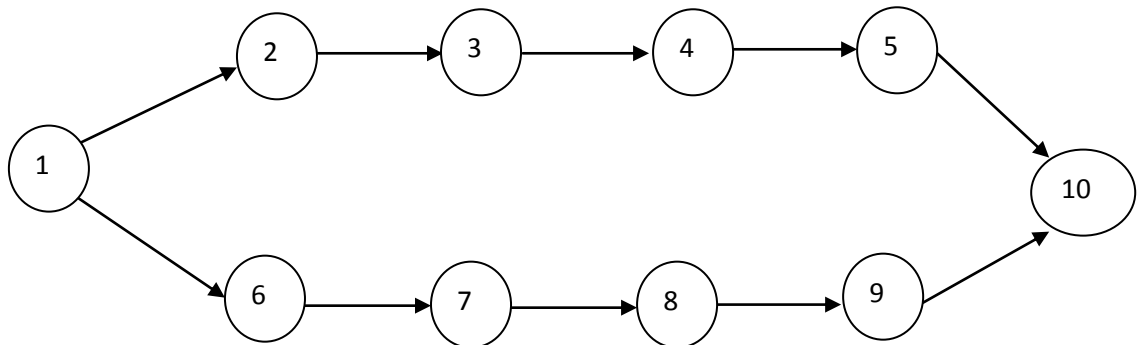


TABLE 4.1.2

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Saravampatty	17.3
3	Vellanaipatti	18.9 km
4	Senthampalayam	8.7 km
5	Rasadi	14.7 km
6	Aruganpalayam	21.2 km
7	Pethanayakanpalayam	12.3 km
8	Kovilpalayam	7.8 km
9	Ellapalayam	2.1 km
10	Plant	75 km

#### 4.1.2 COST TABLE ROUTE B

TABLE 4.1.2

	Total amount paid (Rs)	Deductions (Rs)	Net amount(Rs)	Quantity handled (litre)	Cost / lit	Procurement distance(km)
<b>Existing route</b>	15552	0	15552	19777	0.786	80
<b>Suggested route</b>	15142.5	0	15142.5	19777	0.765	75

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 19777 lit as per December

Kilometer for a day = 150 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	150*6.23	934.5 per day
For 15 days	934.5 *15	14017.5
Depreciation	75 * 15	1125

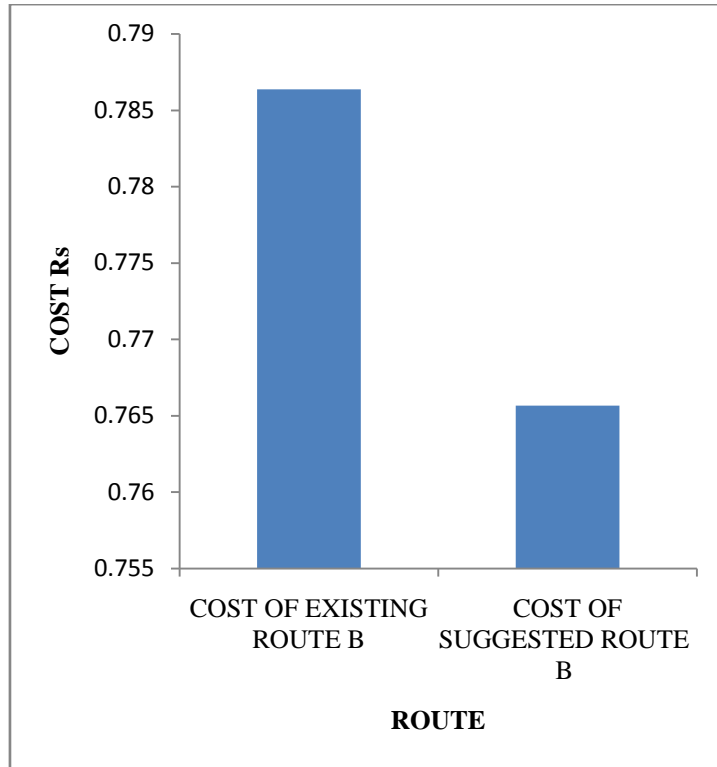
TOTAL AMOUNT PAID =Rs. 15142.5

$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs. 0.765.

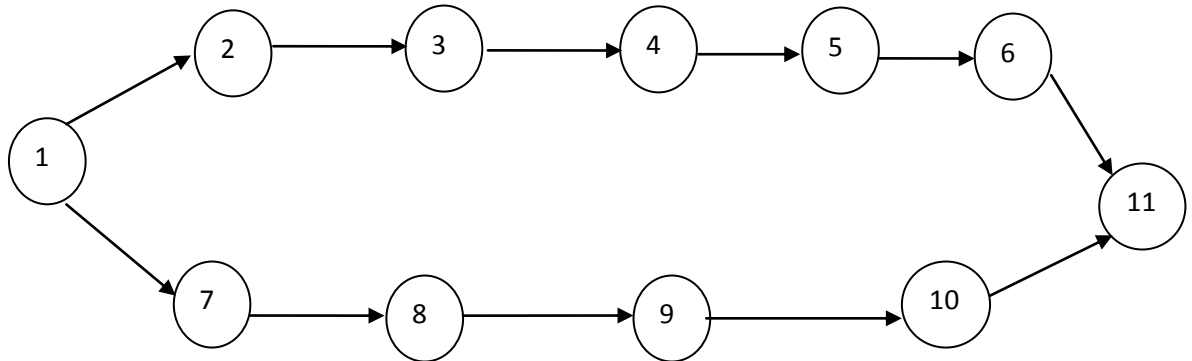
In route B, the procurement cost is reduced, but there is no more difference between the suggested and existing route. The procurement distance is reduced to 75 km from 80 km. And the cost of procurement is also reduced from 0.78 paise to 0.76 paise per litre.

**CHART 4.1.2**  
**COST TABLE ROUTE B**



### 4.1.3 EXISTING ROUTE N

#### EXISTING NETWORK 4.1.3

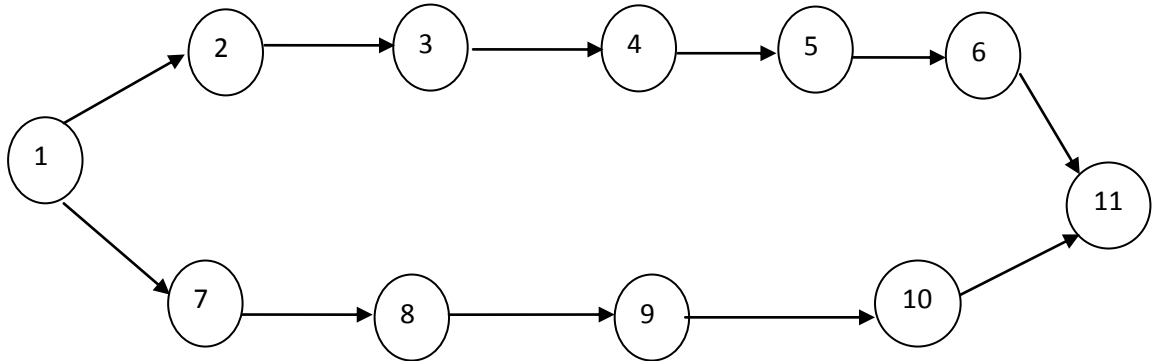


**TABLE 4.1.3**

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Mondikaliputhur	7.5 km
3	Pethanayakanpalayam	12.2 km
4	Mathampalayam	21.7 km
5	Amboodi	14.3 km
6	Kariyakannur	10.1 km
7	Pullamadai	19.6 km
8	Kariyagoundanur	9.6 km
9	Mukkanoor	11.0 km
10	Annur	5.0 km
11	Plant	70.0 km

### 4.1.3 SUGGESTED ROUTE N

**SUGGESTED NETWORK 4.1.3**



**TABLE 4.1.3**

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Pallapalayam	14.7 km
3	Mondikaliputhur	7.5 km
4	Alankombu	6.8 km
5	Amboodi	14.3 km
6	Chandrapuram	8.0 km
7	Kariyakannur	7.1 km
8	Mukkanoor	11.0 km
9	Sirayampalayam	10.5 km
10	Ponniyakanaputhur	6.2 km
11	Plant	60 km

### 4.1.3 COST TABLE ROUTE N

TABLE 4.1.3

	Total amount paid (Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(km)
<b>Existing route</b>	14583	0	14583	9580	1.52	70
<b>Suggested route</b>	13089	0	13089	9580	1.36	60

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 9580 lit as per December

Kilometer for a day = 120 km

Particulars	Amount (Rs)	Total (Rs)
Kilometer for a day	120*6.23	747.6 per day
For 15 days	747.6 *15	11214
Depreciation	125 * 15	1875

TOTAL AMOUNT PAID =Rs. 13089

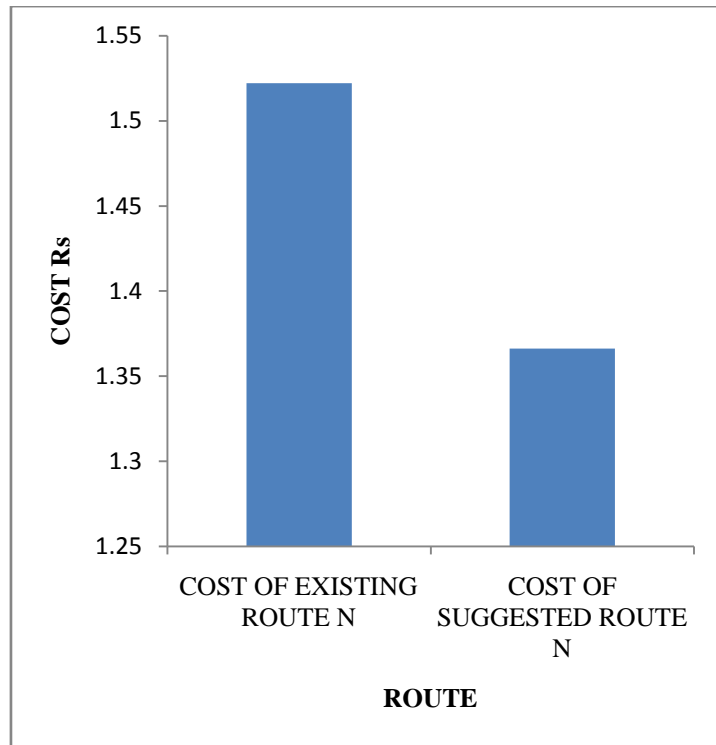
$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs. 1.36

The table 4.1.3 explains the difference in cost of procurement of the milk for both the routes on which the quantity of procurement is low and the travelling distance is high so the procurement cost is high. This is because of the distance taken for the procurement is large compared to the other routes. Based on the analysis the company can reduce the procurement cost if it procures milk from shortest distance.

**CHART 4.1.3**

**COST TABLE ROUTE N**



#### 4.1.4 EXISTING ROUTE D

EXISTING NETWORK 4.1.4

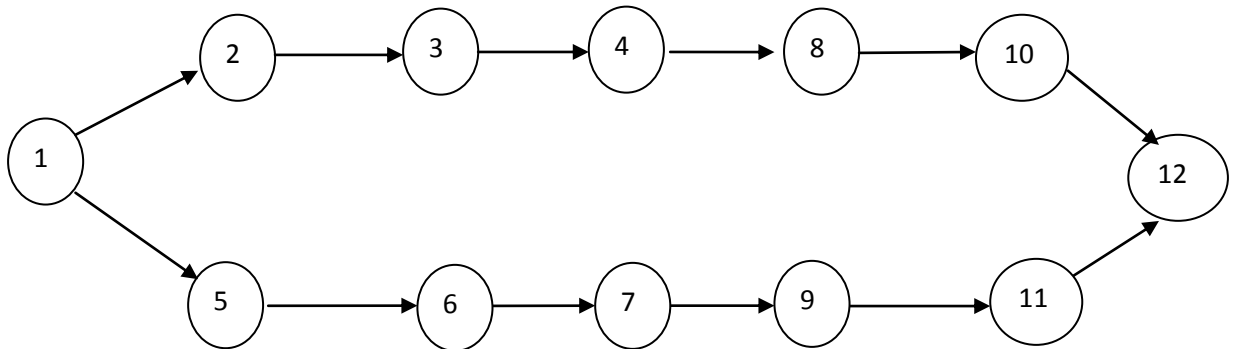
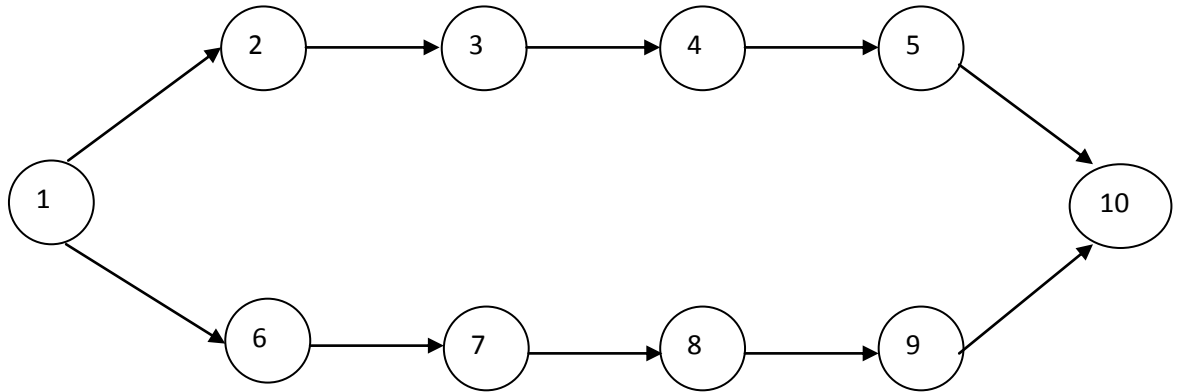


TABLE 4.1.4

NUMBER	PLACE	KILOMETER
1	Plant	0km
2	Pogalur	14.5 km
3	Ramaiyapalayam	15.7 km
4	Then thiru malai	19.1 km
5	Jadaiyampalayam	17.5 km
6	Sokkampalayam	8.4 km
7	Venkataramapuram	7.2 km
8	Edukampalayam	12.3 km
9	Rasadi	14.7 km
10	Pallapalayam	7.9 km
11	Annur	5.0 km
12	Plant	70.0 km

#### 4.1.4 SUGGESTED NETWORK D

**SUGGESTED NETWORK 4.1.4**



**TABLE 4.1.4**

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Komarapalayam	3.9 km
3	Pogalur	14.5 km
4	Ramaiyaalayam	15.7 km
5	Jadayampalayam	17.5 km
6	Mookanur	11.0 km
7	Kumaran nagar	14 km
8	Kariya goundanur	9.6 km
9	Nallichettipalayam	4.2 km
10	Plant	60 km

#### 4.1.4 COST TABLE ROUTE D

TABLE 4.1.4

	Total amount paid (Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance (km)
<b>Existing route</b>	14583	0	14583	10189	1.43	70
<b>Suggested route</b>	13089	0	13089	10189	1.28	60

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 10189 lit as per December

Kilometer for a day = 120 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	120 * 6.23	747.6 per day
For 15 days	747.6 *15	11214
Depreciation	125 * 15	1875

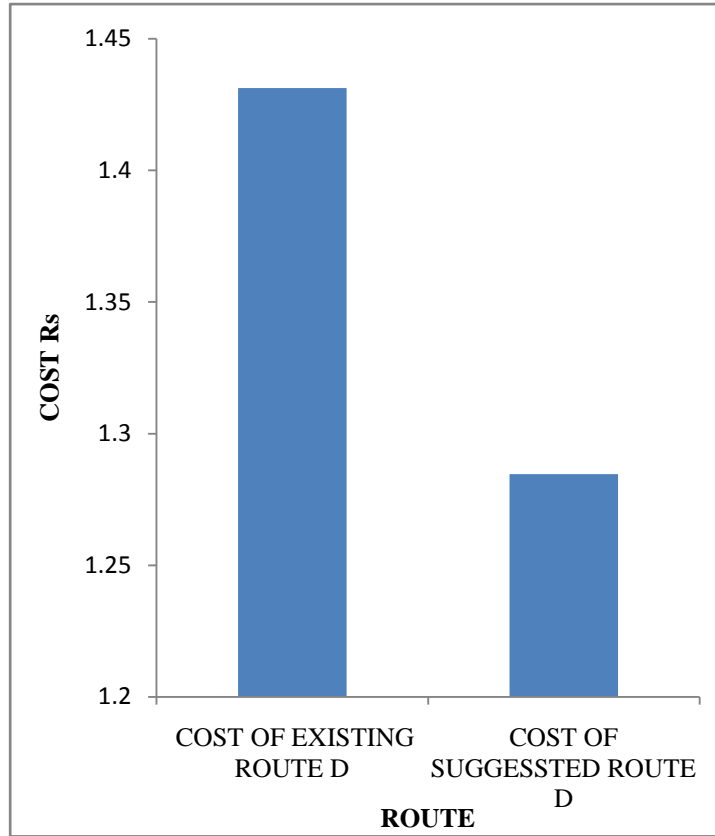
Total amount paid = 11214 + 1875 = Rs 13089.

Amount paid
Cost Per Liter = $\frac{\text{—————}}{\text{Quantity procured}}$
Quantity procured

COST PER LITER = Rs 1.28

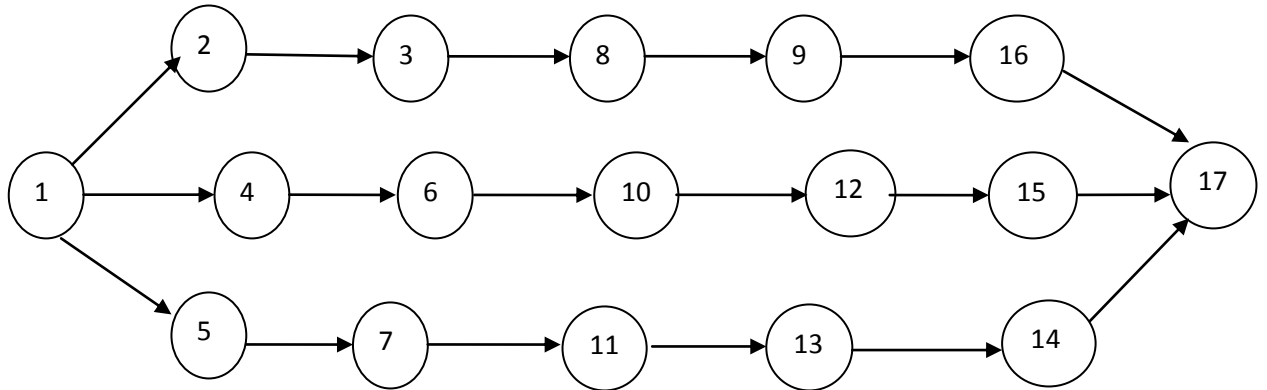
The table explains about the procurement cost paid by the company is Rs.1.43 and when the company follows the suggested route then the expenses can be reduced to Rs.1.28. By which the company saves up to Rs.45336 per year.

**CHART 4.1.4**  
**COST TABLE ROUTE D**



#### 4.1.5 EXISTING ROUTE F & I

**EXISTING NETWORK 4.1.5**

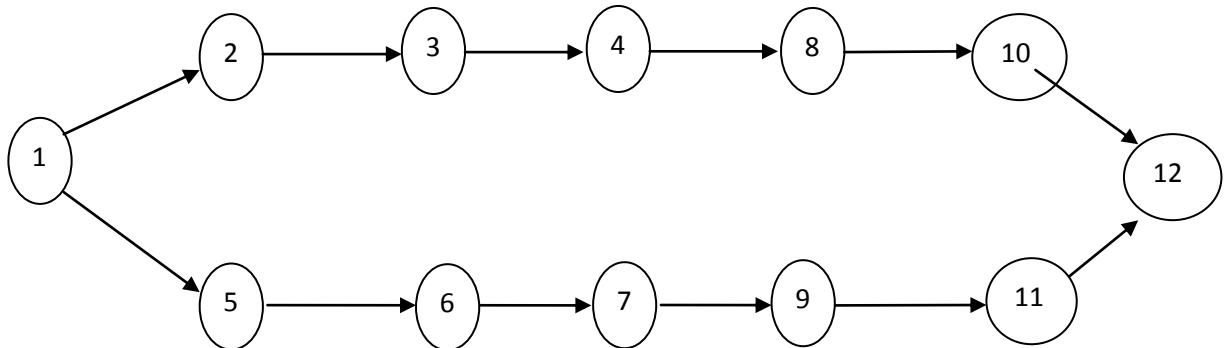


**TABLE 4.1.5**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Allapalayam	15.5 km
3	Arasur	17.8 km
4	Vagarampalayam	12.9 km
5	Papampatti	32.3 km
6	Vaiampalayam	16.4 km
7	Kaduvettipalayam	13.9 km
8	Chandrapuram	8.0 km
9	Sirayampalayam	10.5 km
10	Ponniyakanaputhur	6.2 km
11	Panakattuputhur	16.8 km
12	Kanjapalli	10.3 km
13	Kanurputhur	2.0 km
14	Nagamaputhur	6.2 km
15	Annur	5.0 km
16	Kariyampalayam	1.0 km
17	Plant	348 km

#### 4.1.5 SUGGESTED NETWORK F

##### SUGGESTED NETWORK 4.1.5



**TABLE 4.1.5**

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Vagarayampalayam	12.9
3	Papampatti	14.7 km
4	Chandrapuram	11.8 km
5	Nagamaputhur	6.2 km
6	Kanurputhur	32.3 km
7	Kanjapalli	10.3 km
8	Allapalayam	15.5 km
9	Arasur	17.8 km
10	Vaiampalayam	16.4 km
11	Kaduvettipalayam	13.9 km
12	Plant	103 km

#### 4.1.5 COST TABLE ROUTE F

TABLE 4.1.5

	Total amount paid (Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(km)
<b>Existing route</b>	33721	0	33721	30431	1.1	172
<b>Suggested route</b>	19250	0	19250	30431	0.63	103

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 30431 lit as per December

Kilometer for a day = 206 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	206*6.23	1283.38 per day
For 15 days	1283.38 *15	19250
Depreciation	No depreciation charges	0

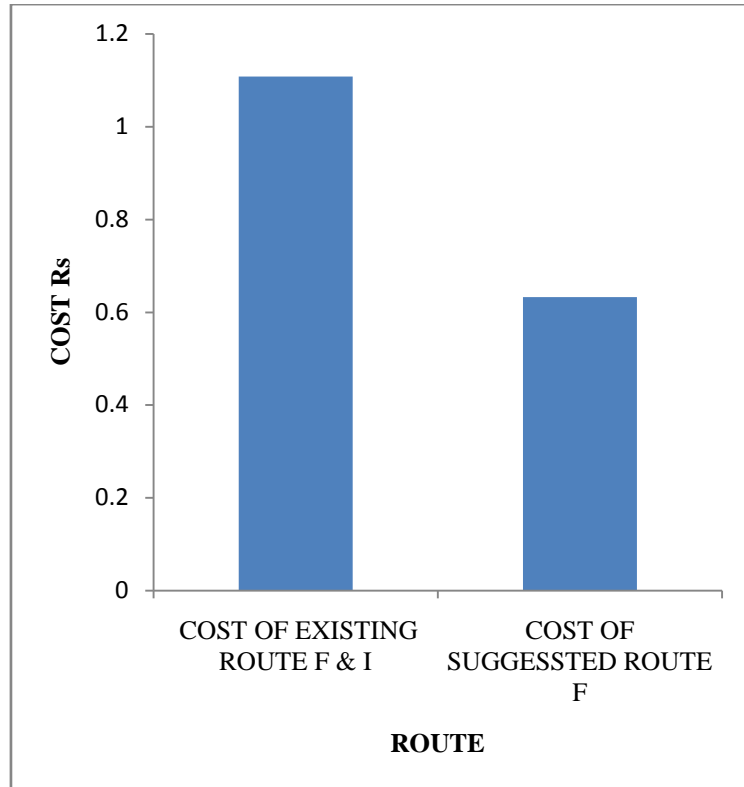
Total amount paid = 19250 + 0 = Rs 19250.

$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs 0.63

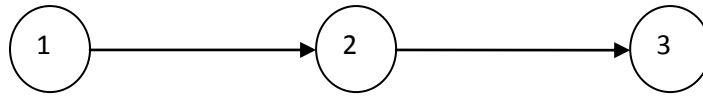
Table 4.1.5 explains the procurement cost of two existing route, when it combine as a single route the company can save the expenses of 20% incurring in the procurement. So the company can adopt the suggested route to make a profit and to optimize the cost of procurement.

**CHART 4.1.5**  
**COST TABLE ROUTE F**



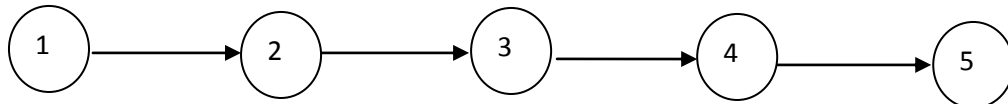
#### 4.1.6 EXISTING ROUTE C & P

**EXISTING NETWORK 4.1.6**



<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Annur	5.0 km
3	Plant	24 km

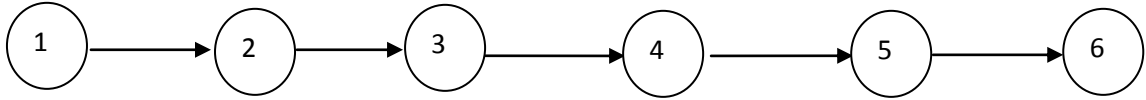
**EXISTING NETWORK 4.1.7**



<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Kurukkilliyampalayam	5.0 km
3	Achanpalayam	2.0 km
4	Nallichetipalayam	4.2 km
5	Plant	25 km

#### 4.1.6 SUGGESTED ROUTE C

#### SUGGESTED NETWORK 4.1.6



**TABLE 4.1.6**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Kurukkilliyampalayam	5.0 km
3	Achanpalayam	2.0 km
4	Nallichetipalayam	4.2 km
5	Annur	5.0 km
6	Plant	25 km

#### 4.1.6 COST TABLE ROUTE C

**TABLE 4.1.6**

	<b>Total amount paid(Rs)</b>	<b>Deductions (Rs)</b>	<b>Net amount (Rs)</b>	<b>Quantity handled (litre)</b>	<b>Cost / lit (Rs)</b>	<b>Procurement distance(km)</b>
<b>Existing route</b>	16500	0	16500	27261	0.60	98
<b>Suggested route</b>	9000	0	9000	27261	0.33	50

#### **COST FOR THE SUGGESTED ROUTE**

QUANTITY HANDLED= 27261 lit as per December

Kilometer for a day = 100 km

<b>Particulars</b>	<b>Amount(Rs)</b>	<b>Total(Rs)</b>
Kilometer for a day	100	0
For 15 days	600*15	9000
Depreciation	No depreciation charges	0

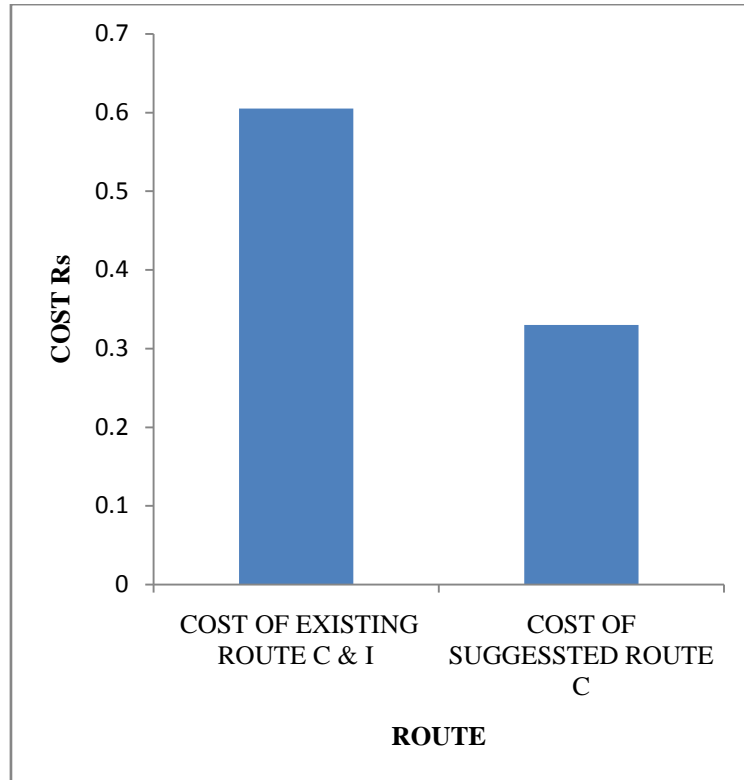
**Total amount paid** = 9000 + 0 = Rs 9000.

$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

**COST PER LITER** = Rs 0.33

From the table 4.1.6 the company is spending 50% extra on the procurement this is because of the increase in the route and quantity of milk when the routes combined as one then the company can able to save Rs.18800 per year. By which the profit can be increased.

**CHART 4.1.6**  
**COST TABLE ROUTE C**



## KANGAYAM ROUTE

### 4.2.1 EXISTING ROUTE KG-1

EXISTING NETWORK 4.2.1

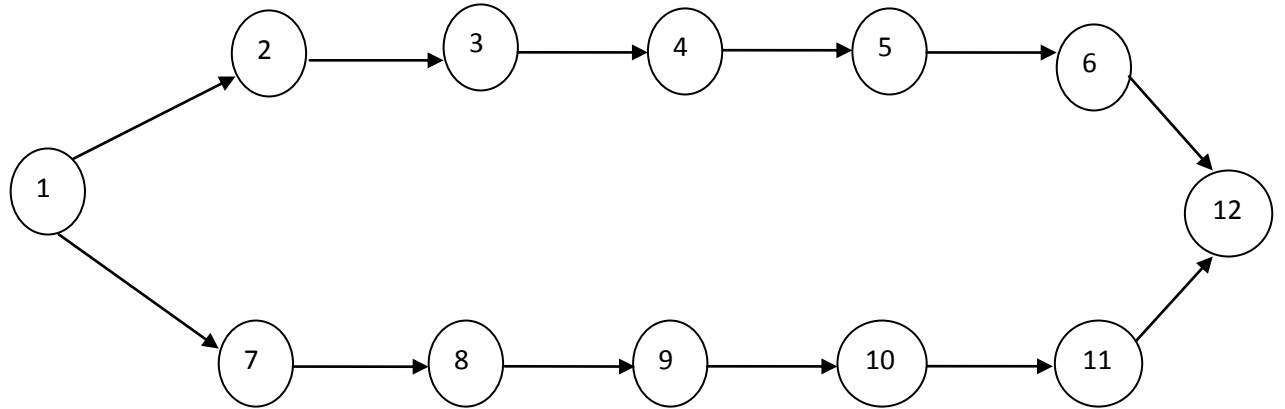
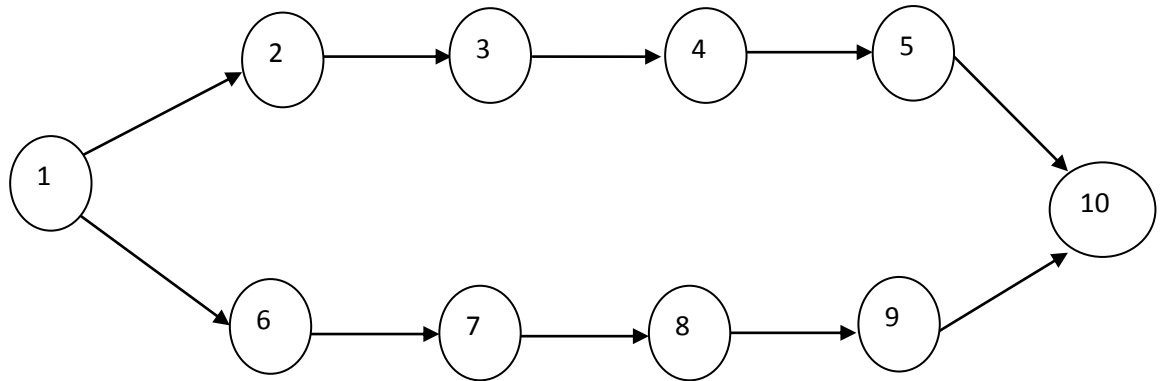


TABLE 4.2.1

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Putharachal	28.6 km
3	Vengipalayam	19.6 km
4	Mettukadai	39 km
5	Kaluveripalayam	35.6 km
6	Ramapattinam	4.8 km
7	Kerudamuthur	34.2 km
8	Jothiyampatti	22.9 km
9	Thammareddipalayam	14.0 km
10	Kundadam	26.6 km
11	Muthur	22.2 km
12	Plant	113 km

#### 4.2.1 SUGGESTED ROUTE KG-1

**SUGGESTED NETWORK 4.2.1**



**TABLE 4.2.1**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Putharachal	28.6 km
3	Vengipalayam	19.6 km
4	Mettukadai	39 km
5	Kaluveripalayam	35.6 km
6	Ramapattinam	4.8 km
7	Kerudamuthur	34.2 km
8	Thammareddipalayam	14.0 km
9	Muthur	22.2 km
10	Plant	91.0 km

#### 4.2.1 COST TABLE ROUTE KG-1

TABLE 4.2.1

	Total amount paid (Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (Rs)	Cost / lit (litre)	Procurement distance(km)
<b>Existing route</b>	21120	0	21120	20642	1.02	113
<b>Suggested route</b>	19258	0	19258	20642	0.93	91

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 20642 lit as per December

Kilometer for a day = 182 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	182*6.23	1133.86
For 15 days	1133.86*15	17008
Depreciation	150*15	2250

**Total amount paid** = 17008 + 2250 = Rs 19258.

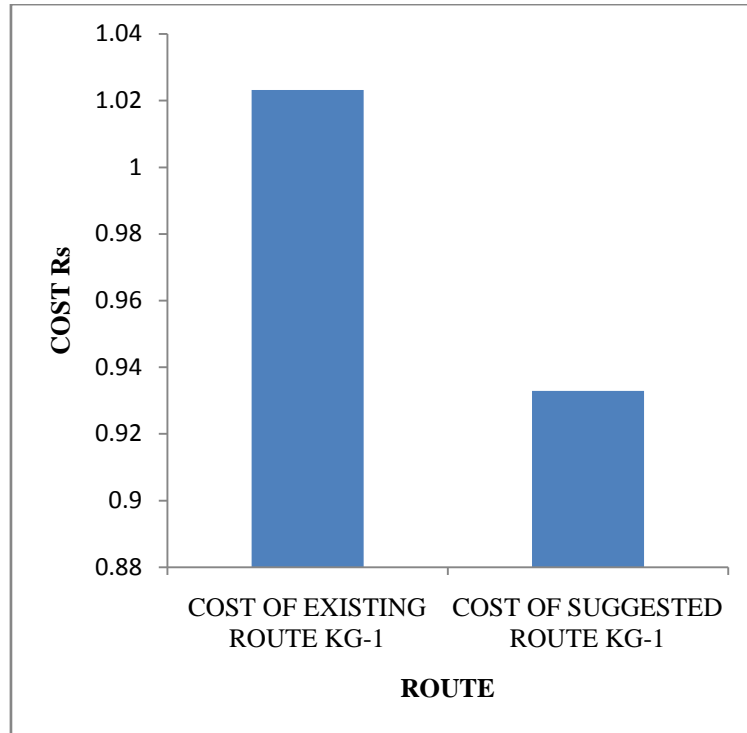
$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs 0.93

From the suggested route the company can condense the cost of Rs.0.93 per litre from Rs.1.02 per litre, by which the company saves up to 5% of the total cost. This is because the distance of procurement is also reduced to 91 km from 113 km, which helps the management to increase the profit and labor cost also diminished.

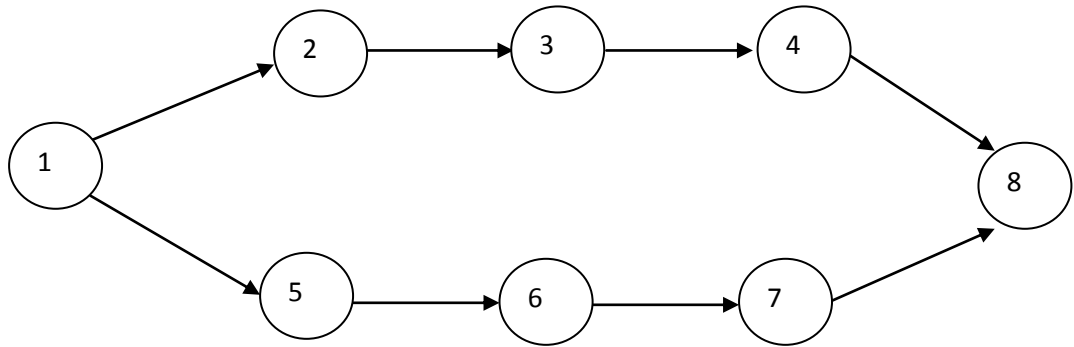
### CHART 4.2.1

#### COST TABLE ROUTE KG-1



## 4.2.2 EXISTING ROUTE KG-2

**EXISTING NETWORK 4.2.2**

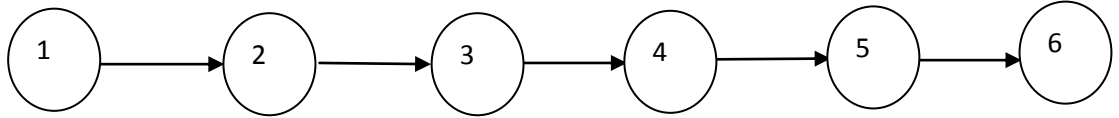


**TABLE 4.2.2**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Kungarupalayam	9.5 km
3	Ellapalayam	38.8 km
4	Peelikampatti	17.2 km
5	kadalaikaatuputhur	6.1 km
6	Andipalayam	19.1 km
7	Thayampalyam	17.1 km
8	Plant	70 km

## 4.2.2 SUGGESTED NETWORK KG-2

### SUGGESTED NETWORK 4.2.2



**TABLE 4.2.2**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Kungarupalayam	9.5 km
3	Peelikampatti	17.2 km
4	kadalaikaatuputhur	6.1 km
5	Andipalayam	19.1 km
6	Plant	55.0 km

## 4.2.2 COST TABLE ROUTE KG-2

TABLE 4.2.2

	Total amount paid(Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(km)
<b>Existing route</b>	14583	0	14583	18034	0.81	70
<b>Suggested route</b>	12155	0	12155	18034	0.66	55

### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 18034 lit as per December

Kilometer for a day = 110 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	110*6.23	685.3
For 15 days	600*15	10280
Depreciation	125*15	1875

Total amount paid = 10280 + 1875 = Rs 12155.

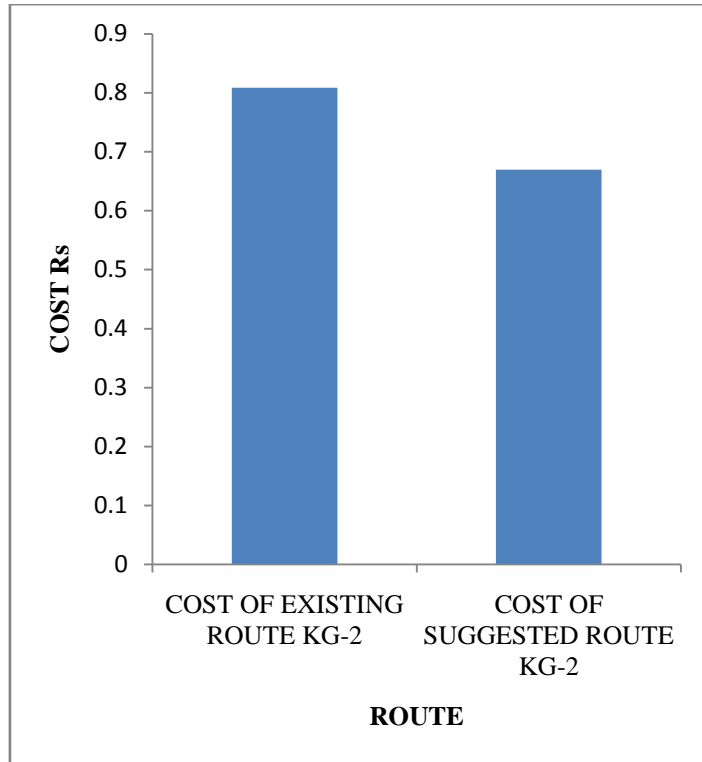
Amount paid
Cost Per Liter = $\frac{\text{—————}}{\text{Quantity procured}}$
Quantity procured

COST PER LITER = Rs 0.66.

The table 4.2.2 indicates the procurement distance was reduced to 55 km from 70 km, and the cost of milk is also reduced by 0.15 paise per litre. This will save up to Rs.60000 per annum.

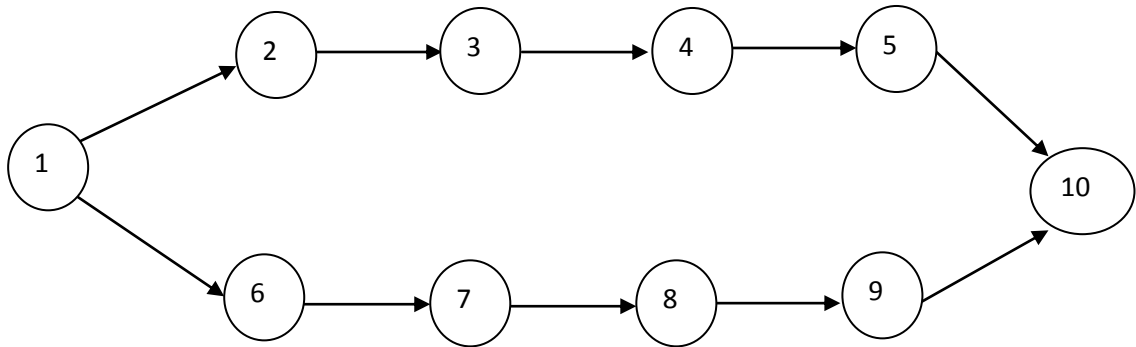
**CHART 4.2.2**

**COST TABLE ROUTE KG-2**



### 4.2.3 EXISTING ROUTE KG-3

**EXISTING NETWORK 4.2.3**

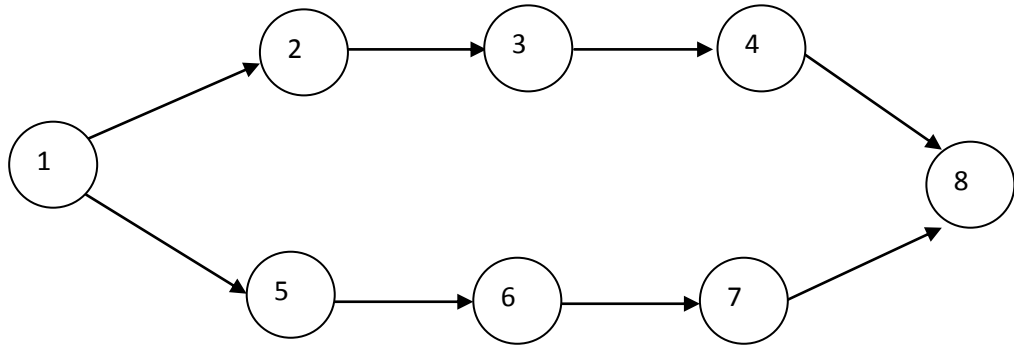


**TABLE 4.2.3**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Devarajapattinam	33.0 km
3	Sikkarasampalayam	9.4 km
4	Karapalyam	30.9 km
5	Ammapalyam	37.6 km
6	Vanjipalayam	25.6 km
7	Kundadam	26.6 km
8	Muthanampalayam	29.7 km
9	Jothiyampatti	22.9 km
10	Plant	116 km

### 4.2.3 SUGGESTED NETWORK KG-3

**SUGGESTED NETWORK 4.2.3**



**TABLE 4.2.3**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Devarajapattinam	33.0 km
3	Sikkarasampalayam	9.4 km
4	Karapalyam	30.9 km
5	Ammapalyam	37.6 km
6	Vanjipalayam	25.6 km
7	Muthanampalayam	29.7 km
8	Plant	90 km

### 4.2.3 COST TABLE ROUTE KG-3

TABLE 4.2.3

	Total amount paid(Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(km)
<b>Existing route</b>	21680	0	21680	21748	1.00	116
<b>Suggested route</b>	17421	0	17421	21748	0.68	90

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 21748 lit as per December

Kilometer for a day = 180 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	180*6.23	1121.4
For 15 days	1121.4*15	16821
Depreciation	40*15	600

**Total amount paid** = 16821 + 600 = Rs 17421.

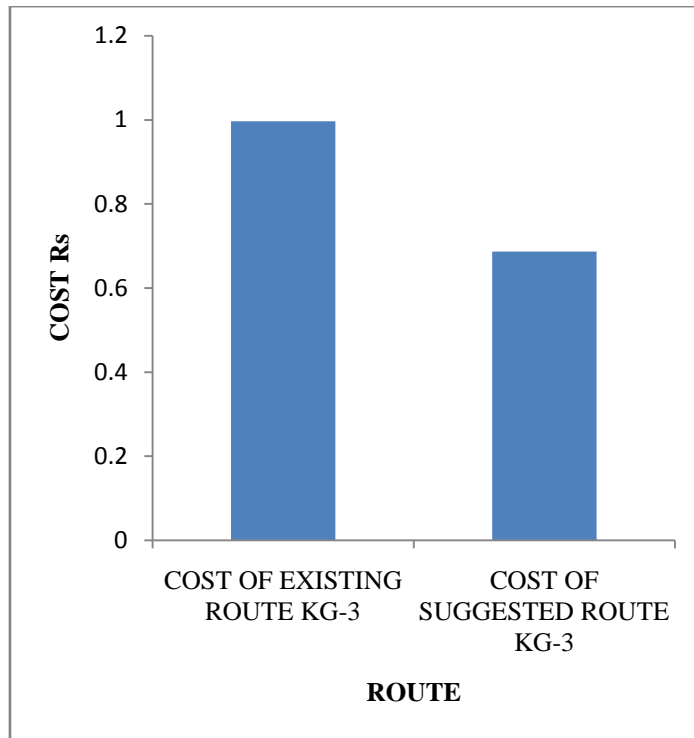
	Amount paid
Cost Per Liter =	—————
	Quantity procured

COST PER LITER = Rs 0.68.

Suggested route 4.2.3 indicates the procurement cost has been reduced to 0.68 paise per litre from Rs 1.00 per litre. And the travelling distance is also reduced to 90 km from 116 km per day. By which the company can reduce the cost of procurement and cost milk.

**CHART 4.2.3**

**COST TABLE ROUTE KG-3**



#### 4.2.4 EXISTING ROUTE KG-4

EXISTING NETWORK 4.2.4

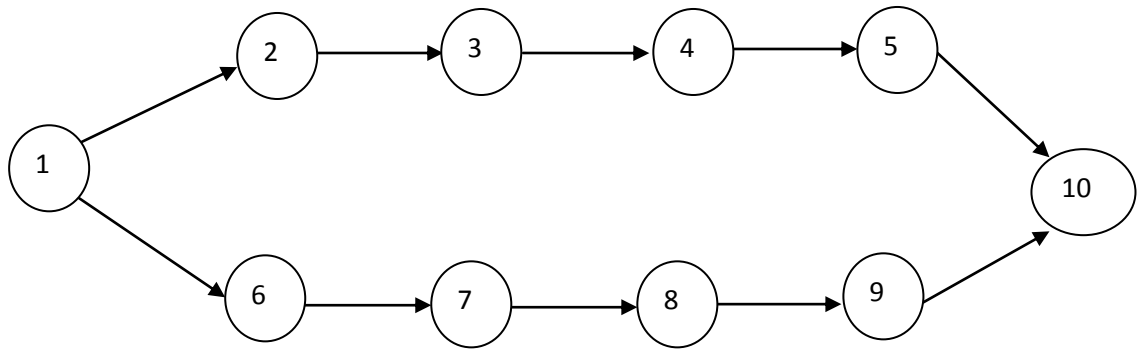
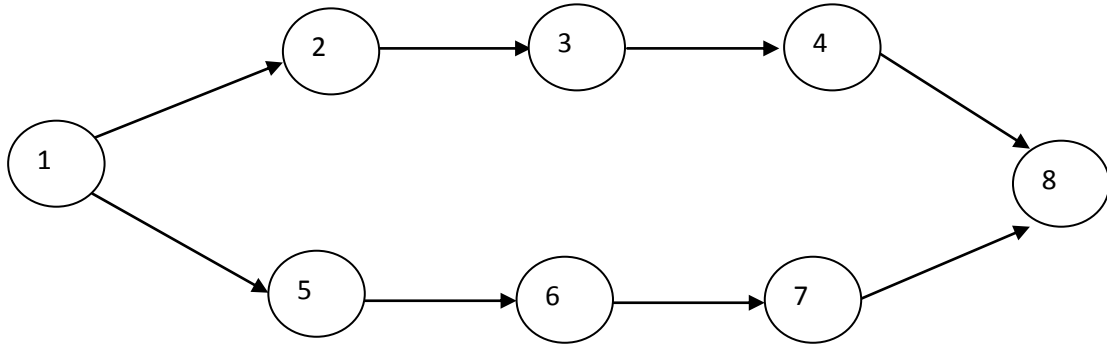


TABLE 4.2.4

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Kannankoil	26.7 km
3	Edayakinar	28.7 km
4	Ponnalipalayam	28.0 km
5	Karapalayam	30.9 km
6	Nallur	23.1 km
7	Kasilingapalayam	36.8 km
8	Sangampalyam	21.4 km
9	Kanjipuram	15.7 km
10	Plant	107 km

#### 4.2.4 SUGGESTED NETWORK KG-4

**SUGGESTED NETWORK 4.2.4**



**TABLE 4.2.4**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
4	Karapalyam	30.9 km
7	Kundadam	26.6 km
8	Ponnalipalayam	28.0 km
9	Jothiyampatti	22.9 km
10	Nallur	23.1 km
11	Kasilingapalayam	36.8 km
12	Plant	95 km

#### 4.2.4 COST TABLE ROUTE KG-4

TABLE 4.2.4

	Total amount paid(Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(km)
<b>Existing route</b>	19998	0	19998	28987	0.69	107
<b>Suggested route</b>	18364	0	18364	28987	0.63	95

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 28987 lit as per December

Kilometer for a day = 190 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	190*6.23	1183.7
For 15 days	1183.7*15	17755.7
Depreciation	40*15	600

Total amount paid = 17755.7 + 600 = Rs 18364.

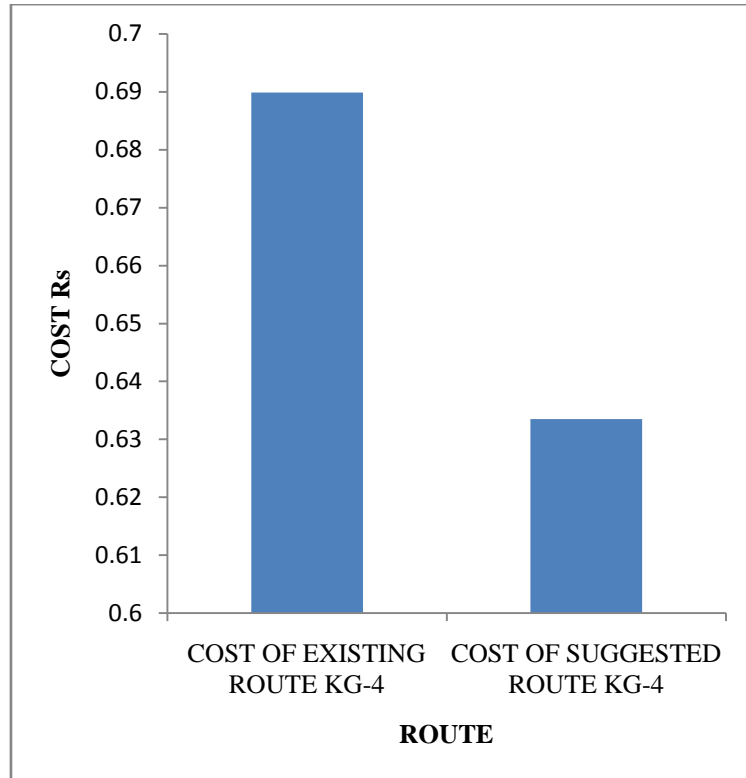
$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs 0.63.

The table 4.2.4 indicates that, there is difference between existing kilometer and suggested kilometer is only 12 km per day. And the cost of procurement is also diminished from 0.69 paisa to 0.63 paisa per litre. By which the company can mount up to Rs.12474 per year.

### CHART 4.2.4

### COST TABLE ROUTE KG-4



#### 4.2.5 EXISTING ROUTE KG-5

##### EXISTING NETWORK 4.2.5

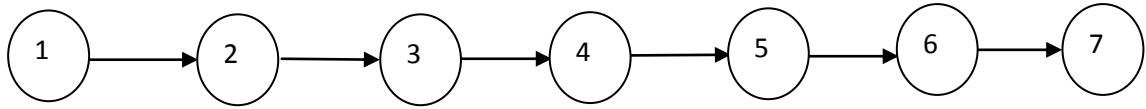


TABLE NO 4.2.5

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Sembadampalayam	7.5 km
3	Kandiankoil	13.3 km
4	Revathi rice mill	20.7 km
5	Velampatti	17.3 km
6	Karaipudur	26.9 km
7	Plant	85.0 km

#### 4.2.6 EXISTING ROUTE KG-6

##### EXISTING NETWORK 4.2.6

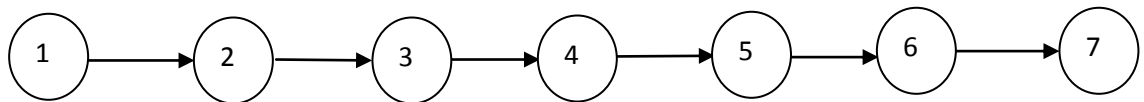


TABLE NO 4.2.6

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Pothiyapalayam	3.2 km
3	Olappalayam	13.3 km
4	Kaattupalayam	7.8 km
5	Semmangalipalayam	2.5 km
6	Cheyypalayam	15.2 km
7	Plant	62 km

#### 4.2.5 SUGGESTED ROUTE KG-5

#### SUGGESTED NETWORK 4.2.5

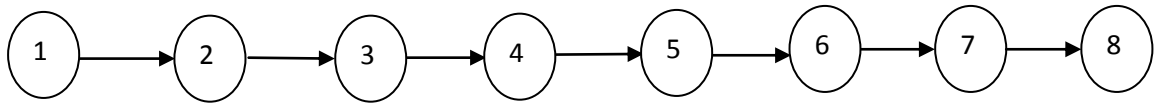


TABLE NO 4.2.5

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Revathi rice mill	20.7 km
3	Velampatti	17.3 km
4	Karaipudur	26.9 km
5	Olappalayam	13.3 km
6	Kaattupalayam	10.8 km
7	Chettiarpalayam	15.2 km
8	Plant	90.0 km

#### 4.2.5 COST TABLE ROUTE KG-5

TABLE 4.2.5

	Total amount paid(Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(km)
<b>Existing route</b>	29113	0	29113	41731	0.69	147
<b>Suggested route</b>	17421	0	17421	41731	0.42	90

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 41731 lit as per December

Kilometer for a day = 180 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	180*6.23	1121.4
For 15 days	1121.4*15	16821
Depreciation	40*15	600

Total amount paid = 16821 + 600 = Rs 17421.

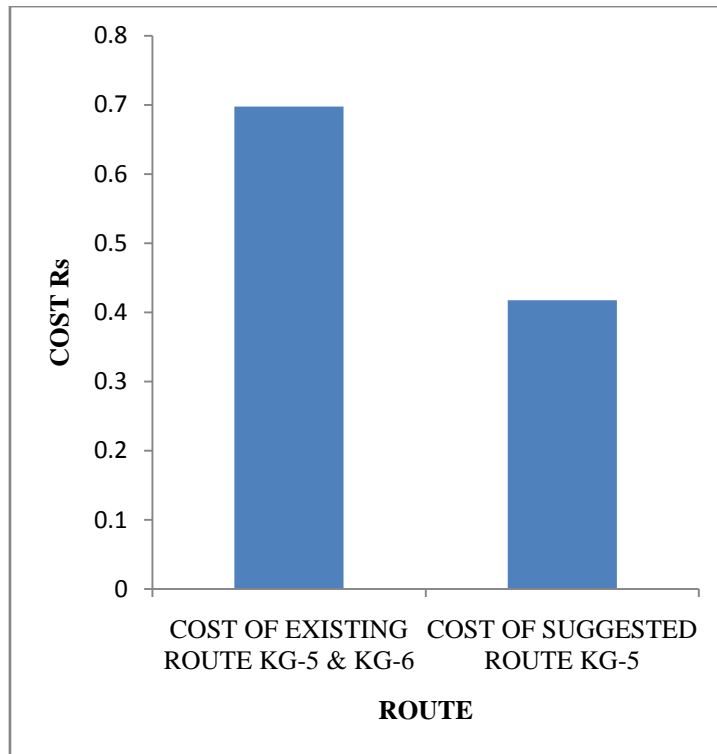
$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs 0.42.

From both the existing routes kg-5 and kg-6, the total kilometer travelled by the vehicle is up to 147 km and it is reduced to 90 km. When the suggested route is adopted by the company, means it can reduce the cost of milk from 0.69 to 0.42 paisa per litre, which leads to Rs.11700 per year.

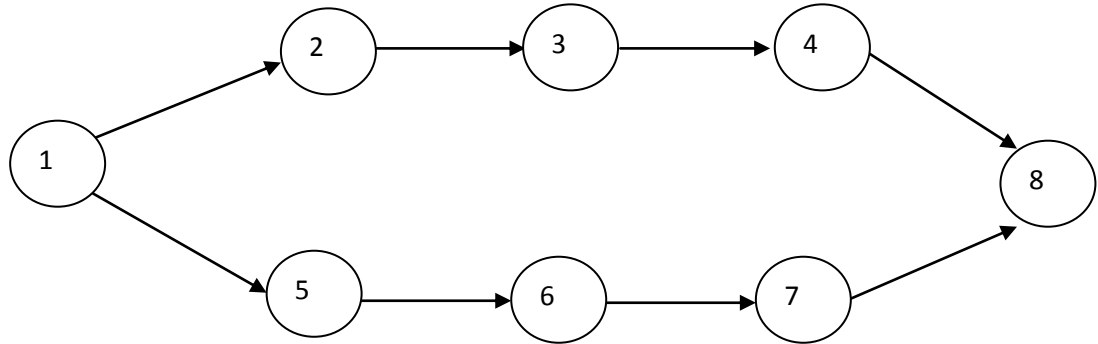
### CHART 4.2.5

#### COST TABLE ROUTE KG-5



#### 4.2.7 EXISTING ROUTE KG-7

**EXISTING NETWORK 4.2.7**

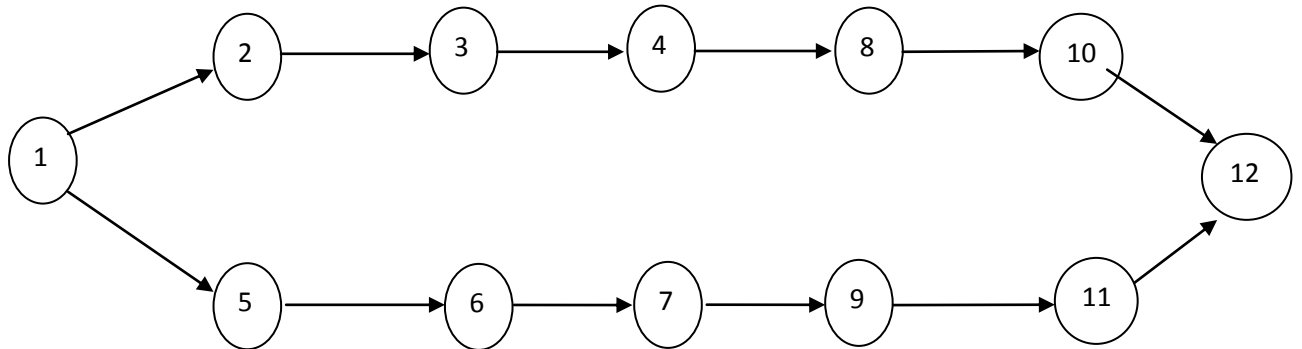


**TABLE 4.2.7**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Koduvai	18.2 km
3	Kattur	19.5 km
4	Ramagoundanputhur	13.9 km
5	Semmadapalayam	19.1 km
6	Kosavampalayam	32.8 km
7	Madhapur	39.6 km
8	Plant	79.0 km

#### 4.2.8 EXISTING ROUTE KG-8

**EXISTING NETWORK 4.2.8**

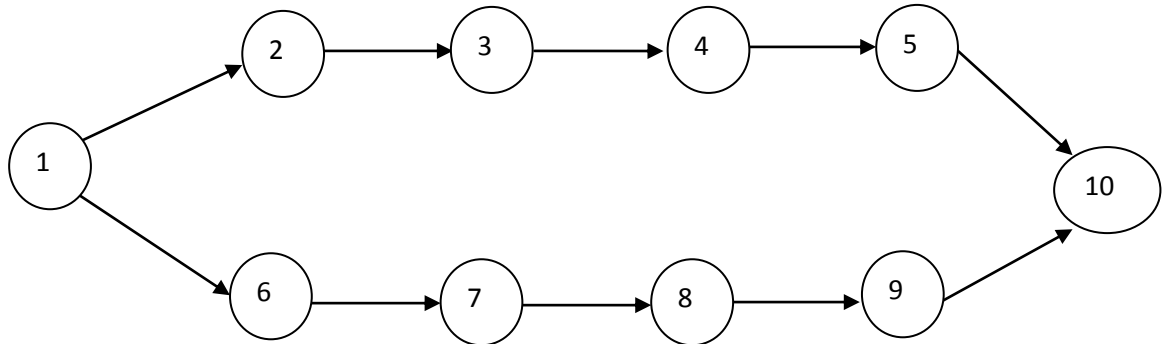


**TABLE 4.2.8**

NUMBER	PLACE	KILOMETER
1	Plant	0 km
2	Kallampalyam	35.1 km
3	63 velampalayam	23.7 km
4	Pallipalayam	18.7 km
5	Sinnakallipalayam	21.8 km
6	Mahalaxmi nagar	31.7 km
7	Kosavampalayam	32.8 km
8	Vadugapalyam	32.2 km
9	Ungayanur	26.1 km
10	Goundampalyam	33.0 km
11	Naranapuram	35.6 km
12	Plant	81.5 km

#### 4.2.6 SUGGESTED ROUTE KG-7

**SUGGESTED NETWORK 4.2.6**



**TABLE 4.2.6**

<b>NUMBER</b>	<b>PLACE</b>	<b>KILOMETER</b>
1	Plant	0 km
2	Kallampalyam	35.1 km
3	Koduvai	18.2 km
4	Kattur	19.5 km
5	Ramagoundanputhur	13.9 km
6	Mahalaxmi nagar	31.7 km
7	Kosavampalayam	32.8 km
8	Vadugapalyam	32.2 km
9	Ungayanur	26.1 km
10	Plant	90 km

#### 4.2.6 COST TABLE ROUTE KG-7

TABLE 4.2.6

	Total amount paid(Rs)	Deductions (Rs)	Net amount (Rs)	Quantity handled (litre)	Cost / lit (Rs)	Procurement distance(Km)
<b>Existing route</b>	32638	0	32638	24460	1.33	134
<b>Suggested route</b>	17421	0	17421	24460	0.71	90

#### COST FOR THE SUGGESTED ROUTE

QUANTITY HANDLED= 24460 lit as per December

Kilometer for a day = 180 km

Particulars	Amount(Rs)	Total(Rs)
Kilometer for a day	180*6.23	1121.4
For 15 days	1121.4*15	16821
Depreciation	40*15	600

Total amount paid = 16821 + 600 = Rs 17421.

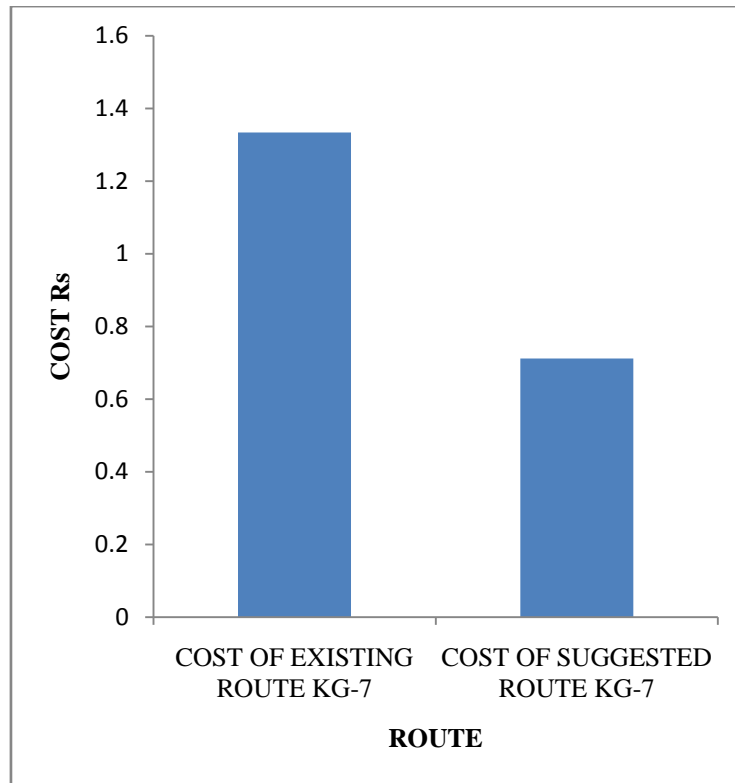
$\text{Cost Per Liter} = \frac{\text{Amount paid}}{\text{Quantity procured}}$
---

COST PER LITER = Rs 0.71.

The cost of milk is reduced from Rs.1.33 to 0.71 paisa per liter, which saves the cost in procurement. The travelling distance of procurement is reduced from 134 km to 90 km. When the suggested route is implemented the cost can be saved up to Rs.12786 per year.

**CHART 4.2.6**

**COST TABLE ROUTE KG-7**



## **CHAPTER V**

### **SUMMARY**

#### **5.1 FINDINGS**

Based on the study findings are as follows

##### **LOCAL ROUTE**

- ✓ The route A of company runs up to 220 km per day which means the cost of this route is higher because some of the places were repeated. When these repetitions are reduced the cost of procurement can be reduced. Based on the reduction in the repetition the company can reduce Rs 0.13 per litre if the suggested route is followed.
- ✓ As per route B, the difference between existing route and suggested route is only 5km, but the cost reduction is 0.76 paisa per litre.
- ✓ In route N the procurement distance has been reduced to 60 km from 70 km. out of all the routes the quantity procurement of milk is high in this route. The cost per litre in procurement is slightly reduced to Rs1.36 from Rs 1.52 per litre. By which the company can save up to Rs.44000 per year.
- ✓ In route D the cost of procurement is reduced from Rs.1.43 to Rs.1.28. By which the company can save up to 0.15 paisa per litre.
- ✓ The route F & I is combined as solitary route to reduce the procurement distance, by which the kilometer in procurement is reduced by 10 km. By same way the cost is also reduced to 0.63 paisa per litre.
- ✓ Route C has been combined with route P which shows the cost reduction in procurement. When the route C is adopted the company can save up to Rs.18800 per year.

## **KANGAYAM ROUTE**

- ✓ In route kg-1, the company can condense the cost of 0.93 paisa per litre by diminishing the procurement distance to 91 km from 113 km. The company saves up to 5% of the total cost when they adopt the suggested route. This will help the management to increase the profit and labor cost also diminished.
- ✓ The route 2 indicates the cost of procurement and travelling distance is reduced to 55 km from 70 km. This will save the cost up to 0.66 paisa per litre. By which the cost can be saved up to Rs.16940 per annum.
- ✓ The procurement cost lessening has been seen in route kg-3, because of the reduction in procurement distance, which has been reduced to 90 km from 116 km. Now the company can adopt the suggested route, so the cost is diminished to 0.68 paisa from Rs.1.00 per litre.
- ✓ The difference between existing kilometer and suggested kilometer is 12km per day in route kg-4. Parallel to distance; the cost of milk is also reduced from 0.69 paisa to 0.74 paisa per litre. By which the company can accumulate up to Rs.39200 per year.
- ✓ From both the existing routes kg-5 and kg-6, the total kilometer travelled by the vehicle is up to 147 km and it is reduced to 90 km it reduces the travel distance by 57km per day. When this route is taken on by the company, means it can reduce the cost of milk from 0.69 paisa to 0.42 paisa per liter.
- ✓ The cost of milk through procurement is reduced to 0.71 paisa per liter from Rs 1.33 per litre which indicates the company can earn more profit through route 7.

## **5.2 SUGGESTIONS**

As per the existing route the company is spending more amount in procurement of milk this in turn increase the cost of milk, therefore the company can reframe the route based on suggestion given. Which can help to reduce the cost of procurement and in turn it can reduce the cost of milk. By the way the company can increase their market share.

### **5.3 CONCLUSION**

The researcher has undertaken the study at Numax Foods Private Limited, Coimbatore. The project has carried out to analyze the procurement cost control of the company. A firm's profitability is a very important element, for the purpose of competition as well as for the sustainability in the market.

The analysis found, in some existing procurement route cost has been reduced. When the cost of procurement is diminished it correspondingly reduces the cost of milk rather to increase profit. This will indirectly increase the value of firm.

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**ANNEXURE**

**COST SHEET OF LOCAL ROUTE OF DECEMBER 2014 (1.12.2014-15.12.2014)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount(Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount(Rs)</b>	<b>Quantity Handled (Litre)</b>	<b>Cost/ Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 15 Days</b>
1	A	K.KUPPUSAMY	19074	0	19074	45436	0.419799	220	3300
2	B	N.CHANDRASEKARAN	15552	0	15552	16937	0.918226	160	2400
3	C	A.P.KANDASAMY	7500	0	7500	22560	0.332447	48	720
4	D	P.SIVAKUMAR	14583	0	14583	10780	1.352783	140	2100
5	F	P.NATARAJAN	16300	0	16300	14807	1.100831	168	2580
6	I	N.CHANDRASEKARAN	17421	0	17421	16477	1.057292	180	2700
7	N	K.JAYARAJ	14583	0	14583	8289	1.75932	140	2100
8	P	A.P.KANDASAMY	9000	0	9000	6751	1.333136	50	750
<b>Total</b>			<b>114386</b>	<b>0</b>	<b>114386</b>	<b>137631</b>	<b>0.83</b>	<b>1110</b>	<b>16650</b>

**COST SHEET OF KANGAYAM ROUTE OF DECEMBER 2014 (1.12.2014-15.12.2014)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount(Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount (Rs)</b>	<b>Quantity handled (Litre)</b>	<b>Cost/ Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 15 Days</b>
1	Kg-1	M.Rasu	21120	0	21120	20642	1.023157	226	3390
2	Kg-2	G.Swaminathan	14583	0	14583	18034	0.808639	140	2100
3	Kg-3	A.Balasubramanian	21680	0	21680	21748	0.996873	232	3480
4	Kg-4	V.Prabhakaran	19998	0	19998	28987	0.689895	214	3210
5	Kg-5	L.Raj	16487	0	16487	25970	0.634848	170	2550
6	Kg-6	S.Devaraj	12626	0	12626	15761	0.801091	124	1860
7	Kg-7	A.Balasubramanian	15890	0	15890			158	2370
8	Kg-8	K.Vishvanatan	16748	0	16748	24460	1.334342	176	2592
<b>Total</b>			<b>139132</b>	<b>0</b>	<b>139132</b>	<b>155602</b>	<b>0.898407</b>	<b>1440</b>	<b>21552</b>

**COST SHEET OF LOCAL ROUTE OF DECEMBER 2014 (16.12.2014-31.12.2014)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount (Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount (Rs)</b>	<b>Quantity handled (Litre)</b>	<b>Cost/Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 15 Days</b>
1	A	K.KUPPUSAMY	19747	19747	19747	38957	0.51	220	3520
2	B	N.CHANDRASEKARAN	16154	16154	16154	19178	0.84	160	2560
3	C	A.P.KANDASAMY	8000	8000	8000	19731	0.41	48	768
4	D	P.SIVAKUMAR	15174	15174	15174	9598	1.58	140	2240
5	F	P.NATARAJAN	17317	17317	17317	14495	1.19	168	2752
6	I	N.CHANDRASEKARAN	18093	18093	18093	15260	1.19	180	2880
7	N	K.JAYARAJ	15174	15174	15174	13254	1.14	140	2240
8	P	A.P.KANDASAMY	9600	9600	9600	6234	1.54	50	750
<b>Total</b>			<b>119259</b>	<b>119259</b>	<b>119259</b>	<b>136706</b>	<b>0.87</b>	<b>1110</b>	<b>16650</b>

**COST SHEET OF KANGAYAM ROUTE OF DECEMBER 2014 (16.12.2014-31.12.2014)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount (Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount (Rs)</b>	<b>Quantity Handled (Litre)</b>	<b>Cost/Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 16 Days</b>
1	KG-1	M.RASU	21913	0	21913	23463	0.93	226	3616
2	KG-2	G.SWAMINATHAN	15174	0	15174	18155	0.84	140	2240
3	KG-3	A.BALASUBRAMANIAN	22495	0	22495	27731	0.81	232	3712
4	KG-4	V.PRABHAKARAN	20749	0	20749	30451	0.68	214	3424
5	KG-5	L.RAJ	17123	0	17123	28054	0.61	170	2720
6	KG-6	S.DEVARAJ	13130	0	13130	16935	0.78	124	1984
7	KG-7	A.BALASUBRAMANIAN	16520	0	16520			158	2528
8	KG-8	K.VISHVANATAN	17705	0	17705	29476	1.16	176	2816
<b>Total</b>			<b>144809</b>	<b>0</b>	<b>144809</b>	<b>144809</b>	<b>0.83</b>	<b>1440</b>	<b>23040</b>

**COST SHEET OF LOCAL ROUTE OF JANUARY 2015 (1.1.2015-15.1.2015)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount (Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount (Rs)</b>	<b>Quantity Handled (litre)</b>	<b>Cost/Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 15 Days</b>
1	A	K.KUPPUSAMY	19074	0	19074	43804	0.44	220	3300
2	B	N.CHANDRASEKARAN	15552	0	15552	18776	0.83	160	2400
3	C	A.P.KANDASAMY	7500	0	7500	22119	0.34	48	720
4	D	P.SIVAKUMAR	14583	0	14583	10304	1.42	140	2100
5	F	P.NATARAJAN	16673	0	16673	14981	1.11	168	2520
6	I	N.CHANDRASEKARAN	17421	0	17421	16193	1.08	180	2700
7	N	K.JAYARAJ	14583	0	14583	9038	1.61	140	2100
8	P	A.P.KANDASAMY	9000	0	9000	6599	1.36	50	750
<b>TOTAL</b>			<b>114386</b>	<b>0</b>	<b>114386</b>	<b>141814</b>	<b>0.81</b>	<b>1106</b>	<b>16590</b>

**COST SHEET OF KANGAYAM ROUTE OF JANUARY 2015 (1.1.2015-15.1.2015)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount (Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount (Rs)</b>	<b>Quantity Handled (Litre)</b>	<b>Cost/Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 15 Days</b>
1	KG-1	M.RASU	21120	0	21120	18861	1.12	226	3390
2	KG-2	G.SWAMINATHAN	14583	0	14583	18520	0.79	140	2100
3	KG-3	A.BALASUBRAMANIAN	22428	0	22428	22078	1.02	232	3480
4	KG-4	V.PRABHAKARAN	19998	0	19998	29877	0.67	214	3210
5	KG-5	L.RAJ	15864	0	15864	22431	0.71	170	2550
6	KG-6	S.DEVARAJ	12626	0	12626	15910	0.79	124	1860
7	KG-7	A.BALASUBRAMANIAN	15890	0	15890			158	2370
8	KG-8	K.VISHVANATAN	16673	0	16673	23474	1.39	176	2592
<b>TOTAL</b>			<b>139182</b>	<b>0</b>	<b>139182</b>	<b>146357</b>	<b>0.92</b>	<b>1437</b>	<b>21552</b>

**COST SHEET OF LOCAL ROUTE OF JANUARY 2015 (16.1.2015-31.1.2015)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount (Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount (Rs)</b>	<b>Quantity Handled (Rs)</b>	<b>Cost/Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 16 Days</b>
1	A	K.KUPPUSAMY	19747	0	19747	38957	0.51	220	3520
2	B	N.CHANDRASEKARAN	16154	0	16154	19178	0.84	160	2560
3	C	A.P.KANDASAMY	8000	0	8000	19731	0.41	48	768
4	D	P.SIVAKUMAR	15174	0	15174	9598	1.58	140	2240
5	F	P.NATARAJAN	17317	0	17317	14495	1.19	168	2752
6	I	N.CHANDRASEKARAN	18093	0	18093	15260	1.19	180	2880
7	N	K.JAYARAJ	15174	0	15174	13254	1.14	140	2240
8	P	A.P.KANDASAMY	9600	0	9600	6234	1.54	47	750
<b>Total</b>			<b>112059</b>	<b>0</b>	<b>112059</b>	<b>136706</b>	<b>0.89</b>	<b>1107</b>	<b>17710</b>

**COST SHEET OF KANGAYAM ROUTE OF JANUARY 2015 (16.1.2015-31.1.2015)**

<b>S.No</b>	<b>Route</b>	<b>Name Of The Contractor</b>	<b>Bill Amount (Rs)</b>	<b>Deductions (Rs)</b>	<b>Net Amount (Rs)</b>	<b>Quantity Handled (Rs)</b>	<b>Cost/Litre (Rs)</b>	<b>Distance Covered (Km)</b>	<b>Kilometer For 16 Days</b>
1	KG-1	M.RASU	21913	0	21913	23463	0.93	226	3616
2	KG-2	G.SWAMINATHAN	15174	0	15174	18155	0.84	140	2240
3	KG-3	A.BALASUBRAMANIAN	22495	0	22495	27731	0.81	232	3712
4	KG-4	V.PRABHAKARAN	20749	0	20749	30451	0.68	214	3424
5	KG-5	L.RAJ	17123	0	17123	28054	0.61	170	2720
6	KG-6	S.DEVARAJ	13130	0	13130	16935	0.78	124	1984
7	KG-7	A.BALASUBRAMANIAN	16520	0	16520			158	2528
8	KG-8	K.VISHVANATAN	17705	0	17705	29476	1.16	176	2816
<b>Total</b>			<b>144809</b>	<b>0</b>	<b>144809</b>	<b>174264</b>	<b>0.83</b>	<b>1440</b>	<b>23040</b>