

# **CHAPTER 1**

## **Introduction to the Project**

### **1 Introduction**

There are various types of Nuts and Bolts such as wood screws, carriage bolts, hexagonal bolts, Eye bolts, U bolts, etc. used in world for many applications. From all these types Hexagonal Nuts and Bolts have one of the major usages in Sri Lankan market. When considering the Hexagonal Nut and bolt market major customers are; some bulk purchasing institutes like CEB, SLT, LECO, and the retail market. Main suppliers of this Hexagonal Nut and Bolt to CEB, LECO, SLT is USS Engineering (Pvt) Ltd. And also Janahitha Nut and Bolts also have a good share in the market. Other than that Keselwatta marketing, Tradesman Lanka, Best Tec (pvt) Ltd, and some other companies do the business.

Due to the price fluctuation of the raw materials and technical faults, some major suppliers stopped catering the Sri Lankan Market such as St. Anthony's Industries which had a good share in the market with a manufacturing plant but now not operating. When the London Metal Exchange figures and graphs are analyzed it is clearly shown that the steel prices are in a hike. And also China and India tries to acquire the Sri Lankan market. Hence, the manufacturers have been facing many difficulties with the price competition and the rising costs.

#### **1.1.1 Prevailing main issues in the industry**

In the market in Sri Lanka there is a big competition for these hexagonal nuts and bolts. On the other hand the main problem lies with the manufacturers is rising of steel prices According to the London Metal Exchange it shows the steel prices are increasing. Although the manufacturers also able to increase the prices accordingly, it affects the market share. Therefore, to face these situations and to have a good future in the Nut and Bolt manufacturing industry we need to find a possible way to do this. On the other hand imported Nut and Bolts are also coming to capture the market. To face this threat Sri Lankan industry needed to be improved by waste elimination and productivity improvement.

Following are the main threats and weaknesses in the Industry.

### 1.1.1.1 Market competition

The bulk purchasing is done with tendering process. Due to the high competition between the suppliers the bidding prices are reducing gradually. When the order winning prices at the institute Y are compared within the year of 2009 this can be clearly seen.

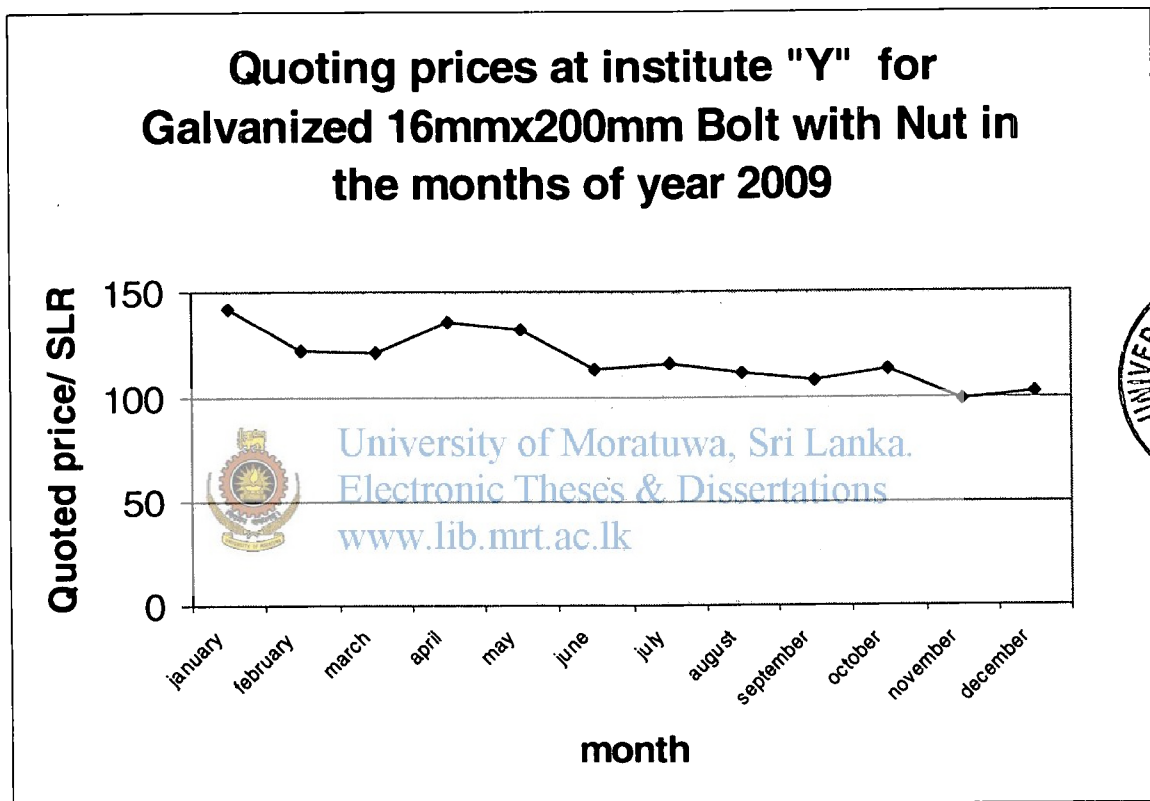


Figure 1.1: Quoted price for Bolts and Nuts for the year 2009

This is a threat to keep the profits of the companies

### 1.1.1.2 Increasing raw material price (www.lme.com, 2009.11.06)

London metal market shows a rapid increment in steel as well as Zinc prices. This reflects the future increase in steel prices. Hence, the costs of the products will increase accordingly. Therefore, this is also a threat to keep the profits as well as survive the companies.

STEEL BILLET PRICE USD/MT

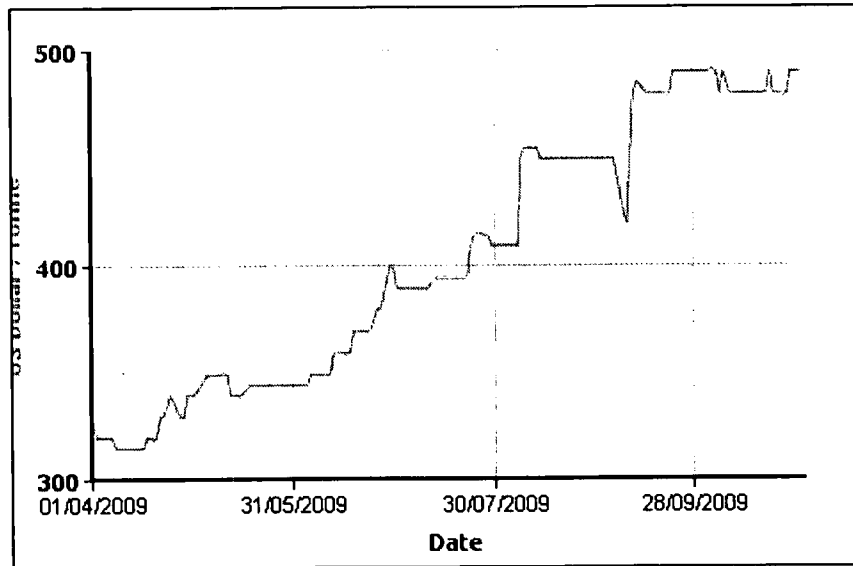


Figure 1.2: LME Steel Billet prices in year 2009



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**LME Zinc  
Settlement 1 Year - \$/LB**

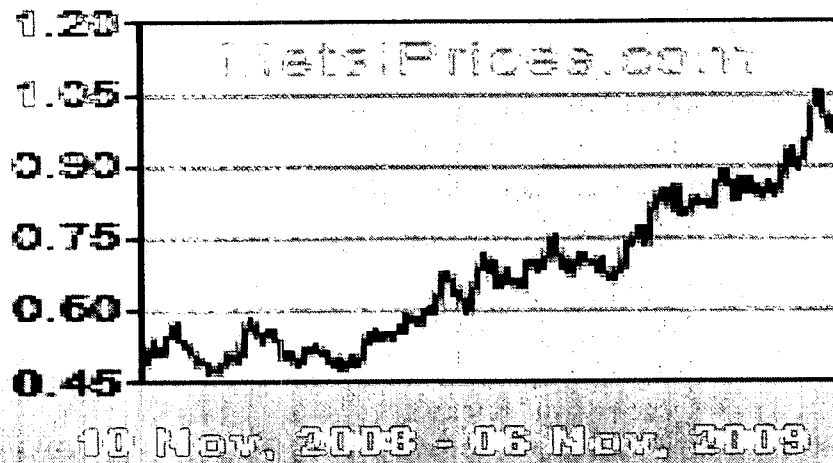


Figure 1.3: LME Zinc prices in year 2009

### 1.1.1.3 Unnecessary losses

This is the weakness the companies should get corrected to reduce the costs and face the other increment of other costs and market competition. First we have to identify the wastes and then should provide solutions. For that purpose waste elimination and Productivity improvement methods should be applied.

It is necessary to look at the available waste elimination methods and productivity improvement tools which can be implemented to the Nut & Bolt manufacturing industry. Initially, needs to identify the wastes i.e. where are wastes generated? Why are wastes generated? And how can these causes be eliminated? This can be carried out by the described methodology which uses the techniques of Cleaner Production Assessment, Kaizen, etc. Initially, Interviews were carried out at X ltd which is one of the major manufacturers in the industry, and found out the major problems to the organization which relevant to the industry. Then wastes and losses were found out with the support of Cleaner production Techniques. After that made a suitable questionnaire and got the details from the other companies. Then found the most important problems to be solved and solutions given. Appreciable results were obtained and further area for study is proposed for other industries.



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## **1.2 Objectives.**

The main objective is to protect the sustainability of the Sri Lankan Hexagonal Nut and Bolt manufacturing Industries by identifying eliminating wastes and improving productivity. To achieve that objective following objectives are set.

1.2.1. To find out the major issues in Hexagonal Nut and Bolt Industry.

1.2.2 To find out the causes for the above issues

1.2.3 To find out the possible ways to eliminate the above issues by providing solutions to the causes

1.2.4 To introduce a methodology to carry out the above



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## **1.3 Methodology**

### **1.3.1 Select the Industry which delivers the product or service.**

If there is any specific requirement in a selected area; select it. Otherwise find out a requirement in the industry and select it.

### **1.3.2 Select one organization for the case study which delivers the product or service.**

In selection of the organization for the case study it is better to find a place which delivers the selected product or service. Get the authority to carry out a study freely by explaining the advantage of the study to the organization.

### **1.3.2 Carry out interviews and find out the major issues in the organization**

This should be carried out relevant to the selected product/ service. These results may not be much accurate with the numerical values. However, by these answers a rough view could be obtained and it will help the future activities.



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### **1.3.4 Use Cleaner production Techniques and find out the wastes and losses.**

Designation of the team should be done initially. Then list the Process steps and draw the CP flow charts. Use the Cleaner production techniques to find the wastes. Material balance and energy balance methods will help to identify the wastes easily. And also assign costs to the wastes.

### **1.3.5 Make a questionnaire and get the details from the other companies.**

Make a questionnaire which is appropriate to understand the situation of the other companies in the industry. When making the questionnaire other possible losses and wastes which didn't find at the case study also should be considered.

### **1.3.6 Find the most important issues to be corrected.**

Analyze data to understand the most important problems.

**1.3.7 Analyze the Causes for the wastes and losses.**

Use the technical knowledge to find out causes. And also carry out Brain Storming sessions. Then finalize the root causes

**1.3.8 Give solutions to the Causes found.**

**1.3.9 Analyse the results**

**1.3.10 Follow the applications to the other similar factories.**



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