CHAPTER-II

2.1 OBJECTIVES OF THE STUDY

a) To assess the manpower required based on the existing system and working method.

b) The main object of this study is manpower study is Revision of Standard Manhours.

c) Critically examine its specification and design.

d) Make cost of factor

e) To identify suitable areas for introduction better system or design

f) For conservation of all forms of energy by reducing wastage, optimum requirements, improving efficiency, Technical upgradation etc.

g) To study the economics of Engine Recondition at CWA and Cost of Engine Reconditioning through outside Agencies.

h) To carry out cost-benefit analysis of R/C of engine attended by C.W. Aurangabad.

2.2 SCOPE OF STUDY

a) Efforts are made to identify the areas wherein changing Method of working or performing a particular look.

b) To study the nature of work.

c) Study on Existing Manpower.

d) A review on standard manhours which was decided by Management 20 years back.

e) Identification of Area of saving in compressed Air and Electricity.
f) Study on Electrical Distribution system

g) Review of Existing overall demand

h) The scope of the study is limited for Reconditioning activities. The various cost components related to engine reconditioning are taken as per the prevailing costing procedure in central workshop A manpower.

i) To study the cost structure of R/C. Engine.

j) To study the performance of R/c engine

k) To study modification suggested by V.E. to improve the parameter.

2.3 HYPOTHESIS:

Formulation of a proper, suitable and appropriate hypothesis is most essential pre-requisite and the very basis of carrying out the research work and it being series of creative work. Due care was needed to be taken for ensuring proper formulation of the Hypothesis ensuring that figures are actual and taken personally at the time of working and it is true coverage to the very spirit of the subject.

In spite the long experience in the field of Public Transport, M.S.R.T.C. not in position to give economical service to the passenger nor comfort. Hence the objectives of the study is to reduce the production cost would be achieved if M.S.R.T.C. follow the V.E. Techniques in their true spirit.

2.4 DATA COLLECTION:

In present study started in Jan 1997 collection of data took a period of over one year and collect of the material and writting the thesis etc. have taken another one year.
I) INITIAL DATA:

The Actual collection of data being essential for carrying out the research study due case was taken to ensure the following:

A) Authenticity of the source of data

B) Accuracy and correctness of the data collected

C) Reference of the data intended to be collected with regards to creative work done by researcher.

D) The data collected from various sources for the purpose of study are following type

II SECONDARY DATA:

Secondary data could be collected from the Actual documents of the used of M.S.R.T.C. The relevent documents are as below.

i) The circular issued by Mechnical Engineering Department relating to this subject.

ii) Date collected by Researcher by visiting to other two workshops outside factories, central office M.S.R.T.C., Mumbai.

iii) Data related to costing of Engine, New Bus Body, inventory of sotres, collected from concerned department.

iv) The information was collected of performance of Engine, Bus body and others relevant data was collected from statistical Department.

v) Collection of related circulars and procedures

vi) Collection of Historical data from available literature.

vii) Annual Administrative Reports of M.S.R.T.C.
2.5 DATA PROCESSING: The data collected through the methods as mentioned above are subjected to processing through the steps involved in processing the data were as following:

i) Certification of Authority

ii) Sanctioning Authority

iii) Recommendation Authority

iv) Approved Authority

v) Issuing Authority

2.6 METHODS OF DRAWING INFORMATION

The source of the information is widely used during the investigation. G.S.O. circular, Annual Administrative report statistical data of M.S.R.T.C. Were refered to examining the various aspects of research work. The information which is drawn give the information of position of M.S.R.T.C., Cost of product, variation in performances etc. which are leakage with the cost reduction of the product. Further Books of renowned authors, reports and Articles published and unpublished Ph.D. thesis were refered to while reviewing the littrature of the present study and following that the points:

1) Reading on Floor

2) Analysis of performance

3) Previous Readings

4) Compained with previous reading

5) Observations

6) Results
2.7 RESEARCH METHODOLOGY

I) REASONS FOR SELECTION OF TOPIC:

At present the M.S.R.T.C. is financially in a bad shape and as such they are always on the look to reduce the cost wherever possible.

(1) One of the main reasons for selecting the topic was primarily to reduce the cost.

(2) Secondly the researches is working in M.S.R.T.C. from last twenty years and working as Depot Manager, Dy. Mech Engineer sectional engineer have experience of nearly all department also known the strength and weakness.

(3) Thirdly, since last 15 years the researcher is very actively involved in V.E. Team project and given encouraging result. Hence researcher decided to use V.E. Technique on C.W.A. to reduce the production cost.

Considering all the above aspects, the topic of the researcher i.e. A value engineering, An approach to reduce the production cost, with special reference to S.T. Central workshop in reducing production cost has assumed by itself vital importance in todays competition.

The researcher being practically working in the public Transport Field where V.E. Technique can be used as tool for improving the quality as well as cost reduction therefore carrying out research on this relevent topic was of great importance as it had value.

IMPORTANCE OF TOPIC: The drive to achieve overall quality improvement with effective cost reduction has become an essential need and vital consideration for Transport Industries in today's business scenio. In order to get exact points where to be consentrated. It is essential to apply the scientific Techniques to problem till get solutions.
II) RESEARCH METHODOLOGY:

The survival has assumed prime consideration for basic existence in the manufacturing process, to be followed by on going consolidation efforts for the ultimate aim of achieving in cost reduction.

Hence for Transport Industries following consideration have become prime.

A team of value engineer was deployed to conduct in-plant study and for data collection. Each operation on the shop floor was observed, in detail.

The standard Manhours (SMH) are calculated as follows:

Actual time of completing an activity was noted on the shop floor with the help of wrist watch. All the manufacturing activities on all the components and all the repairs work was observed. In the case of coach and engine all operations covering from "Gate to Gate" movement were noted. Performance Rating was considered for each operation. It is based on the experience of the Researcher and VE Team. The Normal time is worked on the basis of actual observed time and performance rating. Relaxation and Fatigue allowances are added to normal time (as per the ILO Standards). Thus the standard time consist of following:

Standard Man HOurs (SMH)

\[ \text{SMH} = \frac{\text{Actual Observed Time} \times \text{Performance Rating}}{\text{Actual Observed Time}} + \text{Allowances} \]

The sum of the SMH of all activities for a particular job is the total SMH. It also includes time required for transportation of Materials, sorting of Material, initial machine set up and cleaning time inspection etc.
(a) continuous efforts for upgradation of quality standards of product and services.

(b) On going efforts for cost reduction - overall cost in general and manufacturing cost in particular by

(i) Reduction in scrap/wastage generation

(ii) Alternative raw materials

(iii) Re-designing-Elimination of order design parameters and features

(iv) Improvement in Manufacturing process

(v) Alternative sourcing for gaining positive advantages in purchase cost.

(vi) Optimum utilisation of men-machine interphase.

In order to initiate, the concept of value engineering have been proved to be very effective tool for the ultimate goal achievement in transport industrial environment.