CHAPTER III

"Progress is impossible without change and those who cannot change their minds cannot change anything"

- George Bernard Shaw
Formulating a research design is the primary task in any research work. To formulate research design the researcher visited the Labour Training Center, Chennai, and the Office of the Central Board for Workers Education, Government of India, Chennai and collected useful information from the experts in the field of Labour Welfare.

One of the radical fallout of information technology is the death of distance. The Internet gives facts and figures; dot COM is there to provide the required data. The relevant data and information were also collected from Website like: www.autoindiamart.com, www.onassisaat.com, www.indiaserver.com, www.sundram.com, www.brakesindia.com etc. The usual elements of a research design such as the objectives of the study, statement of hypothesis, the limitations of the study, the sampling design, data collections and data analysis have been brought down under this chapter.

3.1. OPERATIONAL DEFINITIONS OF LABOUR, LABOUR WELFARE & BENCHMARKING

Labour in this study denotes all types of Labour namely administrative employees, technical employees and floor level employees. In other words it includes both direct and indirect employees. (Direct employee means an employee who actually performs the operations on the product. Employees in Quality Control, Maintenance etc. will be in the indirect category)

1 Appendix 3.1. Operational Definition of labour
Since 21st century is a knowledge century, Labour welfare in this study includes promotional type of welfare facilities with specific importance; to benchmarking in the form of TPM, TQM, and HR training to update the knowledge of the employees. Benchmarking is an active exercise and leads to positive action being taken. It is used to improve performance by understanding the methods and practices required to achieve world-class performance levels. World-class manufacturing (WCM) is commonly understood as “advanced manufacturing techniques that can be adapted and used to elevate a facility’s manufacturing performance to world-class levels”.

An application of the techniques like TPM, TQM, JIT etc. implies world-class manufacturing. In this study Benchmarking denotes TPM & TQM (Total Productive Maintenance and Total Quality Management) Though India is a country of high potential, its manufacturers have still to improve their manufacturing practices a great deal to become world class manufacturers.

3.2. OBJECTIVES

The primary objective of the study is to find out the existing

• Protective type of Labour welfare measures such as safety, health measures and work environment in selected auto component industries in Chennai. The other specific objectives are:

• To study the Promotional type of Labour welfare measures like, Human Resource Training given to the employees in the research units.

• To study the Benchmarking in the form of TPM and TQM in the research units

• To study the job satisfaction of the employees

• Findings and to make suggestions and conclusions

2 Productivity, vol-41, No. 2, July-September, 2000, p- 190
3.3. HYPOTHESES

The following are some of the major hypotheses formulated for the study:

- There is no significant difference between direct employees and indirect employees in their levels of satisfaction.
• There is no significant association between employee's age and their levels of satisfaction.

• There is no significant association between employee's service and their levels of satisfaction.

• Better H.R. will promote better L.R.

• Good functioning of Benchmarking will build WCM.(World Class Manufacturing)

3.4. LIMITATIONS

Following are some of the specific limitations of the study:

• The study is confined to workers in Chennai only.

• The study is confined to few auto component industries

• The sample number of industries taken for detailed study has been reduced to eight.

• The sample size for the study of Labour welfare in auto component industries is restricted to ten percent of the total employees of each unit.

• The study is confined to Labour welfare in the post liberalisation period and restricted to the end of 2000 (1991 to 2000)

3.5. SAMPLING DESIGN

Of all global industries automobile is probably the oldest and the most hi-profile. Automobiles have become an indispensable part of our lives, an extension of the human body that provides us faster, cheaper, and more convenient mobility
every passing day. Behind this betterment go the efforts of those in the industry, in the form of improvement through technological research.

The auto sector is regarded as the engine of a nation's economy. The example of Henry Ford putting the world on wheels is well known. The American industrial growth followed the developments of the automatic industry. The key thing for is for the Government to grow the auto sector, which in turn grow the jobs and provide impetus to GDP. Economists should have observed that the auto industry was the major factor propelling the economic prosperity of the USA and the economic revival of Germany, Japan and Korea after their wars. [www.autoindiamart.com]

These wheeled machines affect our lives in many ways. Numerous surveys and research are conducted throughout the world every now and then to reveal one or the other aspect of the automobiles. Automobiles facilitate people to commute to their places of work from their distant homes. This has contributed to the growth of suburban areas. The automobile industry is the bulk purchaser of steel and other metals, glass, synthetic rubber, plastics and other chemical products. Giant multi-national oil companies owe their growth to the demands of automobile transportation and the supporting industries such as repair shops, garages have sprung up and grown to a considerable extent.³

The Automatic Component Manufacturers Association of India held its 37th annual session in New Delhi in 1997. ACMA has been representing the Indian auto component industry for the past 38 years and boasts a membership of 350 companies catering to the automobile industries in India. The total turn over of the components industry is over 57000 crores annually and it employees over 10 million people earning foreign exchange 3000 crores every year.⁴

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³ The Hindu, July 8, 1996, p - 25
⁴ Auto India 1997, p - 8
The industry is making rapid strides towards achievement of World Class Manufacturing by imbibing Benchmarking in the form of TPM, TQM and ISO 9000, QS 9000 Quality Systems. Till now 230 companies have been certified to ISO 9000 and 87 companies have been certified to QS 9000 and 4 companies have been awarded to ISO 14000. The industry has been exporting more than 10% of its output for the last few years. In the year 1999-2000, industry has exported US$ million 396 versus US$ million 333 in year 1998-99.⁵

Only the best endures. To ensure quality in work, every employee undergoes extensive training in auto industries. The automobile is fast becoming a computer on wheels and the industry is quite a good mechanism for developing counter to create employment, technical capability and export potential. India may become an automotive industrial hub for exports to South Asia. It is in this context that auto industries are significant.

Since the fortunes of the domestic vehicle industry is not expected to return soon to the peak level of 1995-96 for some segments, the components sector is leveraging on its potential to export and hopes to achieve a target of US$ 1 billion by the year 2005. It will nevertheless still continue to focus on its mainstay- the domestic market sector.

The automotive components industry has always been a leader in exports and a net foreign exchange earner. Continuing this leadership, the components industry expects increase units' exports from a level of US$ 330 million in 1997-98 to an estimated US$ 350 million in 1998-99.

This is shown in the following table:

⁵ Appendix E: PROFILE-ACMA
Table 3.1. Indian Auto Component Industry—Exports (in US $ million)\(^6\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-96</td>
<td>267 (e)</td>
</tr>
<tr>
<td>1996-97</td>
<td>291 (e)</td>
</tr>
<tr>
<td>1997-98</td>
<td>330 (e)</td>
</tr>
<tr>
<td>1998-99</td>
<td>350 (e)</td>
</tr>
<tr>
<td>1999-00</td>
<td>383 (p)</td>
</tr>
</tbody>
</table>

c-estimated;  p- projected;

3.5. (1) CHENNAI—‘THE DETROIT OF SOUTH ASIA’

The economy of TamilNadu is fairly well developed and diversified. Current State Domestic Product (SDP) of TamilNadu based on official exchange rate is US$ 26.5 million. The average rate of growth of TamilNadu has been around 6% to 7% and consistently above All India average.

At present TamilNadu is the 3\(^{rd}\) largest economy among Indian states. The share of manufacturing sector in SDP has been on the increase. The composition of SDP is hereunder:

Table 3.2. State Domestic Product in Tamil Nadu

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>(% SHARE IN SDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; allied</td>
<td>23.9</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>28.5</td>
</tr>
<tr>
<td>Services</td>
<td>47.6</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

The share of Tamil Nadu in India’s GDP is about 6.5% (www.autoindiamart.com)

Great infrastructure, uninterrupted power supply, disciplined labour, a friendly govt. and highly skilled technicians make Chennai the ideal spot for auto makers to set up base in. If Detroit is the Car City of the world, can Chennai be far behind? Four years after the government of Tamil Nadu unleashed an investment-friendly industrial policy, Chennai is slowly but surely emerging as the Detroit of South Asia. Ford, Hyundai and Mitsubishi that chose Chennai as the hub of this South Asian operation do not regret their decisions.

That is not all. Chennai already commands 35% of the India’s share of auto components. “Chennai is” the place to be in if you are an automaker in India. Tamil Nadu offered us the base value package amongst the many states seen and evaluated by us. We are now happy that we are growing well to make Chennai the “Detroit of South Asia” says an enthusiastic Phil G. Spender, the Ford India, Managing Director. Moreover the state has a very disciplined and productive labour environment. (www.rediff.com)
No other city in the country churns out as many technical graduates as Chennai does. As per the official figures, the city produces 32000 engineering graduates every year including 15000 in computer Sciences and software engineering. TamilNadu enjoys high export intensity with 1/3rd industrial output in the country. Chennai is South India’s largest city.

It is in this context that labour welfare in auto component units in Chennai has been taken for the research study. The study necessitates data from different types of workers from auto component industries in Chennai. The following auto component units have been taken for the study.

Lucas-TVS

Sundram Fastener Limited

Wheel India Limited

Brakes India Limited

Sundram Brake Lining

Sundram Clayton

Rane (Madras) Limited

Rane Engine Valves

On the whole 8 auto component industrial units were taken as study units to find out the nature of labour welfare and to analyse the HRD climate, Benchmarking and job satisfaction. The sample units have been chosen from the above listed organisations.

It is going to be the survival of the fittest and those with deep packets. The component industry’s fortunes are tied to the vehicle manufactures. The global
manufacturers such as Ford, GM, Hyundai and others, which have entered the country, are demanding better quality, lower prices, and better delivery and so on from the component manufacturers. Mr. Suresh Krishna, Chairman and Managing Director of the Sundram Fasteners, emphasis’s that quality products will rule the day. The South based manufacturers seem to have caught on to this.

The TVS and RANE groups, the two largest manufacturers of auto components in the country have several companies in their fold, which have world standards as their benchmarks. Rane (Madras) Limited was awarded ISO 9000 certification while the Brake division of Sundaram Clayton was awarded the Demming prize in the year 1999. Sundram Brake Linings is quietly planning to export 50% of its turnover. The focus on export has led to focus on quality, productivity and research and Development. The company spends an average of 4% of its turnover on Research and development compared to the industry average of 0.4%.  

The research units TVS and Rane are the two performers in the auto component units need to be briefed here.

3.5 (2) TVS GROUP

The TVS group’s romance with the automobile industry goes back to the early part of the century. In 1911, TV Sundaram Iyengar started one of the country’s earliest rural bus services in TamilNadu. It thrived magnificently and flourished, undergoing extensive expansion. Today the parent company is comparable to a mammoth Banyan tree with numerous offshoots buttressing it. What originated as a transport company in 1911 has grown to 25 companies employing a workforce over 25000 with a turn over exceeding US$ 1 billion. In the industrial world, the TVS Group has carved a niche for itself as the India’s leading supplier of automotive components.

7 The Hindu-January 12th 2000, p-25
A leading group with the TVS umbrella is LUCAS-TVS, a joint venture of LUCAS industries public limited company, UK and TV Sundaram and Sons (TVS). LUCAS Industries, which merged with Varity Corp, US, in September 1996 forming LUCAS Varity, is jointly one of the top 10 automotive component suppliers in the world. LUCAS Varity designs, manufactures and supplies advanced technology systems, products and services to the automotive diesel engine and aerospace industries.¹⁰

The LUCAS-TVS joint venture was set up in 1961 and has emerged as a total electrical systems supplier to the automotive sector. It has Plants at Padi, Chennai, (Secondary data-LUCAS-TVS Settlement) Pondicherry and Rewani (Haryana). In this study the researcher has taken LUCAS-TVS at Padi, Chennai for present the research work. It manufactures range products such as starters, alternators, ignition products, wipers etc.

Lucas Indian Service is primarily engaged in sales and service of auto electrical and fuel injection equipment manufactured by the various units of LUCAS-TVS. LUCAS-TVS, as a group, has a technical agreement with Mitsubishi Electric Corporation for manufacture of internal fan alternators and permanent magnet epicycles gear reduction starters. Another technical agreement is with Denso, Japan for making electronic distributors.²

Sundram Fasteners Limited is a part of TVS, the largest component group in India. Sales of the group exceed US$ 1.7 billion, making the TVS group one of India's largest industrial houses.³

Brakes India Limited is the leading manufacturers of braking systems in India for the automotive industry with a sales turnover exceeding Rs.5 billion. Established in 1962 as a joint venture between TVS group and Lucas Industries

² Ibid. P – 100
³ Appendix F. Company Profile-SPL.
Public Limited Company, UK, brakes India has grown steadily to become a leading brake system supplier to global OEMs operating in India.  

Wheels India Limited, Sundram Brake Lining, Sundaram Clayton are the other important industries under TVS group producing different spare parts which have world quality and demanded by big car manufacturing industries like Ford, GM etc.

3.3. (3) RANE GROUP OF COMPANIES

Beginning modestly in 1929 as a company retailing automobile spare parts, Rane today has come to occupy the position of a leading distribution and agency house for motor vehicles and spares. Manufacturing technology of Rane was nurtured by technical collaboration arrangements and fostered through 7 decades by a wealth of experience and versatility.

It is Rane’s intense pursuit of the highest in technological standards that has forged her reputation for “greater reliability through better technology” Rane Madras Limited today is the acknowledged leader in the manufacture of steering joints. Almost all passenger cars, commercial vehicles, and tractors manufactured in India use these as original equipment.

Engine valves limited was the first from the house of Rane to manufacture automobile components. The company manufactures IC engine valves with a range of applications, which today extends from power generation equipment to agricultural engines and from commercial vehicle engines to high performance cars like the Ford Lotus.

Engine Valves employ highly sophisticated heat and surface treatment equipment and techniques. The diligent pursuit of quality assurance standards has

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11 Appendix G : Company profile-Brakes India
12 Appendix H: Rane Group of companies
enabled Engine Valves to establish a reputation for quality in home and international markets. These valves are exported to almost all parts of the world. Some European manufacturers use them as original equipment.

Rane Brake Linings, James Woodhead and sons India Limited, India Filters Manufacturers Limited are the other companies from Rane group. The other sister concerns of Rane Groups are Rane TRW Steering systems Limited, Rane Nastech Limited, Rane Power Steering Limited etc. Rane also make complete steering linkage assemblies for Tata (Mercedes Benz) vehicles, in technical collaboration with A. Ehrenreich & Cie. West Germany.

Rane (Madras) Limited today manufactures a wide range of tie rod ends, drag link ends and steering linkages. Initial manufacture commenced with a technical collaboration with Quinton Hazell Limited, UK. As is well known, leading global players have announced plans for manufacturing ventures in India, Rane has already taken necessary steps to tap this potential. The company is setting up a plant for manufacture of manual Rack and Pinion steering gears for the passenger car applications at an estimated cost of 1280 lakhs of rupees.

Due to the arrival of MNCs, the responsibility of the existing local auto component industries in Chennai is great in improving the quality of worklife and developing the human resources. The tools of Benchmarking like TPM&TQM are functioning in the sample units.

In this situation, naturally the question arises-what kind of labour welfare might be expected to address the needs of the 21st century? This research work seeks to identify and briefly outline some of the key factors that constitute the major components of labour welfare measures, namely. (1).Protective Labour welfare measures( 2). HRD program in terms of Training and Development (3) Benchmarking and excellence in work life and also the (4). Job satisfaction of the employees, since the degree of job satisfaction determines the degree of efficiency of employees and in turn determine the “excellence”, the “quality” of work they deliver.
3.6. METHODOLOGY

To get a clear picture various theoretical literature pertaining to Labour Welfare measures and Labour Legislation have been reviewed. Records and reports of the sample units have been perused as part of secondary data. For this study, 10% of the employees in each unit were selected by using random sampling method for the purpose of filling the questionnaire as part of the collection of primary data. The following table is self-explanatory.

Table 3.3: Number Of Employees in the Units and Sample employees.13

<table>
<thead>
<tr>
<th>Research Units</th>
<th>No. of Employees in the units</th>
<th>Sample employees</th>
<th>No. of questionnaires collected</th>
<th>No. of completed questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucas TVS</td>
<td>1698</td>
<td>180</td>
<td>175</td>
<td>170</td>
</tr>
<tr>
<td>SFL*</td>
<td>464</td>
<td>50</td>
<td>48</td>
<td>47</td>
</tr>
<tr>
<td>Wheels India</td>
<td>971</td>
<td>100</td>
<td>96</td>
<td>93</td>
</tr>
<tr>
<td>Brakes India</td>
<td>716</td>
<td>75</td>
<td>72</td>
<td>70</td>
</tr>
<tr>
<td>SBL**</td>
<td>216</td>
<td>25</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Sundaram Clayton</td>
<td>568</td>
<td>65</td>
<td>62</td>
<td>61</td>
</tr>
<tr>
<td>RML***</td>
<td>630</td>
<td>70</td>
<td>68</td>
<td>66</td>
</tr>
<tr>
<td>REV****</td>
<td>486</td>
<td>50</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5749</td>
<td>615</td>
<td>591</td>
<td>576</td>
</tr>
</tbody>
</table>

*Sundaram Fasteners Limited; ** Sundaram Brake Linings

*** Rane (Madras) Limited; **** Rane Engine Valves

13 Appendix 3.2
Thus in doing the research work altogether 8 units have been surveyed and a sample of 10% of the employees from each unit have been drawn and were interviewed in person and issued the questionnaire. The survey results after necessary qualification has been analyzed and tested using statistical tool.

Efforts were taken to contact the respondents personally and to establish a rapport with them. This was very much useful in getting back the filled-in-questionnaires within a short period of time. Out of 615 questionnaires issued 591 were returned duly filled in and out of which 15 were incomplete. Thus for the purposes of final analysis 576 questionnaires (93.65%) were used. Regarding the response it may be pointed out that 93.65% of the questionnaires were received duly filled up. The sample profile is presented in the following tables:

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 25</td>
<td>35</td>
<td>6</td>
</tr>
<tr>
<td>25 to 30</td>
<td>46</td>
<td>8</td>
</tr>
<tr>
<td>30 to 35</td>
<td>52</td>
<td>9</td>
</tr>
<tr>
<td>35 to 40</td>
<td>199</td>
<td>35</td>
</tr>
<tr>
<td>40 to 45</td>
<td>81</td>
<td>14</td>
</tr>
<tr>
<td>45 to 50</td>
<td>76</td>
<td>13</td>
</tr>
<tr>
<td>Above 50</td>
<td>87</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>576</td>
<td>100</td>
</tr>
</tbody>
</table>
3.1. Exploded pie diagramme:

**RESPONDENT - AGE WISE**

Table 3.5. Respondents – service wise

<table>
<thead>
<tr>
<th>Service (in years)</th>
<th>Respondents</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 5</td>
<td>38</td>
<td>7</td>
</tr>
<tr>
<td>5 to 10</td>
<td>51</td>
<td>9</td>
</tr>
<tr>
<td>10 to 15</td>
<td>171</td>
<td>30</td>
</tr>
<tr>
<td>15 to 20</td>
<td>78</td>
<td>13</td>
</tr>
<tr>
<td>20 to 25</td>
<td>87</td>
<td>15</td>
</tr>
<tr>
<td>25 to 30</td>
<td>91</td>
<td>16</td>
</tr>
<tr>
<td>Above 30</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>576</td>
<td>100</td>
</tr>
</tbody>
</table>
3.2. Exploded pie diagrams:

**RESPONDENT - SERVICE WISE**

![Pie chart showing service-wise distribution of respondents.]

Table 3.6. Respondents—salary wise

<table>
<thead>
<tr>
<th>Salary (in Rupees)</th>
<th>Respondents</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 2000</td>
<td>52</td>
<td>9</td>
</tr>
<tr>
<td>2000 to 4000</td>
<td>63</td>
<td>11</td>
</tr>
<tr>
<td>4000 to 6000</td>
<td>165</td>
<td>29</td>
</tr>
<tr>
<td>6000 to 8000</td>
<td>88</td>
<td>15</td>
</tr>
<tr>
<td>8000 to 10000</td>
<td>99</td>
<td>17</td>
</tr>
<tr>
<td>Above 10000</td>
<td>109</td>
<td>19</td>
</tr>
<tr>
<td>Total respondents</td>
<td>576</td>
<td>100</td>
</tr>
</tbody>
</table>
3.3. Exploded pie diag:

**RESPONDENT - SALARY WISE**

- Below 2000
- 2000 to 4000
- 4000 to 6000
- 6000 to 8000
- 8000 to 10000
- Above 10000

Table 3.7. Respondents—qualification wise

<table>
<thead>
<tr>
<th>Educational Qualification</th>
<th>Respondents</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below plus 2</td>
<td>42</td>
<td>7</td>
</tr>
<tr>
<td>Plus 2</td>
<td>43</td>
<td>7</td>
</tr>
<tr>
<td>Technical Qualification</td>
<td>199</td>
<td>35</td>
</tr>
<tr>
<td>Graduate</td>
<td>194</td>
<td>34</td>
</tr>
<tr>
<td>Post graduate</td>
<td>98</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>576</td>
<td>100</td>
</tr>
</tbody>
</table>

The above table has been shown in the flowing exploded pie diagram.
3.4. Exploded pie diagramme

RESPONDENT - QUALIFICATION WISE

- Below plus 2
- Plus 2
- Technical qualification
- Graduate
- Post graduate

Table 3.8. Respondents – category of employees

<table>
<thead>
<tr>
<th>Category of employees</th>
<th>Respondents</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct employees</td>
<td>374</td>
<td>65</td>
</tr>
<tr>
<td>Indirect employees</td>
<td>202</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>576</td>
<td>100</td>
</tr>
</tbody>
</table>

3.5. Exploded pie diagramme.

Category of employees

- Direct employees
- Indirect employees
3.7. DATA COLLECTION

One of the media of communication is numbers like oral and written. Numbers have language, symbols, message, and they speak as well as communicate. Galileo advocated that “count? What is countable? Measure – what is measurable? And what is not measurable, make measurable?” Thus the importance of numbers cannot be overlooked which provides more meaningful facts, ideas, feelings etc.

Hence data form the basis of all research analysis. Since data are fundamental one has to exercise great care in gleaning them. Therefore the researcher has taken great care and precautions in collecting data without any bias.

- **Secondary Data from the Sample Units**

Most activities of an organisation are recorded in written documents—annual reports, memorandum of settlements etc. In business organisations, figures for annual statements of income and expenditure, sales, production etc. are called from account books and other records maintained by them.

For the purpose of collecting data regarding Labour Welfare measures including benchmarking and HRD climate in the auto industries, Memorandum of settlement and annual reports from the above said units have been collected.

- **Primary data – Questionnaire**

When a large number of employees have to be contacted, the most efficient and convenient method is to collect data through questionnaire. Hence questionnaire has been issued to different categories of employees to collect their opinion and the level of satisfaction regarding their corporate position and their job performance. Two types of questionnaires have been issued and circulated.
The first one contains nearly 60 statements regarding (1) statutory labour welfare measures like safety, health and work environment measures (2) Human Resource Training and (3) benchmarking (that is the functioning of TQM & TPM) (each 20 statements and all the three together totaling 60 statements). The second questionnaire contains 15 job-related variables to measure the level of (4) job satisfaction of the employees.14

- Personal interview:

Interview is much like fishing, where it is often necessary to change depth, lure and location in order to get a bite. It is therefore necessary to use a number of different approaches during the course of an interview.

After breaking up the significant components of the objectives, the researcher carefully prepared a set of questions covering all the aspects of the objectives mentioned earlier. After fixing up an appointment before calling on employees, the researcher visited the study units and interviewed the employees in order to supplement information collected through questionnaire.

Through this method the researcher got qualitative data – data, which cannot be obtained from yes/no answers or the choice of alternatives given in the questionnaire. Through personal interview the researcher put supplementary questions and got the exact information needed.15

- Interview Schedule: 16

The main tool of data collection was the pre coded Interview Schedule. Hence Interview Schedule has also been conducted with the HRD departments, Quality control and Quality maintenance departments in order to find out the

14 Appendix A. - Questionnaire I and appendix B- Questionnaire II.
15 Appendix C Personal Interview
16 Appendix D Interview Schedule
functioning of benchmarking, (the functioning of TPM & TQM) the HR training given in the sample units etc.

- **Data collection from the Web sites:**

  In this age of Internet, browsing the web sites could provide relevant data. The profile of some of the study units and other information regarding auto component industries were collected from the following Web sites, www.autoindiamart.com  www.onassissat.com;  www.indiaserver.com;  www.sundram.com;  www.brakesindia.com

- **Data collection from labour offices and center:**

  The researcher visited labour institute, labour training center and the office of the Central Board for Workers Education, Chennai and collected useful information from the experts in the field of labour welfare.

### 3.8. DATA ANALYSIS

The tools of data analysis are briefly described in this section. Data has been analysed to study the Labour Welfare measures in Auto industries. Safety and health measures, benchmarking in terms of the functioning of TPM & TQM and the HR Training and their job satisfaction were analyzed.

### 3.8 (1) QUESTIONNAIRE CONSTRUCTION:

Sampling is a technique of collection of data, which is only a portion of the universe and to infer or draw conclusion about the universe. When a large number of employees have to be contacted, the most efficient and convenient method is to collect data through questionnaire. Since we cannot seek further clarification as in the case of interview, the researcher took utmost pain in preparing the questionnaire.
After the original questionnaire consisting of 80 statements was drafted, a pilot study was conducted. For the purpose of the pilot study the sample selected was 1% of the employees from 8 units. After an analysis of the results of the pilot study minor changes in the wording of the statements and a reduction in the number of statements from 80 to 60 were made in the final questionnaire I, questionnaire II (containing 15 job related variables) had also been circulated to find out their job satisfaction.

As explained in the methodology itself, for the purpose of this study 615 employees from 8 sample units have been selected (slightly above 10% from each unit) at random to fill questionnaires to administer on sample employees. These questions are essentially close ended, giving options to the respondents select their chosen answers from many given alternatives.

3.8. (2) RELIABILITY TEST

Factors determining the functional value of a selection technique may be reliability and Validity. To ensure that the collected data are reliable the researcher has taken a sufficiently large number of employees at random from the total, having the same characteristics as the entire employees. According to Goode and Hatt, “a measurement is reliable when it gives the same results while tested on a single sample frequently”.

One of the best methods to test the reliability of data as suggested by him was the “Test and retest” method. Under this method the reliability of the responses was taken care of by issuing the questionnaires for the sample employees twice and achieved results are compared.

The correlation results ranged between 0.8 and 0.84. This is indicative of the reliability of the responses and this range can be considered adequate for the purpose of study. Mixing up the statements, which would serve as a crosscheck, has ensured internal consistency of the questionnaire.
10% sample is generally considered to be sufficient. The researcher analysed the employees in the study units. In auto component units, normally the bargainable labourers are classified as direct employees and indirect employees. The questionnaire has been issued between these two categories of employees.

3.8. (3) THE TOOL FOR DATA ANALYSIS:

Two major tools have been used to analyse the data, namely, the correlation and the chi-square test. One of the major hypotheses, that is, “there is not much difference between direct employees and indirect employees in their levels of satisfaction” has been proved through chi-square. Seven basic QC tools like, Histogram, Stratification, Pareto Diagram, Cause and Effect Diagram, Check Sheet and Scatter diagram etc, which were used in the sample units regarding benchmarking were also discussed.

As for statutory labour welfare measures, both the direct and indirect employees are highly satisfied while in the case of benchmarking and human resource training, both of them got medium level of satisfaction. These are proved through chi-square test. There is low correlation between employee’s age, service and their level of satisfaction.

The medium level of satisfaction in benchmarking and human resource training is reflected in the employee’s job satisfaction. The high level of satisfaction in job needs boosting up of monetary motivational factor in terms of incentive payment for the functioning of TPM and TQM and boosting up of wage structure and incentive payment for their training programme.

3.9. PROFILE OF WORKERS:

As regards the profile of sample respondents, all of them were males. Analyzing the survey results, it is seen that sample employees in large numbers are within the group of 40 and maximum number of sample employees are having
10 to 15 years service experience and having qualification of graduate and technical levels with a salary range of Rs. 4000 to 6000 per month. Biological details of sample employees are presented in table 3.4 to 3.8.

3.10. ANALYSIS OF LABOUR WELFARE MEASURES

Level of satisfaction regarding the statutory labour measures, like safety, health and work-environment has been analysed on the basis of 20 variables as given in part IV of Questionnaire I (appendix A). Null hypothesis was formed to analyse the level of satisfaction of employees in Auto Component Units."There is not much difference among the Direct and Indirect employees in their level of satisfaction".

- Satisfaction Scores:

The level of satisfaction of the workers was measured by using a 5- point scale, with scoring as 5 for very much satisfied, 4 for satisfied, 3 for neutral, 2 for dissatisfied and 1 for very much dissatisfied.

As per the 5-point scale scoring pattern the maximum score for an individual is 100 points and minimum score is 20. The satisfaction score of each respondent was arrived at. The individual score varies from 62 to 89. On the basis of the individual score the level of satisfaction had been classified as high, medium and low level of satisfaction

62 to 71  low level of satisfaction
71 to 80  medium level of satisfaction
80 to 89  high level of satisfaction

The categories of employees are under direct employees and indirect employees.
Table 3.9. Levels of satisfaction between direct & indirect employees

(Protective type of Labour Welfare Measures)

<table>
<thead>
<tr>
<th>Levels of satisfaction</th>
<th>Direct employees (in %)</th>
<th>Indirect employees (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level</td>
<td>70</td>
<td>71</td>
</tr>
<tr>
<td>Medium level</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Low level</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

The labourers enjoy high level of satisfaction regarding statutory labour welfare measures like safety, health and work environment.

The sample employees are categorised as mentioned earlier in the methodology under 2 categories, namely direct employees and indirect employees, the percentage being 65% and 35% respectively out of 576 total employees. Thus there is not much difference between direct and indirect employees in their level of satisfaction regarding statutory (protective) labour welfare measures.

3.10. (1) ANALYSIS OF HUMAN RESOURCE TRAINING

Among other things training and development has been emphasised in this research work. Knowledge is power and the labourers are thirsty for knowledge. The 21st century, being a knowledge century, updated training regarding modern technology is to be given to the employees. This will improve the quality of the
product. Integration of the Indian economy with the global economy has led to a shift in the focus to people skills.

To meet this change, the research units have charted the HR policy that integrates people skills and needs of the organisation. The study units believe that the people constitute strength of their organisations. Proactive initiatives have been taken to establish systems that foster performance, transparency, fairness and empowerment at all levels.

The work process in the study units is team driven. The TVS and RANE groups have created a culture of knowledge sharing and are endeavoring to make it a way of life. Individual achievements and attainment of team objectives have been interlinked.

Similar to the analysis of protective labour welfare measures, the promotional labour welfare measures have also been analysed. For Human Resource Training 20 statements have been incorporated in Questionnaire 1. Out of 20 statements, 10 statements were given to find out the opinion of the employees regarding the nature of training needed in their units. The other 10 statements were incorporated to find out their level of satisfaction regarding training provided in their units.

The individual score varies from 26 to 44. On the basis of individual score, level of satisfaction has been classified as low, medium and high level of satisfaction.

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 to 32</td>
<td>Low level</td>
</tr>
<tr>
<td>32 to 38</td>
<td>Medium level</td>
</tr>
<tr>
<td>38 to 44</td>
<td>High level</td>
</tr>
</tbody>
</table>
3.10. (2) ANALYSIS OF BENCHMARKING

Similar to Human Resource Training, for Benchmarking (TPM & TQM) 20 statements were incorporated in questionnaire 1. 10 statements to find out the opinion regarding the motivating factors for the successful functioning of benchmarking, while the other 10 statements to find out the level of satisfaction regarding the functioning of benchmarking in their units.

On the basis of Likert Five point scoring pattern, the level of satisfaction has been measured and individual score has been arrived at. The individual score for benchmarking varies from 27 to 45.

27 to 33  Low level of satisfaction
33 to 39  Medium level of satisfaction
39 to 45  High level of satisfaction

As for H.R. Training and Benchmarking the sample employees have shown only medium level of satisfaction. Giving adequate training to the employees to update their knowledge on modern technology along with an increased monetary incentive can boost up the level of satisfaction from ‘medium’ level to ‘high’ level. Benchmarking in the form of TPM and TQM may be attained through training. Infact benchmarking is standing on two legs; one being the monetary motivational factor and the other one is the human resource training.

Investing in training and welfare of the workers would increase the productivity. Examples of higher productivity of American, European and Japanese workers is often given to the Indian trade unions but what is often forgotten is the investment made by their employers on the training and health and safety of their employees. (The Indian Journal of Labour Economics-oct-dec-1999 – p-811)
The investment on human resources may have to be increased since employees have only medium level of satisfaction. Giving adequate training to the employees to update their knowledge on modern technology can attain the high level of satisfaction. Benchmarking in the form of TPM & TQM may be attained through ‘training’. Indeed Benchmarking is standing on two legs, one being the motivational factor and the other one is the HR training. Thus all the three are interlinked to each other.

The present state of industrial relations demand considerable attention to be given to workers education and training. Employees’ education and training have intangible paves the way for betterment of quality of work life of employees and for cordial industrial relations. The level of satisfaction of the employees has been analysed and tested by using the statistical tool of ‘Chi-Square’. The questionnaire I issued to the sample employees indicates that labourers have medium level of satisfaction regarding the nature of training provided and also the functioning of benchmarking in their organisations.

3.10(3) ANALYSIS OF JOB SATISFACTION

For Fredrick Herzberg, an enriched job has a few important characteristics, like, new learning, personal ability, controlling over resources, communication, unique experiences etc.\(^\text{17}\) For the purpose of job satisfaction, category of employees was brought under two major headings, namely, direct employees and indirect employees. Job satisfaction depends on motivational and HRD climate besides other factors.

The degree of job satisfaction determines the degree of labour efficiency and labour productivity. The success of any organisation including auto industries depends on the effective utilisation and motivation of its human resources. If these were done automatically employees’ job satisfaction would be promoted.

The satisfaction of the workers may be analysed on the basis of 15 important job related factors as mentioned below


As per 5 point scoring pattern, the maximum score for an individual is 75 points and the minimum point is 15. The job satisfaction score of each respondent was arrived at. The individual score varies from 39 to 66. The level of satisfaction has been brought under high, medium and low level of satisfaction. The total scores of each respondent is categorized as follows

39 to 48    low level of satisfaction
48 to 57    medium level of satisfaction
57 to 66    high level of satisfaction

Null hypothesis was formed to analyse the job satisfaction of workers in the study units, that is, “there is no significant difference among the direct and indirect employees in their level of satisfaction” In order to test the null hypothesis the chi-square test has been used.

In this chapter the objectives of the study have been enlisted followed by the major hypothesis raised. It also presents a discussion on the sampling design, the database, data collection, and the methodology adopted for the analysis of data.

The next chapter is about the analysis of protective type of labour welfare measures.