CHAPTER 9

SUMMARY AND CONCLUSIONS

The main objectives of this research is to find out whether Indian companies, particularly companies working in Gujarat are interested in human resource accounting and whether they knew what benefits can accrue from HRA. For this purpose a questionnaire asking the management whether they have adopted human resource accounting, if so what method of valuing human assets they follow, what benefits they have been able to derive from the HRA. It was extremely unfortunate that out of 50 Indian companies to whom the questionnaire have been sent but, not a single company cared to send any reply. Particularly the Power Generating Companies of Gujarat, viz, Gujarat State Electricity Corporation Ltd., and Torrent Power Ltd., one in public sector and the other in private sector, were extremely reluctant and careless in their attitude towards any research work and both of them refused to provide any data which would help to compute the value of their human resources. In fact Torrent Power Ltd., though a public limited company and yet managed as if it is a family business, refused to provide any data regarding remuneration of their employees.

Chapter 1: Introduction to what human resource accounting is, what are its objectives and how and when it developed in the USA. The definition given by Eric Flamholtz is very interesting. According to him, “HRA is accounting for people as an organizational resource. It involves measuring the costs incurred by the business firm and other organizations to recruit, select, hire, train and develop human assets. It involves measuring the economic value of people to organization.”

In the same chapter the three objectives of HRA are given, viz., (i) to develop valid and reliable models for measuring costs and value of people to the organization. (ii) Another objective is to design operational systems of HRA for implementation. (iii) To determine the behavioral decisions and performance. HRA developed in the USA in five stages. Firstly, it started in 1960 up to 1966. This was the period when people showed interest in HRA. The second stage covered a period of 1966 to 1971 when academic interest was developed in HRA. During this period R.G. Barry Corporation started valuing its human resources and giving it in its annual report. During 1971 to 1976 there was a rapid growth of interest in HRA. Then there was declining interest in HRA among academicians and accountant during the fourth stage.
from 1976 to 1980, because during the previous stage preliminary research was achieved and it was a difficult task to further develop HRA. The fifth stage of development of HRA started in 1980 and it was the beginning of interest in the theory and practice of HRA. There had been a number of studies carried out by research scholars in HRA. The reasons for this interest are (i) Due to severe competition in business, management wanted to increase productivity, which can only be done by human resources. (ii) Secondly, Japan emerged as a major industrial competitor which treated its human resources in a humane way. Hence, the American companies had to take interest in their human assets.

Japanese companies gave lifetime employment to their employees and treated them as their fixed assets. They realized the importance of human resources as compared to other factors of production. The third factor is that most countries are now converting their economy from industrial to a high tech service economy, which requires human skill and loyalty. The objective of the study stated here is that whether companies in Gujarat in public sector and private sector have adopted HRA and whether it has helped them to formulate personnel policies based on human resource value information.

Chapter 2 : The Chapter 2 has been devoted to methods of valuing human resources so far developed, advocated and used. No body in India has done any research work. All models developed were by American scholars. The methods were divided into two categories (i) Cost methods and (ii) Economic value methods. In case of cost methods three methods are popular (i) Historical cost method (ii) Replacement cost method (iii) Opportunity cost method. The Historical cost method is a very popular and widely used method. The pioneer in HRA, viz., R.G. Barry Corporation started valuing human resources on the basis of historical cost method. This approach was developed by Pyle, Brummet and Flamholtz. As Shri Porwal has written, “In this approach, the actual costs of recruiting, selecting, hiring, training, placing and developing the employees of an organization are capitalized and amortized over expected useful life of the asset concerned.”

Another cost method is the Replacement cost method. It is a method similar to estimating cost of replacing an existing physical asset like machinery etc. The method was suggested by Rensis Likert and developed by Flamholtz. An estimate of cost of replacing the firm’s existing human resources by similar employee is made and that
cost is considered to be value of human resources. Likert suggested that the value should be determined of total human resources on the assumption that a similar organization is to be created from scratch. The third method in the opportunity cost method. It is also known as “Competitive Bidding Method” developed by Hekimian and Jones to overcome the limitations of replacement cost method. This method suggests that the value of an employee in his alternative use should be determined, as a basis for estimating the value of human resource employed by the enterprise. But this method is useful for valuing the scarce and skilled employees only. It does not apply to the type of employees who can be readily hired from outside. It can be used only for valuing human resources where alternative uses are available, which may not be available in the organization. Finally a person may be expert in one department and he may be of no use in another department. So this method is not in much use.

The most popular methods presented by various scholars in the USA are economic value methods of present value of future earnings method.

Various models presented by various scholars for finding out present value of future earnings of the employees are (i) Eric Flamholtz model (ii) Hermanson’s model (iii) Lev and Schwartz model (iv) Jaggi – Lau’s model (v) Likert’s Socio psychological model (vi) Myers and Flowers five dimensional model and number of other models.

The most popular of these is the Lev and Schwartz model. It is also known as Compensation Model. According to this model the value of human capital embodied in a person of the age of x years is the present value of his remaining future earnings from employment.

The process is as follows (i) all employees are divided into homogenous groups based on their skill and age. (ii) Average earnings are determined for each group. (iii) the total future earnings of each group till the date of retirement are estimated. (iv) Now the total earnings are discounted at a particular discount rate to arrive at the present value. The aggregate present value of the different groups of personnel will represent the capitalized future earnings of the firm as a whole.

Flamholtz’s Model : Firstly, Eric Flamholtz advocated historical cost method. But later he presented his model of finding present value of future earnings of employees on the assumption that the employee will remain in the service of his organisation till death or retirement. But thereafter he realized that this is not a realistic assumption. So
he presented another model on the assumption that an employee may leave the job even before death or retirement and may perform different roles in the same organization during his career. He believed that an individual’s expected realizable value is determined by two factors:

(a) Individual condition value and

(b) The probability that the individual will maintain during this expected service life.

Multiply these two variables, to get the present worth of services.

**Jaggi – Lau’s Model**: The valuation of employees on a group basis was suggested by the authors of this model. Here group means homogenous groups of employees who may not necessarily be working in the same department. They emphasized the groups rather than individuals as it becomes easy to ascertain the percentage of a particular group of employees, likely to remain with or leave the organization or to be promoted to higher ranks during each of the coming years.

Hermanson at Michigan State University presented two models. In the first model, it was stated that if a company is earning super profits, it is indicative of efficient human resources. The second model assumes that a relationship exists between a person’s salary and his value to the organization. It is based on the present value of future stream of wages or salaries of persons employed in the firm. The discounted future wage stream is adjusted by an efficiency ratio. Likert presented socio-psychological model. According to this model, Net worth of an organization in the present value of contribution employees make over their life less costs incurred in acquiring, developing, maintaining and utilizing these services. For valuation of human resources of a firm, Myers and Flowers suggested the use of five dimensions which are knowledge, skill, health, availability and attitude. Here attitude index is computed for a group of employees on the basis of attitude scores and their respective weights. Some scholars have suggested Return on Efforts employed Method while others have presented Behavioral Variable Method. Some have suggested that the value of human resources is equal to the increase in the value of goodwill.

There are certain non monetary measurement methods of HRA, They are (i) The technique of skill inventory (ii) Performance evaluation techniques. (iii) Potential assessment technique (iv) Attitude surveys (v) Psychological methods. After discussing these non monetary methods, the research work denotes the usual benefits and limitations of HR valuation. HRA in India has been discussed in the last para in
which I have shown the characteristics of HRA in Indian companies. Most of them use Lev and Schwartz model for valuing their human resources, but the valuations are unaudited. There is no unanimity in the use of rate of discount for finding the present value of future earnings of employees.

Chapter 3 of this thesis is devoted to the discussion of HRA in seven outstanding Indian companies where due to progressive management HR valuation is made and published in their Annual Reports. They are (1) Infosys Technologies Ltd. (2) Bharat Heavy Electrical Ltd. (BHEL) (3) Steel Authority of India Ltd. (SAIL) (4) Cement Corporation of India Ltd. (CCI) (5) National Thermal Power Corporation Ltd. (NTPC) (6) Oil and Natural Gas Corporation Ltd (ONGC) (7) Hindustan Petroleum Corporation Ltd. (HPCL).

In the financial year 1995-96 Infosys Technologies Ltd., became the first software company to value its human resources in India. The company used the Lev and Schwartz Model and valued its human resources at ₹ 1.86 billion. The concept of HRA in India was pioneered by the public sector companies like BHEL and SAIL way back in 1970. But it was only in mid 1990's after Infosys started valuing its employees, that the concept gained popularity in India.

HRA of Infosys was based on the present value of the employees’ future earnings with the assumptions that employee’s salary package included all benefits, whether direct or otherwise earned both in India and in a foreign nation. Infosys believed that valuing intangible assets and reporting it in the balance sheet and other financial statements would help the investors to evaluate the market worthiness of the company. The value of its human assets as on 31-3-2010 was ₹ 11,328.7 crores. In the balance sheet dated 31-3-2010 a note is put like this, “the balance sheet is provided only as additional information. The management accepts no responsibility for any direct, indirect or consequential losses or damage suffered by any person relying on the same.”

BHEL is the pioneering company in presenting the value of its human assets in India. It has been valuing and reporting human assets in its Annual reports since 1978-79. The valuation is done on the basis of Lev and Schwartz model and application of a discount factor of 12% p.a. on the future earnings to find the present value of their earnings.
It used to show the value of its human resources as an asset in the additional balance sheet meant for further information. It has divided its human resources into six groups. Executives, supervisors, Artisans working at the grass root level, Supporting Technical Staff, Clerical and other Office supporting staff, Unskilled and Semi Skilled staff.

Another public sector company SAIL (Steel Authority of India Ltd.) also followed BHEL and used the Lev and Schwartz model, incorporating refinements as suggested by Flamholtz and Jaggi & Lau and also used certain modifications as considered necessary to suit special circumstances of SAIL. It has given detailed information about values of human resources age wise, which is more important to understand whether the turnover is normal or excessive. It has divided its human resources into 6 groups just as BHEL has done.

Another company that has taken interest in valuing its human resources and presenting it in its Annual Report is the Cement Corporation of India Ltd. (CCI). This company gives utmost attention and priority to maintain the human assets in fine health. The procurement, development, compensation, integration and maintenance of human resources are thoughtful planned, skillfully organized, carefully controlled and deftly directed so as to secure the meaningful HRA. The total number of employees were 1159 on 31-3-2009 and 1078 on 31-3-2010. These are classified on the basis of qualifications. The employees are grouped into 6 categories.

The company has given much importance to its human capital as it said in its latest report, “Human Resources are of vital importance and significance to an employee and contribute a primary segment of the total resources held. Human Resources may also be branded as “Mother Resources” through the medium of which other scarce resources are organized, coordinated, directed and controlled.”

National Thermal Power Corporation Ltd. (NTPC) is another public sector company which is a leading power company of India. There were 23,743 employees of the company as on 31-3-2010. The company has given importance to its human resources but has not been able to provide valuation of its human resources. The company said in its Report “Your company takes pride in its highly motivated competent human resource that has contributed its best to bring the company to its present stature...........

The well known public company ONGC involved in exploration of oil and gas is a very large company in the public sector. On 31st March, 2010, it has a total
number of 32,826 employees including Technical and non technical staff. It has also valued its human resources on the basis of Lev and Schwartz model and used 7% discount factor to find out the present value of future earnings of its employees. The company has given the information about its human resources in the form of two tables. The first one shows the number of employees classified on the basis of ages of employees. The employees are divided into two categories viz Executives and Non executives. Second table gives the valuation of human resources age wise. The total value of human resources is ₹ 43,135.40 crores on 31-3-2010.

It has been stated in its report that the future earnings are based on the current emoluments, which would give incorrect valuation looking to the fact that the cost of living is rising very fast and frequent revisions have to be made in pay scales.

Another public sector company which is also involved in oil distribution is known for its presentation of human resource and its valuation in its Annual Report. The company considers human resources as the key to organization’s success. HPCL recognizes the value of the human resource assets who are committed to achieve excellence in all spheres. As per its Annual Report, 2009-10 there were 11,291 employees of which management employees are 4,779 and non management employees are 6,512 and the average age of employees is 44 years. The company uses Lev and Schwartz model to compute the value of human asset. On 31-3-2009 the value of its human resources was ₹ 13,147 crores while on 31-3-2010 its value was ₹ 15,654 crores.

As can be seen from the discussion so far, it seems public sector companies are pioneers in the field of HRA. Out of the outstanding private sector companies except Infosys Technologies, no other company, even the giants like Reliance, Tatas and Birlas have not cared to enter into the area of HRA.

Chapter 4 deals with the utility of human resource accounting in decision making by management, investors and other stakeholders. However, no work in this direction has been made in India, but some researchers have attempted to find out how far HRA is useful to management and investors.

Prof. Flamholtz carried on a laboratory experiment to determine whether HR valuation influence selected human resource decisions. It was concluded that there was an overall difference among the decisions made with the help of monetary human resource valuation. Prof. Tomassini also carried out a study of the impact of HRA
information on managerial decision. This was also a laboratory study and the subjects of the study were students or university. The study concluded that the HRA data caused different managerial performance of the personnel in their lay off decision.

There was a further study carried out by Bayes Paul Engene for his Ph.D. thesis. The objectives of the study was to determine which HRA data influence decisions. 600 Management Accountants who were the members of the National Accounting Association, USA were selected as respondents of the survey. It was indicated by the result of the survey that certain data did influence the decision process. But it could not be categorically said, as not all of the variables were influential on the decisions. The next study was carried out by A.M. Harrel and H.D. Klick on comparing the impact of monetary and non monetary. Human Asset measures on executive decision making. It was found in the survey that subjects placed greater emphasis on the monetary human asset measures in arriving at their decision. Ferdin and Gul carried out the study to find out whether human resource turnover cost information was useful for labour turnover decision making. The survey concluded that HR turnover cost information did make a difference in the decisions made by personnel managers.

There were some specific uses of HRA in decision making. HRA is useful to personnel manager and to the top management in taking important decisions relating to personnel problems which traditional accounting would not help to do e.g. tradition accounting will suggests that lay off of employees in recession would help in reducing cost while HRA would suggest that there are certain costs of lay off and it is the interest of both management and employees not to lay them off. Secondly laying off employees would have adverse effect on motivation of employees.

There are certain functions which a personnel manager has to perform e.g. recruitment, selection, training and development etc. HRA helps in preparing HRA budget by estimating human requirements and also by estimating standard costs of recruitment, selecting and hiring people. HRA also helps in selection decision of employees. Personnel Manager would select a candidate who possesses the greater future value to the organization. Development of employees is another function of a personnel manager. Employees can do with the help of training methods. HRA will help executives in estimating the cost of expenditure on development and also in the assessment of the value of investment in development programmes. It also helps management to assess the trade off between the costs of recruitment from outside and
development of employees within the organization. Assigning jobs to properly qualified person is another function of personnel manager. Here HRA will help management by quantifying the variables involved in allocation decision. If the HR is not properly conserved, there would be high degree of turnover. HR turnover cost can be computed with the help of HRA. Another function of personnel manager is to utilize the human resources properly. Here HRA will help the personnel manager to use the human resource efficiently and effectively. HRA will lead the management to believe in optimization of human resource value. HRA would be equally useful in management decisions regarding reward or compensation system. HRA would be useful in evaluating the worth of employees on the basis of which his remuneration can be fixed.

**Requirements of HRA to help Decision Making can be stated as follows:**

An HRA system should be developed. There must be a director of human resource management who is well experienced and skilled in handling people. Secondly, the firm should have information for controlling personnel costs, for which management must fix standard costs of recruitment, selection and development. Thirdly, the turnover costs must be controlled. The director should examine how to reduce the turnover costs. The lay off decision must be wisely and calculatively taken. Lay off has an immediate effect on increasing profitability by reducing wage cost, but it has replacement costs too. In India Prof. Malik has undertaken a research on effects of lay off. It was found that there is bound to be a decision in preference of HRA to conventional accounting, which would lead to a wise lay off decisions.

HRA has its profound effect on proper selection of employees. Every organization would try to select the most suitable and skilled person to fill the post of a particular job. A research was undertaken by Prof. Malik in which it was included that providing HR value information to the selectors did make a difference in the selection of a particular candidate. In order to select only the best candidates suited to the various jobs, HR value information is needed and the selection made on the basis of conventional accounting information would lead to the selection of candidate not exactly suitable for the jobs to be filled.

The HRA information is also useful to various outside stakeholders like investors, creditors, bankers, government etc. in their decision making. It is useful to investors in deciding whether to invest their savings in a particular company. The
banker uses it for deciding whether loan should be granted to a particular company. The creditors will use it to determine the creditworthiness of the company. It is concluded from the result of various surveys that the information about HR valuation and other information would have a significant difference in the decisions of investors, bankers, creditors etc. Unfortunately such information is not available to the investors in the conventional published financial statements.

Some surveys in the USA on effect of HRA on investment decisions were undertaken, some of which are as follows:

Nabil Elias conducted survey in a laboratory to study the effects of human assets information on stock investment decisions. He selected three student groups who were to act as investors. Totally there were 260 participants. It was observed that the inclusion of human asset information in the financial statements did cause investment decisions to be different. Another study was undertaken by Prof. Hendricks on the impact of HRA information on stock turnover decision. He made this study on call by the American Accounting Association’s Committee on HRA. The result of the research was that statement users will invest more funds in a firm whose financial statements show an increasing investment in human assets as opposed to a firm showing a decreasing investment in human assets. Prof. Ackland undertook a study to test the utility of HR indicators by the financial decision makers. The study indicated that when human resource behavioral indicators were provided, it did make a significant change in the investment decisions of financial analysts.

From all the experiments or studies which have been described above carried out in India or in the USA, proved that when subjects were provided with human resource information, it did affect the decisions of investors and they selected the company whose human assets have increased as compared to the previous year’s value of human resource and so HRA information had proved very useful to investors in selecting right kind of firms for investments of their savings. Similarly, studies undertaken by various scholars on the effect of HRA on the managerial decision making, it has been proved that it did help management in framing a rational policy on recruitment, selection, training and development and also in taking decision on lay off in times of depression.

Chapter 5 : Discussing human resource accounting in power generating companies of Gujarat, it is in the fitness of the thing that to understand what sort of power are generated, how electric power was slowly invented by various scholars etc. For the
aspect of the study a special & separate chapter has been included names as to Indian Power Sector. Electricity generation is the process of converting non electrical energy to electricity. When in 900 BC a Greek Shepherd Magnus invented a magnet, it was the base of production of electricity. Thereafter contributions were made to the invention of electricity William Gilbert in 1600 AD; Rahe Descartes in 1638, Newton in 1717, Charles Francis-du-fay in 1733, Abbe in 1733, Benjamin Franklin in 1747, Sir William Watson in 1748, Volat in 1793, Himphry Davy in 1807, Poisson in 1812, Faraday in 1821 and Stokes in 1850.

In India, Power sector is a concurrent subject and is a joint responsibility of the State and Central Governments. It is mainly dominated by Governments. Private sector is actively involved in the generation and distribution of power with companies like Tata Power, Reliance Power, Torrent Power etc. playing a leading role. Power sector was opened to private sector in 1991. On 31-12-1950 the installed capacity was 1712 MW, which increased to 63,636 MW on 31-3-90 and on 31-3-2008 it was 1,41,080 MW. The contribution of Thermal Power to the total installed capacity in India is 64.6% as against 24.7% from hydro electric power.

Per capita consumption of electricity is expected to rise to over 1000kw hours (kwh) per annum in the next 10 years from the present level of 665 kwh.

The consumption of electricity has risen from 4157 GWh in December 1950 to 474451 GWh during 2005-06. The industrial, domestic and agricultural categories constitute the major consumes of electricity. Nearly 682 million additional connection were provided to various categories of consumers in 2005-06, bringing the total number of consumers to about 144.14 million up to 31-3-2006.

The statistical data highlights that the structure of power supply sector, we find that in December, 1950 about 63% of the installed capacity was in the private sector and about 37% was in the public sector. The Industrial Policy Resolution of 1956 envisaged the generation, transmission and distribution of power almost exclusively in the public sector. As a result of this resolution and facilitated by the Electricity (Supply) Act, 1948, the electricity industry developed rapidly in public sector.

During the post independence period the various states played a predominant role in the power development. Most of the States have established State Electricity Boards, one of them was Gujarat Electricity Board (GEB) in Gujarat. In the policy of liberalization, the government of India announced in 1991 and consequent
amendment of Electricity (Supply) Act have opened new vistas to involve private sector and their investments in electricity industry. i.e. Electricity (Amendment) Act, 1998 provides for creation of Central and State Transmission Utilities. The function of the Central Transmission Utility shall be to undertake transmission of energy through Interstate transmission system. The function of the State Transmission Utility shall be to undertake transmission of energy through intra state transmission system. Then the Government introduced the Electricity Act, 2003.

The size of the generating unit that has been used in the country in coal based power stations has progressively increased from about 15 MW prior to the era of planned development to 500 MW at present.

The National Electric Policy envisages that the per capita availability of electricity bill will be increased to over 1000 units by 2012, i.e. during the current year which has not yet been achieved. It was 631 kwh in 2005-06 as calculated by the Central Electricity Authority. It was 17,179 kwh per capita in Canada, 13,338 units in Australia, 8076 units in Japan, 7689 units in France, 7030 units in Germany, 6206 units in Italy. In India, the centrally administrated Dadra & Nagar Haveli is the number one state in per capita power consumption in India.

Private Sector: The initial response of the domestic and foreign investors to the policy of private participation in power sector has been encouraging. Many projects have encountered unforeseen delays. The most important constraints were redtapism of the Governments and that lenders are not willing to finance large independent power projects. There were also uncertainties about fuel supply arrangements and the difficulty in negotiating arrangements with public sector fuel suppliers etc. The remedies were suggested as follows:

The Ministry of Environment and Forests has agreed to delegate the powers to State for environmental clearance up to 250 mw production. Secondly the financial health of the State Electricity Boards which are main purchasers of electric power, will be improved through rationalization of tariff restructuring and reforms to make them economically viable and their projects bankable. Thirdly, the Government of India has promulgated Electricity Regulatory Commission Act, 1998 for setting up Independent regulatory bodies both at the central level and at the state level. The Central Electricity Regulatory Commission and the State Electricity Regulatory
Commission are authorized to look into all aspects of tariff fixation and matters incidental thereto.

**Current Problems:** At present power sector is facing many problems. Most important of them is the irrational and unremunerative tariff structure. State Governments provide Electricity at subsidized rates to certain sections of society, particularly to agriculturists. This involves SEB’s into huge losses, because they are not able to reimburse subsidies completely. It has been observed that with a view to improve the functioning of State Electricity Board, the Government promulgated the State Electricity Regulatory Commission Act for establishment of Electricity Regulatory Commission at national and state levels.

Secondly, there is a great transmission loss. The Electricity (Amendment) Act, 1998 was passed with a view to make transmission as a separate activity and for inviting greater participation in investment from public and private sectors. Government of Karnataka was the first to invite private sector participation in transmission by setting up joint venture company. In order to reduce transmission and distribution losses and to ensure availability of reliable power supply to the consumers, reforms in the distribution sectors are also being taken for establishing distribution companies in different regions of the state.

Total installed capacity at the beginning of 9th Plan (1-4-1997) was 85,795 MW. The actual power supply position at the beginning of the 9th plan indicates peak shortage of 11,473 MW (18%) on All India basis. To meet the growing demand and shortages encountered, sufficient capacity would need to be added in subsequent plan period. Tall claims are made in five year plans but not a single target is achieved in any plan, because of inefficient red lapism and corruption of officials and politicians.

**Chapter 6** deals with Industrial Structure of Power Sector in India. Energy is the motive power which takes a country to great heights, if sufficiently produced and properly utilized. But unfortunately more than half the world’s population lives in Asia, where the energy consumption is barely 7 percent of the world’s total consumption. More than half the world’s primary energy is consumed in North America and Western Europe. Ireland is the country whose per capita power consumption is the highest in the world. It is due to less population and cold atmosphere. People cannot live in Ireland without heater. It has been found that
countries whose national output is mainly agriculture and whose population lives mostly in rural communities have a low per capita consumption of power.

Considering the use age of electricity in nation’s growth. Electric energy has become so inevitable that it is difficult to think of comforts in life without electrical energy. It is used for lighting, transportation, communication, elevators, heating and for operating various types of machine tools. Electric power is the backbone of industrial world today. Further, the comforts, convenience and safety of large population all over the world depends upon electric power. The advantage of electricity energy, it is cheaper and better than energy in other forms. Its transmission over a long distance is very convenient and efficient. Its staring, operating and control is also very simple and convenient. Electric lamps, especially fluorescent tubes give rise to pleasant and cheaper light. For cleanliness easy to manipulation and flexibility, the electric motor is supreme, so that the use of electric energy in industry is rapidly increasing.

Electric energy is produced in power plants and supplied through overhead transmission or underground cable line for distribution to various consumers. There are many types of energy producing electricity like Thermal Power Stations, Hydro Electric Power Stations, Atomic Power, Wind Power and other kinds of energy.

In case of Hydro Electricity, where river flows, dam is constructed over it, to create head, and water from it flows to the power house usually by two or more pipelines. Potential energy of water is converted into mechanical energy in a water turbine. The benefits of hydro electricity are that (1) Water is the source of energy and so no fuel is required. (2) There is no stand by losses. (3) Such Plants have longer life. (4) It is very neat and clean plant as there is no smoke or ash produced. Such plants, in addition to generation of electric power also serve other purposes, such as irrigation and flood control. However it requires large areas, its construction cost is very high, there is high cost of transmission line and during dry season, power supply is affected.

In thermal power stations the heat of coal is utilized by the boilers to produce steam at a high pressure and temperature. In such plants more than fifty percent of total heat is lost. This loss of heat energy is unavoidable as heat energy cannot converted into mechanical energy. The thermal power plant for generation of electric power is preferred where large amount of power is required to be generated and financial, climatic and geographical conditions do not permit the installation of hydro
electric power stations and coal is available in plenty. Due to the advantage of thermal power, its fuel is cheaper, requires less space, can be installed at any place. Though thermal power plants are costlier in running cost as compared to hydro electric plants and atmosphere is polluted by fumes and residues of fuel.

**Indian Power Sector:** Availability of electricity has been the most powerful vehicle of introducing economic development and social change. However, India is very much far behind in production and use of electricity. It has sufficient reserves of coal, lignite and oil. It has sufficient hydro electric potential out of which not even 40% has been exploited. India has the largest power system among developing countries and fourteenth largest power system in the world. Electricity has been available in India for the past 100 years. The first power station commissioned was a Micro-Hydel scheme near Darjeeling at the end of 19th century. The first power station in the public sector was Sirsamudram hydro electric scheme with an initial installed capacity at 4.5 MW in 1902. However private sector was not allowed to operate power plants. The policy of Government of power development through the public sector was confirmed by the Industrial policy Resolution of 1956, under which electricity was reserved for public sector only. Hence, even today there are very few electricity undertaking in the private sector. Hence power sector is controlled and monitored through the Central Electricity Authority (CEA) while the Central Electrical Regulatory Commission is the independent apex regulatory body for tariff regulation.

**Future:** Power has been recognized as critical infrastructure for economic development and improving the quality of life. For achieving this, it would require an additional 105400 MW in the next 10 years at the cost of ₹ 80,000 crores.

Even during the period of public sector domination, some private sector companies like Tata Power, Killick Nixon Industries etc. operated and also flourished appreciably during the period and are rated among the best in the company in terms of performance and profitability. They operate their own power generation and distribution systems and have a total capacity of around 3000 MW. They distribute power to around ten million consumers.
In order to encourage the private sector to participate in the electricity sector, a policy decision was taken in 1991 to encourage greater investment by the private sector in the power sector.

By this policy, private sector was allowed to set up its own generating companies and to distribute the power directly to consumers with the consent of State Government.

Chapter 7 deals with certain important details and information about the two power generating companies, viz, GSECL and Torrent Power Ltd.

GSECL: A government power generating company was created out of Gujarat Electricity Board (GEB) for generation of electricity in August, 1993 and registered under the Companies Act, 1956. It is a wholly owned subsidiary of GEB. Its objective was to initiate a process of restructuring of Power Sector and to mobilize resources from the market, adding to the generating capacity of the State and improving the quality and cost of existing generation. The company commenced its commercial operation in the year 1998. As a part of ongoing reforms process in the State Power Sector, in the year 2003, the Government of Gujarat passed Gujarat Electricity Industry Act, 2003, splitting GEB into seven units, one of which was GSECL for Power Generation. All the generation plants of GEB have been transferred to GSECL. Thus it has taken up the responsibility of electric generation. Electricity transmission has been entrusted to the already existing company GETCO. Distribution network in the State has been split up among four distribution companies for Northern, Central, Southern and Western parts of the State. All these companies have been made subsidiaries of the holding company Gujarat Urja Vikas Nigam Ltd. (GUVNL) which is the single bulk buyer in the State as well as the bulk supplier to distribution companies. As per the new power sector structure, GSECL has entered into purchase agreement for selling energy with GUVNL.

Torrent Power Ltd., AEC is a part of the ₹ 38 billion Torrent Group. It has a generating capacity of 500 MW. It supplies 4 billion units of power to around 13 million customers. The company’s licensed area of 356 sq kms., comprises the cities of Ahmedabad and Gandhinagar, the state capital. The company was incorporated on 28th May, 1913 by Killick Nixon Ltd., a U.K. based company. After the abolition of
managing agency system in India in 1969, Killick Nixon ceased to be the managing agents of the company. From 1969 to 1998, the company was managed under the suprindentence, control and direction of the Board of Directors consisting inter alia, nominees of financial institutions and Government. In 1998 the promoters of the Torrent Group took control of the management of the company. Since the Torrent Group took over, it has tried to reduce the Transmission and Distribution (T&D) losses and the efforts of the company bore fruits with T&D loss of the company being one of the lowest in the country.

The company has been purchasing power from the Gujarat Urja Vikas Nigam Ltd., to meet the shortfall in supply which is costly as compared to its own generation cost. The company is therefore, indulging in enhancing its generation capacity to meet its demand.

The company together with Torrent Power SEC (Surat Electricity Company) Ltd., and Torrent Private Ltd., has promoted a Special Purpose Vehicle called “Torrent Power Generation Ltd., (TPGL) to set up a 1143.5 MW SUGEN gas based power plant near Surat.

Torrent Power AEC (Ahmedabad Electricity Company) has committed an investment of up to ₹ 372 crores in the Equity Capital of TPGL and has also signed a long term Power Purchase Agreement with TPGL to purchase 25% of its power generation capacity and energy. Torrent Power Ltd., AEC was earlier known as Ahmedabad Electricity Company Limited, which started electric supply generation in 1915 with a small diesel power station. The company has continued to expand its network due to increasing consumer demand and in its licensed area of operation.

Due to amendment of the New Electricals Act, 2003, it seems the company will have plenty of opportunities of growth in the power sector. But as the New Act has made provisions for a second licensee to operate in the existing licensed area of another licensee. This may affect the profitability of the company due to competition.

The Torrent Power SEC is a part of the ₹ 29 billion Torrent Group. It is a power utility distributing power to about 0.44 million customer in 52 sq km. of its license area in the city of Surat. Killick Nixon and others were granted license in 1918 under Indian Electricity Act, 1910. The company was incorporated and registered at Bombay on June, 22, 1920. The SEC operated under this license until 1968. After the abolition of the managing agency system in 1969, Killick Nixon ceased to be managing agents of the company and in 1971 SEC, became an independent company.
managed by the Board of Directors. From 1971 to 1996 the company was managed under the superintendence, control and direction of the board of Directors consisting of inter alia nominees of financial institutions and the Government of Gujarat. In 1996, the promoters of the Torrent group took control over the management of the company. Torrent Power SEC was earlier known as the Surat Electricity Company Limited and commenced electricity supply operation in 1920.

Torrent Power’s SUGEN Mega Power Plant is in response to meet the ever increasing demand for power. It is the largest private sector gas based power project and also amongst the first Mega Power project in the country. The plant is located near Surat in South Gujarat.

The 400 MW Sabarmati Thermal Power Station is one of the oldest operating power stations in the country. It became operational in 1934 with 37.5 MW capacity. Since then the station has passed through several phases of Capacity addition, upgradation and modernisation to cater to the growing power requirements of the twin cities of Ahmedabad and Gandhinagar. Torrent Power is setting up a standalone power project with a capacity of 382.5 MW at its existing SUGEN power plant site.

Chapter 8: The last chapter which deals with difference between public sector and private sector as regards their attitude towards human resource. Then of course, methods of presentation of HR valuation in the Annual Reports are discussed. Covering the discussion in detail the various effects of presenting human resource valuation, how they are useful to management in determining their personnel policies, to investors in making their decision about investing their savings in company’s equity shares etc. and finally, the calculation of values of human resources of two selected power generating companies of Gujarat, viz., GSECL and TPL, but due to non availability of any data from both these companies I could not compute the value of their human resources.

The two companies which has been selected are one from public sector and other from private sector. In India some of the public sector companies like BHEL, SAIL etc. have done outstanding work but not all have done so. As far as private sector companies are concerned they are totally negligent towards human resource valuation. Even very outstanding industrial and business houses like Tatas, Birlas, Ambanis, Adanis have done nothing in this direction. Of course, a very progressive
software technology company, Infosys is doing excellent work in presenting valuation of human resources in its Annual Reports.

The information part should be conversant about the methods of presenting human resource valuation in Annual Reports. The first method is to present it in the President's letter to shareholders. The second method is to present the investment in human resources in a separate statement of intangibles. The third method is to include value of human resources in accounts to present the information about investments in human resources in unaudited proforma financial statements. It is nothing but giving a supplementary statement along with Conventional Statements. The last method is presenting HR Valuation in financial statements in its true sense. Here expenses on human resources are to be capitalized and shown as assets in the balance sheet and it is to be amortized over a period of their useful expected life.

Due to certain difficulties involved in using this method and due to lack of generally accepted formula for valuing human resources, hardly a very few companies follow this method in India.

Late Shri J. R. D. Tata once said, "employees are our most valuable assets." It means one of the most outstanding industrialists believed that human beings working in industry are assets and that too very valuable assets. But, it is an accepted fact that the success of a business enterprise depends to a great extent upon the efficiency, skill and loyalty of employees. Taking this into consideration BHEL was the first Indian company to value its human resources and give it in its Annual Reports.

**Effects on HRA and Employee’s Welfare:**

Once the management recognizes the importance of employees through valuation of human resources, it would lead them to provide welfare facilities like medical facilities, sports, housing, canteen etc., to motivate their employees. This would lead employees to put forth their best in the organization and the organization will be able to achieve its objectives. One thing is certain that welfare schemes have their impact on the productivity, health, loyalty and efficiency of the workers. Survey of executives what would be the impact of the welfare schemes on productivity of employees, 90% of the respondents expressed that they are useful to both and the expenses after welfare schemes are not really expenses, but are investments which would yield positive results in future.
HRA and Recruitment Norms:

In the survey, it has been mostly agreed by most executives that recruitment norms of employees would be affected by the value of human resources. If over a time the value of human resources goes up, it would be desirable to have recruitment from internal sources, so that the employees would feel that there are plenty of scope for advancement in their own organization. This would raise their morale and motivate them to work hard in achieving the organizational objectives. Persons with high skill are required and they are not available from the present internal staff, there is no other alternative to recruit people from outside.

Management change has to be inevitable and the effect of HRA on such a change has to be accepted. The valuation of human resources in different categories, would reflect who are the persons who can accept the challenge of meeting the change and who can adopt themselves to the changing jobs.

Industrial Relations and HRA:

Human resource valuation concept has developed out of the human approach of social workers like Hugo Monsterberg, Mary Parker Follet and others. Recognition of the value of employees make difference in the attitude of employees towards management and vice versa.

The next question is whether the degree of supervision and control would be affected by valuation of human resources. In a survey asking some higher executives, it was gathered that the degree of supervision and control would be definitely different, given the value of human resource.

Approach of HR Valuation:

Different scholars in the USA began to present different models for valuation after 1970. According to Flamholtz model, the ultimate measure of an individual’s value to an organization is his expected future realizable value. According to his model individual’s value depends on the amount an organization could potentially realize from his service and secondly on the amount actually expected to be derived taking into account the person’s likelihood of leaving the job before retirement. The Likert and Bowers suggested a model to find out the present value of contribution incurred in acquiring, developing maintaining and utilizing these services. Taylor and Bowers suggested a measurement model, based on an earlier model of Likert and Bowers,
provides for determination of group value in non monetary terms. Another valuation model was suggested by Scott Myers and Vincent Flowers. The model based on the assumption that the value of an individual to the enterprise rests on his attitude towards the job assigned, his superiors, peers, working conditions and the organization as a whole. Under this model, the attitude score is used and attitude index is multiplied by his annual salary to arrive at his value to the organization.

There are two bases of valuation of HR. One cost and the second economic value. The cost methods of valuation are historical cost, replacement cost and opportunity cost. As far as economic value methods are concerned the most popular model is that presented by Lev and Schwartz. It is based on the assumption that value of human resource is the present value of future earnings, of an individual. It involves classification of employees into homogenous groups. Here the difficulty is to measure the estimated number of years up to which an employee would remain in service. Another model which takes into account the mobility of employees was developed by Flamholtz.

Most of the Indian companies, even today, do not consider their employees to be their assets. They do not give any information about human assets in their annual reports. The reasons are (1) There is no legal compulsion for them to do so. (2) There is no single model acceptable to all. (3) In power generating companies there is considerable investments in fixed assets and very low investment in human assets.

**Survey:** The author of this thesis conducted a survey of 40 executives of various enterprises to find out their views on various aspects of HRA. Their replies were as follows: (1) As regards incorporating HR valuation in the Annual Accounts of the enterprises, most of the executives of private sector were against including HR valuation in the regular financial statements. Most of them recommended that HR valuation should be given in the form of supplementary statements along with annual accounts. (2) It was inquired of these executives why Indian companies ignore HRA and do not pay much attention to it. Their opinion was that (i) there is no unanimity about the use of any model for valuation. (ii) there is a trend among private sector companies to give as much less information to the readers as they can. (iii) It is not made compulsory by Companies Act to disclose anything about human resources. Nor did the Institute of CA do anything in this direction. (iv) if the employee comes to know about his value to the organization, he would demand better salary packages.
As regards usefulness of HRA to internal management, executives believed that the management would come to know the importance of manpower. It would help manpower planning and it would help HR director to formulate better personnel policies. (3) Most of the executives expressed the view that HR valuation information would be helpful to the shareholders and also to prospective investors. (4) Most of executives were of the opinion that it is very useful even to creditors as the creditors believe that the value of human assets may be regarded by them as an intangible security against loans and credit. (5) Majority of executives believed that valuation of human resources could be equally useful to workers unions also. The last question was whether HR valuation can affect management decision making. Nearly all except a few executives in the private sector believed that HR valuation will definitely help in implementing such a policy that would be beneficial to employees. As regards the possible effect of HR valuation on employee-management relations, their opinion was that it would definitely help to solve labour-management problems.

In order to know the opinions of executives both in private sector and public sector whether HR data is useful to financiers, bankers and investors. Majority of the respondents-individual and professions were in favour of valuing human resources as very useful to both management and employees as well as to financiers and investors.

From the discussion so far made on the basis of my study it has been established beyond doubt that it is useful and valuable for all stakeholders of the enterprise.

**Valuation of HR of GSECL:**

Though I selected this company in my study for HR valuation, I am sorry to state that no data was available from the management of this company and so on the basis of assumed figures of salaries of employees on the basis of Lev and Schwartz model. I have tried to find the valuation of an individual employee. There is no attempt on the part of the company to value its human resources. We were given a few data, which state that there were 8358 employees in the company and their salary scales were as given in the previous chapter. There were 2594 employees between the age of 25 to 40 years, 2623 employees between 40 to 50 years and 3141 employees between the age 50 to 60 years. There were no employees above the age of 60 years, as their retirement age is 60 years.
Torrent Power Ltd., and HRA:
Torrent power Ltd., is equally orthodox and conservative private sector company, which bluntly refused to provide any data regarding the salaries or their grade, as well as other allowances. Company has provided the data that there were 5,445 employees. Number of employees between the age of 25 to 40 years was 1384, the number of employees between the age of 40 to 50 years was 2604 and between the age of 50 to 60 years there were 1,455 employees. The average age limit of employees of the company is 45 years, as most of the employees of former Ahmedabad Electricity Company Ltd., were retained.

R.G. Barry Corporation and HRA:
This was the pioneering company in adopting and reporting human resource accounting in its annual reports since 1966. It is not a very large company but has the credit of initiating reporting HRA.

Conclusions:
From the studies and from the opinions of executives, the following conclusions can be drawn.

1. Most of the executives even in India, believe that human resource valuation is very useful not only to management but also to employees and other stakeholders of the enterprise. It is useful to management in taking important policy decisions and framing rationale personnel policy. It is useful to employees in getting a decent salary, as employees and management both know their values and also gets value based promotion too. The investors would be guided by the values of human assets in taking decisions whether investor should invest his savings in a particular company. It would be helpful even to bankers to determine the creditworthiness of the enterprise to whom it wants to grant loans.

2. All models and other methods of valuing HR were developed only in the USA since 1966.

3. As far as adoption of HRA by Indian companies is concerned, it is very clear that very outstanding companies in the public
sector adopted HRA, the pioneer being BHEL. The Private sector companies are very orthodox, conservative and non cooperative in providing any data as regards Human Resources Assets and their Valuation. Not only that they them selves do not adopt HRA, they do not give any information about their human assets to any outsiders and even to research workers. Recently very progressive companies like Infosys Technologies Ltd., has started giving excellent information about their human resources, but is also giving equal importance to human assets.

(4) Very few research works have been undertaken in India and so much needs to be done in this respect. Hermanson presented his model of valuation of HR when he was a Ph.D. student.

(5) If the Indian companies adopt HR valuation, the employees would be happy to know their values and believe that their importance is recognized by the management. This would raise their morale, loyalty and skill. This would help Indian companies to compete in the international markets.

(6) Research in HR valuation must be encouraged not only by academicians but even by Government when they proclaim that they are setting up educational institute of International standards.

Unless such encouragement to research is done, there would be no academic excellence produced in India.