5.1 Introduction
As explained in Chapter-2, this chapter examines the modus operandi of HRA, in the respondent organisations. This is the second objective of the thesis.

5.2.1 Approach to HRA valuation
Different approaches have been in use vis-a-vis HRA valuation. All the Indian companies follow the Lev & Schwartz model although SAIL has been applying a slightly modified version of the model. The popular approaches are dealt with briefly in the following paragraphs.

5.2.1.1 The historical cost method
This method was developed by William C.Pyle, It was implemented in 1969 by R.G.Barry Corporation, a leisure footwear company at Columbus, Ohio, USA. The method factors in the actual cost incurred in hiring, selecting, recruiting, training and rising human resources and views the sum of the said costs as the value of workforce. The economic assessment of human resources increases over time since, with experience, the HR adds more value to the company. However, the capital cost of HR diminishes through amortization, under this method.

The model suggested by Flamholtz (1999), a historical cost method, or contract, capitalizes all costs associated with hiring, training, recruiting, and selecting. It amortize these costs within the projected life of the asset. There are several boundaries associated with such measures. Thus, the economic worth of an active human does not necessarily correspond to its historical cost. On the other hand, any appreciation or depreciation may be subjective, with no relationship to any increase or decrease in the productivity of human intellectual capital. Finally, the costs associated might differ from one individual to another within a company. Soon, the historical cost will not lead to comparable standards of human resources.
5.2.1.2 The replacement cost model
In this model, the value of an employee is calculated as the cost of replacement of the said employee, with the replacement possessing at least the same level of ability and efficiency as the departing employee. However, two costs, namely, positional replacement, and individual replacement cost and are estimated for the purpose. The cost incurred in selecting, recruiting, training, emerging and familiarising the employee (with the nitty-gritty of the company’s operations) is reckoned as the individual replacement cost. When an employee moves to another position or leaves the company, the cost incurred in transferring the employee, carrying the vacancy and other relevant costs are incorporated into the individual replacement cost. Positional replacement cost denotes to the cost incurred in filling the different positions in the company. However, this model is characterised by a high level of subjectivity.

5.2.1.3 Opportunity cost model
This technique is grounded on the concept of opportunity cost. In other words, the value of an employee in its alternative best use is used as the root of assessing the value of human resources. The opportunity cost value may be determined through competitive bidding within the company. This effectively means that managers bid for any scarce employee. A human asset acquires value only when it is a scarce resource or when its employment in one division leads to its withdrawal from another division. A major imperfection of this method is that it keeps out such employees as can be hired from outside. Thus it leads one to conclude that the method focuses on that segment of the company’s HR that possesses specialised knowledge within the company or in the labour market.

Measuring the cost of original human capital
The original cost of human resources or accounting refers to the sacrifice that was made to select, hire and develop people. This concept is similar to the concept of original cost for other assets. For example, the original cost of plant and equipment is the sacrifice incurred to acquire these resources. The original cost of human resources includes recruitment costs, selection, hiring, orientation, placement and training costs incurred during the service. Some of these objects are direct costs, while others are indirect. For example, the cost of the salary of an intern is a direct cost of training, while the custom of the time a supervisor customs up during training is an indirect cost. The essential to add these costs will impact the value of their components. For management purposes it is desirable to comprise the opportunity costs
incurred in the original cost of human resources. However, because often there are difficulties involved in measuring the opportunity costs, it may not be possible to obtain clear estimates.

To meet external reporting, this technique would make HCA consistent with the accounting of other costs. The definitions given by Flamholtz (1999) on the costs identified in their model are:

- Hiring costs refer to the detriment that involved hiring a new head for the role. They include all direct costs of selection, training, recruitment and placement as well as certain indirect costs.

- Recruitment costs are those incurred to identify sources of human resources, including those within and outside the organization. These costs are also incurred to attract prospective employees of an organization.

- Selection costs are those incurred for determining who should be devoted to employment. They include all costs incurred in the selection of individuals to be members of the organization.

- Recruitment and placement costs are acquired to bring an individual to an organization and put the individual in service.

- Learning costs refer to the sacrifice that must be made to train an individual and bring the individual to accomplish in a manner normally expected of an individual holding that position.

- Costs of formal training and guidance are related with formal education and training.

- Training costs at work are incurred during the tutoring of an individual in the workplace, instead of using formal training programs.

- Lost productivity during training represents the cost of the lost performance of others who do not groom during the training period.
Measurement of replacement cost of human capital

The replacement cost of human resources refers to the cost that would have been made today to replace the human resources currently employed. For example, if an individual leaves the organization, it would generate costs to recruit, select and train a replacement. The replacement cost of human resources includes the costs attributable to the revolution of a current employee as well as the cost of hiring and rising a replacement. It includes direct and indirect costs. Since replacement costs are estimated by the management, they should include components of opportunity cost and expenses. This perspective suggests that there is a dual concept of replacement cost: positional and personal. In this context, the positional replacement cost refers to the sacrifice that had to be acquired today to replace an individual currently employed by a replacement capable of providing an equivalent set of services in the same position. It refers to the cost of replacing the set of services required of any employee in a specific position. There are three basic elements of positional replacement cost, namely, hiring costs, training costs and severance costs. The first two of these costs have already been discussed and hence the third is considered here. The concept of cost used in the model Flamholtz (1999) implies that compensation costs are incurred as a result of the position the individual that leaves the company held. Replacement cost refers to the act of replacing one individual by another functionally equivalent individual.

This model suggested by Flamholtz is an improvement of the "present value of future earnings model" of Lev and Schwartz (1971), since it takes into account the possibility or probability or the movement of an employee of one function to another in his / her career and also his / her departure from the company beforehand, upon death or retirement. According to this model, the ultimate measure of the value of an individual to an organization is its expected value of achievement. The expected value of achievement is based on the assumption that there is no direct relationship between the cost incurred by an individual and its value to the organization at a particular point in time. The value of an individual to the organization can be defined as the present value of all future services that the individual is expected to provide during the period the individual remains in the organization.

Flamholtz formulated the variables that affect the expected value of an individual \([E (CV)]\) as a conditional value of the individual's probability of staying in the organization. The first is a function of the individual's skills and level of activity, while the latter is a function of variables such as job satisfaction, commitment, motivation and other factors.
According to Flamholtz, the \( [E(CV)] \) of an individual can be defined as follows:

\[
E(CV) = \sum_{t=0}^{T} \frac{E(CV)_t}{(1 + i)^{t-\gamma}} = \sum_{t=0}^{T} \frac{\sum_{j=1}^{m-1} V_{jt} P(V_{jt})}{(1 + i)^{t-\gamma}} \quad (2.2.5. -3)
\]

where:

\[
P(V_{jt}) = \frac{P(V_{jt})}{\sum_{j=1}^{m-1} P(V_{jt})} \quad (2.2.5. -4)
\]

\( E(CV) \) is expected conditional value \( t \);

\( V_{jt} \) is the value of the service state \( j \) in period \( t \);

\( P(V_{jt}) \) is the probability of obtaining the value of the service state \( j \) in period \( t \), where the odds are transformed as the expression (2.2.5.-4);

\( (V_{jt}) \) is the probability of obtaining the value of the service state \( j \) in period \( t \);

\( (1 + i)^{t-\gamma} \) is the discount rate, where \( i \) is interest rate; \( t \) is the time since \( \gamma \);

The expected realizable value in period \( t \) of an individual can be defined as:

\[
E(RV) = \sum_{t=0}^{T} \frac{\sum_{j=1}^{m-1} V_{jt} P(V_{jt})}{(1 + i)^{t-\gamma}} \quad (2.2.5. -5)
\]

where,

\( E(RV) \) is the expected realizable value in period \( t \);

\( V_{jt} = 0 \) (\( m \) is the exit status)

The model suggests a four-step approach, namely:

1. Determination of the period for which a person is expected to serve the organization.

2. Identification of "state service" (i.e., function) that the employee could take up during his career, including the possibility of leaving the organization.

3. Estimated value obtained by the organization when a person occupies a certain position. This value can be determined either by multiplying the price of services with the amount of services to be rendered or expected income derived from services to be provided.
4. Determination of the total value of services derived by different employees or groups of employees to the organization. The value is discounted to reach a predetermined rate for the current value of human resources.

The model suffers from all the drawbacks associated with the present value of future earnings models. Moreover, it is difficult to obtain reliable data to determine the value obtained by an organization during the period in which an individual holds a particular position. The model also ignores the fact that individuals who operate in a group may have a higher value for the organization, compared to individuals working independently. In the analysis of operational capability, the approach falls short of practical value to the extent that the odds have to be determined for each individual occupying various states of service and these probabilities must be determined for all periods and employees on an individual basis. It will also be very costly and time consuming to predict the movements of output probabilities career on an individual basis. The data prepared on this basis can involve large variances that could reduce the usefulness of the model.

5.2.1.5 Lev and Schwartz Model

The Lev and Schwartz model (1971) seeks to determine the value of human capital associated with an organization. The dichotomy in accounting between human and nonhuman capital is critical in this model.

According to Lev and Schwartz, there is a fundamental difference between the two types of capital: the ownership of human capital is transferable (not a society of slavery), while human capital is not traded in the market. In a context of certainty, this distinction has no impact in determining the value of capital, since it is understood that there is a perfect knowledge of future income as well as the discount rate. In a context of uncertainty, it no longer applies.

However, for non-human capital (physical capital) one can infer its value by observing market values that reflect the present value of future outcomes for the parties dealing in the market. But to human capital this cannot be applied because it is not traded in the market. Thus, it is concluded that in a world of uncertainty, there is an important distinction between human and non-human capital. For this they propose that the value of human capital be determined as follows:
1. All employees are placed under specific groups according to their age and skills;

2. The average annual compensation is determined for the different age groups;

3. The total compensation for each group mentioned above will be computed up to the age of retirement

4. The total remuneration will be calculated at a rate discounted at the cost of capital. The value arrived at will be the value of the asset / human capital; According to this model, the formula to calculate the expected value of human capital of an employee is as follows:

\[
E(V_{t-}) = \sum_{t=\tau}^{T} P_{t}(t + 1) \sum_{i=\tau}^{t} \frac{I_{t}}{(1+r)^{t-\tau}}
\]

where,

- \( I_{t} \) = The individual’s annual earnings up to retirement. These values are plotted through the profiles of income;
- \( r \) = Discount rate specific to the person;
- \( t \) = Retirement age;
- \( P_{t}(t) \) = Conditional probability of an elderly person \( \tau \) to die in year \( t \).

The value of the organization's human capital is no more than the sum of the values of human capital of individuals working in the organization. According to Lev and Schwartz even though nothing has been done in accounting to include this item in financial reporting, economic theory provides a basis for a practical solution of the problem.

The demerits of the model are:

1. The approach does not take into account the possibility of a worker withdrawing from the organization before his death or retirement.

2. It ignores the variable of career mobility of workers within the organization

3. It does not take into account the changes in the functional areas of workers.
4. This method does not reflect the correct value of human capital, and does not measure their contribution to organizational effectiveness.

5.3 Modus Operandi of computation of HRA components in ONGC

In the following paragraphs, the modus operandi of computation of the components used in HR accounting in ONGC is discussed.

As already explained, human resources of an organisation may be measured in terms cost or in terms value. In turn, the costs may be interpreted mainly in terms of acquisition cost, replacement cost and opportunity cost.
<table>
<thead>
<tr>
<th>Year</th>
<th>Total cost incurred employees</th>
<th>Cost of social security</th>
<th>Cost of social security as a percentage of cost of employees</th>
<th>Utilisation rate</th>
<th>HR cost per rupee profit ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2005</td>
<td>27,465</td>
<td>6,360</td>
<td>23.16</td>
<td>8.55</td>
<td>0.14</td>
</tr>
<tr>
<td>2005-2006</td>
<td>30,147</td>
<td>5,910</td>
<td>19.61</td>
<td>9.03</td>
<td>0.14</td>
</tr>
<tr>
<td>2006-2007</td>
<td>48,833</td>
<td>16,422</td>
<td>33.63</td>
<td>5.85</td>
<td>0.21</td>
</tr>
<tr>
<td>2007-2008</td>
<td>60,484</td>
<td>22,138</td>
<td>36.60</td>
<td>4.61</td>
<td>0.24</td>
</tr>
<tr>
<td>2008-2009</td>
<td>47,396</td>
<td>13,030</td>
<td>27.49</td>
<td>5.86</td>
<td>0.20</td>
</tr>
<tr>
<td>2009-2010</td>
<td>57,191</td>
<td>12,285</td>
<td>21.48</td>
<td>6.15</td>
<td>0.23</td>
</tr>
<tr>
<td>2010-2011</td>
<td>67,282</td>
<td>17,081</td>
<td>25.39</td>
<td>4.74</td>
<td>0.24</td>
</tr>
<tr>
<td>2011-2012</td>
<td>67,960</td>
<td>16,308</td>
<td>24.00</td>
<td>5.38</td>
<td>0.19</td>
</tr>
<tr>
<td>2012-2013</td>
<td>1,03,302</td>
<td>35,132</td>
<td>34.01</td>
<td>3.24</td>
<td>0.34</td>
</tr>
<tr>
<td>2013-2014</td>
<td>1,04,051</td>
<td>39,809</td>
<td>38.26</td>
<td>3.52</td>
<td>0.32</td>
</tr>
<tr>
<td>Average</td>
<td>61,411</td>
<td>18,447</td>
<td>28.36</td>
<td>5.69</td>
<td>0.22</td>
</tr>
<tr>
<td>CAGR (%)</td>
<td>15.95</td>
<td>22.60</td>
<td>5.74</td>
<td>-9.39</td>
<td>9.68</td>
</tr>
</tbody>
</table>

(Source: Annual Reports and Web site of ONGC and CAG Report)
The total cost of employees has grown at a compounded annual growth rate (CAGR) of 15.95 percent while that of social security has grown at a CAGR of 22.60 percent. This shows that the company is more conscious of the need to provide social security to the employees. The cost of social security as a percentage of the cost of employees has shown an inconsistent trend during the period, rising significantly and falling steeply. The utilisation rate conveys the overall efficiency of the organisation in the utilisation of the services of its employees. The utilisation rate has fallen to INR 3.52 million from a healthy INR 8.55 million. It has shown a de-growth or erosion.

5.4 Modus Operandi of computation of HRA components in NTPC
In the following paragraphs, the modus operandi of computation of components used in HR accounting in NTPC is discussed.
Table-2

HR cost in NTPC (in INR million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total cost incurred employees</th>
<th>Cost of social security</th>
<th>Cost of social security as a percentage of cost of employees</th>
<th>Utilisation rate</th>
<th>HR cost per rupee profit ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2005</td>
<td>11,499</td>
<td>3,251</td>
<td>28.27</td>
<td>9.19</td>
<td>0.13</td>
</tr>
<tr>
<td>2005-2006</td>
<td>12,866</td>
<td>3,298</td>
<td>25.63</td>
<td>8.07</td>
<td>0.15</td>
</tr>
<tr>
<td>2006-2007</td>
<td>15,403</td>
<td>3,700</td>
<td>24.02</td>
<td>8.68</td>
<td>0.13</td>
</tr>
<tr>
<td>2007-2008</td>
<td>24,250</td>
<td>5,157</td>
<td>21.27</td>
<td>5.94</td>
<td>0.18</td>
</tr>
<tr>
<td>2008-2009</td>
<td>30,996</td>
<td>5,189</td>
<td>16.74</td>
<td>4.24</td>
<td>0.26</td>
</tr>
<tr>
<td>2009-2010</td>
<td>31,173</td>
<td>4,507</td>
<td>14.46</td>
<td>5.18</td>
<td>0.22</td>
</tr>
<tr>
<td>2010-2011</td>
<td>36,938</td>
<td>5,920</td>
<td>16.03</td>
<td>5.10</td>
<td>0.23</td>
</tr>
<tr>
<td>2011-2012</td>
<td>40,614</td>
<td>5,998</td>
<td>14.77</td>
<td>4.74</td>
<td>0.25</td>
</tr>
<tr>
<td>2012-2013</td>
<td>44,562</td>
<td>6,815</td>
<td>15.29</td>
<td>5.09</td>
<td>0.20</td>
</tr>
<tr>
<td>2013-2014</td>
<td>59,930</td>
<td>8,350</td>
<td>13.93</td>
<td>4.59</td>
<td>0.28</td>
</tr>
<tr>
<td>Average</td>
<td>30,823</td>
<td>5,219</td>
<td>19.04</td>
<td>6.08</td>
<td>0.20</td>
</tr>
<tr>
<td>CAGR (%)</td>
<td>20.13</td>
<td>11.05</td>
<td>-7.56</td>
<td>-7.42</td>
<td>8.87</td>
</tr>
</tbody>
</table>

(Source: Annual Reports and Web site of NTPC and CAG Report)
The total cost on employees shows a rise every year -- from INR 11,499 million in 2004-05 to a whopping INR 59,930 million in 2013-14, registering an average of INR 30,823 million during the period. The social security cost rose too -- from INR 3,251 million to INR 8,350 million, averaging INR 5,219 million for the period. The utilisation rate of NTPC has registered a declining trend -- from INR 9.19 million to INR 4.59 million over the period. The HR Cost per rupee profit ratio reveals a rising trend at 8.87 percent for the period. While the total cost vis-a-vis employees grew at a CAGR of 20.13 percent, the social security cost grew at a CAGR of 11.05 percent, showing that NTPC spends more on salary and wages rather than on social security. The ratio of cost on social security to cost of employees has declined from 28.27 percent to -7.56 percent. In other words, during the period under review, the ratio has eroded, far from growing. The HR cost per rupee profit ratio has grown at a CAGR of 8.87 percent even as the utilisation rate grew at a CAGR of -7.42 percent indicating that NTPC is not utilising the services of its employees optimally.

5.5 Conclusion

The modus operandi of HRA in our organisations gives the impression that HRA has not been taken seriously by all the stakeholders, including the promoters. For example, companies which are into HRA no longer publish the HRA-related information in their annual reports. Information sought by researchers on the subject is seldom furnished. The web sites of the companies do not carry any information as to the HRA practices they follow, either. Any letter addressed to the companies seeking HRA-related information is seldom acknowledged, much less answered. Even the IT bellwether Infosys has stopped publishing its HRA-related information in its annual reports. One can easily visualise how the other private sector players would treat publication of HRA-related information, if this is how Infosys, known for its superior corporate governance practices and higher levels of transparency treats it. Companies like Infosys may have their own reasons to do so. What stands out like a sore thumb is the fact that HRA, wherever undertaken, is undertaken more in form than in substance. This is truer of public sector enterprises like ONGC and NTPC where disclosures seem to have been made merely to justify the claim that the companies do undertake valuation of their human resources.

In the next chapter, namely Chapter-6, the benefits accruing from HRA are discussed.