HUMAN CAPITAL MEASUREMENT AND ITS APPLICATIONS IN NTPC

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Abstract: Human capital is most important input of any organisation. All were having view that presently there is no method by which human capital can be accounted for in balance sheet. In today’s knowledge world Human Resource Accounting (HRA) is an attempt to identify, quantify and report investment made in human capital of an organization that are not presently accounted for under conventional accounting practice. Measurement of Human Capital involves accounting for the company’s management and employees as human capital that provides future benefits and is becoming useful for company’s management in making organisational policies and to take managerial decisions. Human capital of an organisation may be measured in terms of human resource cost or in terms of human resource value.

The present study is mainly comprises the concept, Need and Significance of Human Capital Measurement and a case study of NTPC. This study is descriptive in nature based on the data collected through secondary authentic sources with the objective to measure the Human Capital and analyse the key variables of HR Accounting in NTPC.

The major findings of this study are that average of annual growth shows the 12.12% growth in TpE while 12.79% growth in TEpE. The reason of this seems to comparatively higher growth 17.43% in HRCpE. In result of this NPpE shows lower growth i.e. 6.73%. Variance shows that HRCpE is more stable than other variables and Correlation Matrix shows that there is high degree positive correlation between selective HR variables and all the Correlation is significant at the 0.05 level.

Key words: Human Capital, HR Accounting, Productivity of Employees, NTPC, HR variables, Utilisation Rate.

1. Introduction

Human capital is most important input of any organisation. All were having view that presently there is no method by which human capital can be accounted for in balance sheet. In today’s knowledge world many businesses are facing these problems. Especially manufacturing companies, which are mainly based on special skills of their employees, are not properly valued. These special skills and outcome of these skills can be termed as Intellectual Capital (IC) (Bertolotti 1995). Unfortunately a measure element of IC (i.e. skills of Human Resource because companies pay for skills of human resources) human resource is not accounted for in books. Human Resource Accounting (HRA) is an attempt to identify, quantify and report investment made in human capital of an organization that are not presently accounted for under conventional accounting practice.

In the Human capital measurement approach, expenditures related to human resources are reported as assets in the balance sheet as opposed to the traditional accounting approach which treats costs related to a company’s human resources as expenses on the income statement that reduce profit. Human Resource Accounting (HRA) suggests that in addition to the measures themselves, the process of measurement has relevance in decision-making involving organizations. Although the origins and early development of HRA occurred mostly in the United States, interest and contributions to growth in the field have been evident in a number of other countries.

There are several definitions and studies for human capital. “Human capital is created by changes in persons that bring about skills, capabilities that make them able to act in new ways” (Antoaneta2009). Human capital valuation system cannot be considered to be a complete system of accounting unless it is followed by an equally competent system of auditing (Batra1996). Human Capital Measurement involves accounting for the company’s management and employees as “human capital” or assets that provide future benefits and the measures themselves have relevance in decision making (Bullen2000). The concept of human...
capital is also widely used in business literature to develop mechanisms to determine the value of human assets.

2. Need and Significance of Human Capital Measurement:-
Undoubtedly, Human Capital Measurement as a branch of accounting is gaining momentum and is becoming useful for company’s management in making organisational policies and to take managerial decisions. It also helps to following channels:

![Diagram showing the significance of human capital measurement]

Figure-1: Defined the HR Accounting and needs and significant to different sectors of society.

3. Measurement Tools of Human Capital
Human Resources of an organisation may be measured in terms of human resource cost or in terms of human resource value.

Human resource costs may be explained in terms of the three major categories of acquisition costs, Replacement Cost and Opportunity Cost. Acquisition costs include the direct costs of recruitment, selection, hiring and placement, and the indirect costs of promotion or hiring from within the firm. Replacement Cost is that would have to be incurred if present employees are to be replaced and a calculation of what would have been the returns if the money spent on HR was spent on something else is denoted as Opportunity Cost.
Under the Value Approach various models of human resources valuation have been developed on the basis of present value by the different authors:

I. Cost Approaches (HRCA)
   - Acquisition Cost Method
   - Replacement Cost Method
   - Opportunity Cost Method

II. Value Approaches (HRVA)
   - Lew and Schwartz Model
   - Flamholtz Model
   - Brummet Model
   - Jaggi and Lau Model
   - Morse Net Benefit Model
   - Hermanson's Adjusted Discounted Future Wages Model

4. Objective of the study:
Measurement of Human Capital is a management tool which is designed to assist senior management in understanding the long term cost and benefit implications of their HR decision so that better business decisions can be taken. This paper is based on following objectives:
   a) To measure the Human Capital in financial terms in NTPC.
   b) To analyse the key variables of HR Accounting related to productivity in NTPC.
   c) To assess the relationship among productivity indicators of Human Capital Measurement in NTPC.

5. Research Design:
Scope of the Study: This is a micro level study. The study has been confined to appraise the Human Capital Measurement Practices in NTPC.
Type of the Study: Based on the objective, the present study is descriptive in nature.
Period of the Study: The period of study extends from the financial year 2004-2005 to 2013-2014. Thus period of 10 years have been taken for the purpose of objective analysis in the study.
Collection of Data:
The data have been collected through secondary sources. An annual report, websites, different books of management accounting & personal management, previous research findings (Thesis and Dissertations) has been used for source of secondary data.
Analysis of Data:
The analysis has been carried out by making use of various statistical tools such as percentage, ratio analysis, descriptive statistics, co-relation, etc. as per the requirement on the tabulated data to analyse the same and bring out the hidden fact.

6. Analysis and Discussion:
6.1 Analysis of the Human Resource Cost in NTPC
Table 1 demonstrates the total cost on employee (including salary, wages, contribution to provident fund and other welfare expenses), Cost on social security, Cost on Social Security
The table 1 reveals the amounts expend by NTPC for the welfare and growth of its employee in the present inflationary India. The total cost on Employee shows the continuous increase year after year from 11,499 million (2004-05) to 59,930 million (2013-14) with an average of 30,823 million during the period of study. The table reflects that cost on social security also increase from 3,251 million to 8,350 million with an average of 5,219 million during the studied period. The primary reason for increase in employee cost is the provision made for pay revision of the employees of the corporation from the year 2007.

The UR of NTPC shows a declining trend from 9.19 million to 4.59 million over the period. The HR Cost per rupee profit ratio reveals in table 2 an increasing trend of 8.87%.

The employee cost growth rate is showing 20.13% and the growth rate of Cost on social security is showing 11.05% during the period of analysis. It reveals that NTPC expends more amounts on salary and wages rather than social security.

The ratio of Cost on Social Security and Cost on Employee is pointing out the declining trend during the period of study with negative growth rate of 7.56. There is negative growth (7.42%) in utilisation rate of employee and positive growth (8.87%) in HR Cost per rupee profit ratio. Thus it could be inferred from analysis that NTPC is still not being able to fully utilise the efficiency of its employees.

6.2 Analysis about the key variables of HR Accounting related to productivity in NTPC

As above table 2 concerns with various key variables of human resource accounting related to HR productivity i.e. Turnover per Employee (TpE), Total Expenses per Employee (TEpE), Operating Profit per Employee (OPpE), Net Profit per Employee (NPpE), Human Resource Cost per Employee (HRCpE) and Value Added per Employee (VApE). This table discloses the descriptive analysis on above mentioned variables in NTPC.
Table-2: Descriptive Statistics on key variables of HR Accounting related to productivity in NTPC

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Mx.</th>
<th>Average</th>
<th>Variance</th>
<th>AAGR(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover per Employee</td>
<td>10.94</td>
<td>30.47</td>
<td>19.76</td>
<td>45.5</td>
<td>12.12</td>
</tr>
<tr>
<td>Total Expenses per Employee</td>
<td>8.84</td>
<td>25.72</td>
<td>16.34</td>
<td>31.99</td>
<td>12.79</td>
</tr>
<tr>
<td>Operating Profit per Employee</td>
<td>3.61</td>
<td>7.52</td>
<td>5.32</td>
<td>1.81</td>
<td>8.26</td>
</tr>
<tr>
<td>Net Profit per Employee</td>
<td>2.69</td>
<td>5.27</td>
<td>3.64</td>
<td>0.68</td>
<td>6.73</td>
</tr>
<tr>
<td>Human Resource Cost per Employee</td>
<td>0.42</td>
<td>1.64</td>
<td>0.98</td>
<td>0.18</td>
<td>17.43</td>
</tr>
<tr>
<td>Value Added per Employee</td>
<td>4.16</td>
<td>10.98</td>
<td>6.92</td>
<td>5.32</td>
<td>11.53</td>
</tr>
</tbody>
</table>

In table 2, TpE, TEpE, HRCpE and VApE show the minimum value in 2004-05 and maximum value in 2013-14 with an average of 19.76 million, 16.34 million, 0.98 million and 6.92 million respectively during the studied period. OPpE pointed out the minimum value 3.61 million (2005-06) and maximum value 7.52 million (2013-14) with an average of 5.32 million during the studied period. NPPe shows the minimum value 2.69 million (2005-06) and maximum value 5.27 million (2012-13) with an average of 3.64 million during the studied period.

Average of annual growth rate shows the continuous growth in HR variables. It shows the 12.12% growth in TpE while 12.79% growth in TEpE. The reason of this seems to comparatively higher growth 17.43% in HRCpE. In result of this NPPe shows lower growth i.e. 6.73%. Variance in table 2 shows that HRCpE is more stable than other variables and TEpE is the most extensive.

6.3 Analysis of relationship among productivity indicators of human resource accounting in NTPC

Table 3 reflects the relationship among productivity indicators in NTPC that estimates the relation of HRCpE and VApE with TpE and NPPe.

Table 3: Correlation Matrix in NTPC

<table>
<thead>
<tr>
<th></th>
<th>Turnover per Employee</th>
<th>Net Profit per Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resource Cost per Employee</td>
<td>.977** (0.000)</td>
<td>.905** (0.000)</td>
</tr>
<tr>
<td>Value Added per Employee</td>
<td>.987** (0.000)</td>
<td>.932** (0.000)</td>
</tr>
</tbody>
</table>

Note: Value in parentheses shows p-value

** Correlation is significant at the 0.05 level

Correlation Matrix of table 3 shows that there is high degree positive correlation between HRCpE and TpE (0.977), HRCpE and NPPe (0.905), VApE and TpE (0.987), VApE and NPPe (0.932). The p-value in table 3 reveals that Correlation is significant at the 0.05 level in all four cases.

7. Findings of the present study:

a) As on 31 March 2014, the NTPC had 23,411 employees, out of which 1,457 were women (6.22%) and 473 were employees with disabilities (2.02%). It complies with the
Government directives for Priority Section of the society. The percentage of Scheduled Castes (SC) and Scheduled Tribe (ST) employees were 14.87% percent and 5.92% percent respectively as on 1st Jan. 2014. It has large number of group ‘A’ employee (57% of total manpower) that shows the large level of skilled workforce as on 1st Jan. 2014.

b) NTPC discloses the data regarding HR information that are No of Employee (Group wise, category wise and skill wise) and the wide spread of Employee cost summary. It also discloses the productivity of employees in terms of Generation per Employee and Man-MW ratio.

c) The productivity of employees is demonstrated by increase in generation per employee and reduction of Man-MW ratio. The over-all Man-MW ratio for the year 2013-14 excluding JV/subsidiary capacity is 0.63 and 0.58 including capacity of JV/ Subsidiaries. Generation per employee was 9.96 MUs during the year based on generation of NTPC stations.

d) The employee cost growth rate is showing 20.13% and the growth rate of Cost on social security is showing 11.05% during the period of analysis. It reveals that NTPC expends more amounts on salary and wages rather than social security. The ratio of Cost on Social Security and Cost on Employee is pointing out the declining trend during the period of study with negative growth rate of 7.56.

e) Average of annual growth rate shows the continuous growth in HR variables in NTPC. It shows the 12.12% growth in TpE while 12.79% growth in TEpE. The reason of this seems to comparatively higher growth 17.43% in HRCpE. In result of this NPpE shows lower growth i.e. 6.73%. Variance shows that HRCpE is more stable than other variables and TEpE is the most extensive.

f) In NTPC, Correlation Matrix shows that there is high degree positive correlation between HRCpE and TpE (0.977), HRCpE and NPpE (0.905), VApE and TpE (0.987), VApE and NPpE (0.932). The p-value reveals that Correlation is significant at the 0.05 level in all four cases.

8. Suggestions:

a) NTPC discloses the data regarding HR information that are No of Employee (Group wise, category wise and skill wise) and the wide spread of Employee cost summary in their annual report but it should measure the value of its human resources and should disclose in their annual statement whereby meaningful inferences can be drawn.

b) The Cost of Social Security as a percentage of Cost on Employee is pointing out negative growth in the case of NTPC. So, it should take it consideration.

c) The analysis of the utilisation rate suggests for the effective utilisation of employees by imparting on the job training and selling the time of employees to different and varied tasks through job rotation.
References:


