



## Methods, practices, recognition, measurement and accounting treatment of human resource accounting in Bangladesh

Md Shahnawaj<sup>1</sup>, Nahid Sultana<sup>2</sup>

<sup>1</sup> Manager, Pubali Bank Limited, Basurhat Branch, Noakhali, Bangladesh

<sup>2</sup> Assistant Manager, Human Resources Department, Unique Group, Dhaka, Bangladesh

### Abstract

Human resource is considered to be the most crucial and important asset of an organization since it controls all other resources. Usually, human resource was being ignored by traditional accounting since there was no scientific method to measure the value of human asset in monetary terms. Efforts, since 1960s, has been put forth to develop a mechanism to resolve the issue. Along with developing different mechanism, researchers became interested in a new field of study-human resource accounting. Now, human resource accounting encompasses the entire process of identifying and measuring data about human resources and communicating this information to interested parties. Both cost based and value based models are being used for human resource accounting. This paper aims to study the methods and practices of Human Resources Accounting in Bangladesh. A survey of the HR executives at different levels in the organizations of Bangladesh has been conducted for this purpose. The top management of some companies are not likely to take HRA practices with great importance. But the perception of HRA practices among Bangladeshi Nationals has been found to be positive. Now accountants are recognizing human resource investment as an asset. This study is built upon Methods, Practices, Recognition, Measurement and Accounting Treatment of Human Resource Accounting in different organizations.

**Keywords:** human resource accounting, cost models of HRA, Value Models of HRA, HRA practices, measurements of HRA, methods of valuation of human assets, accounting treatment

### 1. Introduction

The past few decades have witnessed a global transition from manufacturing to service based corporate enterprise. It helps the management to frame policies for human resources. Human resource accounting is a process of identifying and measuring data about human resources. It means accounting for people as an organizational resource. It involves measuring the cost incurred by an organization to recruit, select, hire, train and develop human assets and also involves measuring the economic value of people in the organization. It is concerned with measurement of cost and value of people in the organization. American Accounting Association (1980) has defined human resource accounting as follows: "Human resource accounting is the process of identifying and measuring data about human resources and communicating this information to interested parties"

Thus, human resource accounting is primarily involved in measuring the various aspects related to human assets. Its basic purpose is to facilitate the effective management of human resources by providing information to acquire, develop, retain, utilize, and evaluate human resources.

The broad objective of the study is to explore the available models of human resource accounting (HRA) and the current practices of HRA in Bangladesh. The specific objectives are-

### 2. Objectives of the Study

- To review the available models of HRA and focus their appropriateness.
- To highlight the major characteristics of HRA along with the practical difficulties in implementations.
- To understand the needs and significance of HRA in the

context of business performance measurement.

- To provide suggestions for developing such accounting practices in our business enterprises.
- Identifying the cost-based models of human resource accounting.
- Classifying the value-based models of human resource accounting.
- Determining the extent of human resource accounting practices in Bangladesh.
- Knowing the perception of relationship between employee performance and HRA. To fulfill the objective of the paper, data from both primary and secondary sources have been used. As a primary source of data, a survey has been conducted on HR executives of different corporate houses of Bangladesh. Based on the data, several conclusions have been drawn. As secondary sources of data, published international journals have been instrumental.

### 3. Rationale of the Study

Management of human resources in any organizations is very much important from accounting point of view. Valuation of human resources, recording the valuation in accounts and fair disclosure of such information in financial statements are the demand of the stakeholders in the context of enhancing managerial performance and employees' productivity. Investment in developing human resources is not revenue expenditure. Its impact on developing the capability of employees provides benefits for a long period. There is a genuine need for reliable and complete information that can be used in improving and evaluating human resource management. HRA is actually a part of

social accounting in which accountants need to apply their specialized abilities to help find solutions to our social problems. We know that accounting is a science of measurement, analysis and communication. The designing of proper accounting system for providing information to the stakeholders is also a difficult task. Capitalizing human resource costs is conceptually more valid than the expensing approach. The information concerning human assets is more relevant to a great variety of decisions made by external and internal users. Accounting for human asset constitutes an explicit recognition of the premise that people are valuable organizational resources and an integral part of a mix of resources. This study will be helpful for the different users of accounting information for their day to day decision making.

#### 4. Literature Review

During the two last decades, several advocates of HRA, including Herman & Mitchell (2008), Flamholtz *et al.* (2003)<sup>[10]</sup>, PekinOgan (1988)<sup>[26]</sup>, Flamholtz (2004)<sup>[12]</sup>, Lev & Schwartz (1971)<sup>[21]</sup>, Elias (1972)<sup>[6]</sup>, Hendricks (1976)<sup>[14]</sup> and others have suggested that HRA could benefit external users of financial statements. External decision makers must know the changes in human assets in order to evaluate properly assets and income. The conventional accounting profit may be misstated and the asset base distorted, if the condition of human assets changes during the period, (Flamholtz, 1999)<sup>[11]</sup>.

Herman Theeke, John B. Mitchell (2008) discussed how reporting under a human resource liability paradigm fits into the traditional accounting framework of contingent liabilities; examine the financial effects of such reporting on market valuation and internal planning; and explore measurement of human resource liabilities. From reviews of financial effects of human resource liability reporting the research logically extends those results to support the proposed paradigm. The paper provides support for the feasibility and need to adopt a human resource liability paradigm for valuing, reporting and managing human resources.

Flamholtz *et al.* (2003)<sup>[12]</sup> utilized the HRA measure of expected realizable value, and found that employees' participation in a management development program increased the value of the individuals to the firm. In addition the authors noted that the HRA measures provided upper level management with an alternative accounting system to measure the cost and value of people to an organization. Thus HRA represented either a paradigm or way of viewing human resource decisions, and the set of measures for quantifying the effects of human resource management strategies upon the cost and value of people as organizational resources.

Pekin Ogan (1988)<sup>[26]</sup> reported the results of a field experiment designed to assess the impact of HRA information on lay off decisions made by manager. The findings of this study indicates that HRA information does make a difference in personnel layoff decisions and enables managers to increase their level of confidence regarding decisions of this sort.

Tomassini (1977)<sup>[32]</sup> provided to a sample comprising of accounting students, traditional financial information and information containing human resources accounting. HRA information led to remarkable differences in decision-making.

Hendricks (1976)<sup>[14]</sup> performed a study using accounting and finance students as subjects. His simulated investors made two stock investment/capital allocation decisions, one with and one without human resource cost data. In this research, HRA had a meaningful impact on adopted decisions statistically.

Schwan (1976)<sup>[28]</sup> considered the effects of human resource cost measures on banker decision-making. He found that the inclusion of HRA data in published financial statements resulted in, one, significantly different ratings of management's preparedness to meet future challenges and opportunities and, two, statistically different predictions of a firm's net income.

Acland (1976)<sup>[1]</sup> selected a sample comprising of 500 financial analysts and provided financial reports for some of them and reports containing behavioral indexes to some other analysts so that they can make decisions about investments in one or two companies. Insertion of behavioral indexes caused that some analysts would make decision differently from those who had only financial information. This difference was visible in the analysts who had received HRA information with behavioral indexes. Research was performed about relative impact of disclosure of HRA monetary information versus non-monetary information.

Nabil Elias (1972)<sup>[6]</sup> provided 2 groups of financial reports (one, traditional report and another, reports containing HRA information) in his research to the sample including accounting students, financial analysts and accountants. Research results showed that HRA information had meaningful impact on decisions statistically, although the relationship between HRA information and the adopted decisions was not strong.

Hansson (2012)<sup>[13]</sup>, in his paper raised the question "Is it time to disclose information about human capital investments?" Companies' investments in training human resources make up a large part of their investments. It is very difficult to value companies based on their investments on training, but studies have shown that these investments results in considerable gains in terms of productivity and profitability. The absence of reliable, standardized data on returns from training investments appears to hamper the ability of investors to stay informed about these investments. These researches indicate that it is high time for mandatory disclosure of employee training in order to achieve a better allocation of resources in the capital market. Accounting information on company training might benefit investors and results in better human resources.

At present the reporting of training investments are sporadic and unregulated and thus it is not possible for the investors to be aware of this. This information gap was illustrated by the study of Bassi *et al.* (2004). In his study, he used training investments to predict future stock returns. There was mispricing and the study concluded that, because of lack of standards, investors did not know about the training investments and thus they could not act on the information about the human resource upgrade. The paper further suggests that capital needed for training investments with higher than market return is incorrectly allocated. The information gap of reliable information on training investments raises the importance of accounting regulations that supervise the disclosure of investments in human resources. The core issue is that reliable and standardized information on human resources investments needs to be

made available to investor so that this information may contribute to proper investment decisions.

Salimuddin et al. (2010)<sup>[27]</sup> studied "Intellectual Capital and Corporate Performance: A Value Creation Efficiency Analysis". They tested the relationship between intellectual capital and corporate performance of 15 public manufacturing companies. Results showed no significant association between the studied variables except relation between a component of VAIC, CEE and the different measures of the firms' performance. It was also found that the most significant variable related to profitability is physical capital efficiency while human capital efficiency is of great importance in enhancing the profitability of the company.

Tiwari authored an article on "Human Resource Accounting-A New Dimension". He described Human resource accounting (HRA) as an attempt to identify, quantify and report investment made in Human resources of an organization that are not presently accounted for under conventional accounting practice. Business that operate in a more creative space (like advertising, arts etc.) or are based on scientific and technological expertise show a significant difference between market value and net book value. These differences are mostly because of intangible assets like human skills. But these assets are not reflected in Balance Sheet. Businesses are not properly accounting for it in Books of Accounts. Auditor certifies in his report that balance sheet shows true position of business in spite of the fact that it is not showing the value of human resources. But research progress in HRA has been really slow and still there is no model free from any major limitations. These limitations are that the models are not able to identify two effects on Human Capital creation which is back bone of accounting.

Syed Abdulla Al Mamun conducted "Human Resource Accounting Disclosure of Bangladeshi Companies and Its Association with Corporate Characteristics". This study examined the relationship between corporate aspects and Human Resource Disclosure (HRAD) level in fifty companies of Bangladesh that were randomly selected. The relationships were tested through a HRAD Index (HRADI) under several of hypotheses. The results indicate that companies, on an average, disclose 25% of the total HRAD items. The study found significant relationship among HRAD and the size of the company, category of the company (financial or non-financial) and profitability. However, HRAD had no influence on the age of companies. The mean disclosure value was 25%, denoting that listed companies in Bangladesh disclose only one fourth of the selected HRA disclosure items. So, there is scope for further research focusing on the reasons of reluctance of listed companies in Bangladesh to disclose the HRA information. Moreover, the scope of the research may be extended by increasing the sample size and cross-industry examination.

M. Nazrul Islam authored paper named "A Survey of Human Resource Accounting". Though the theory of HRA was developed much earlier, no universally accepted method has been developed for human resource valuation. In India some public companies report HR value in the Annual Report as extra information but it has no relation or effect on the Balance Sheet. In Bangladesh no such reporting is made yet. The researchers emphasize on showing the cost and value of people in the published financial statements. Research on HRA is still in infancy.

Dilip Kumar Senin his doctoral thesis on "Anatomy of Human Resource Measurement and Accounting" found evidence that HRA helps the decision-making process and complete picture of financial position of an organization by quantifying the value of human resources. It indicated that HRA should come under the fold of GAPP and the IASB. Like the banking industries reports about HR assets for internal HR decision and also for creating external trust in the profit potential. Finally, this study suggested that the banking companies should disclose HRA information in a narrative supplementary statement within the framework of conventional framework of external financial reporting.

Muhammad Loqman's paper on "Human Resource Accounting (HRA)" looks at Human Resource Accounting (HRA) in recent years. The study suggests that, HRA has been receiving attention for two major reasons. One of the major cause is developments in modern organization theory. It made clear that there is a need for proper data which can be used in improving and evaluating HR management. The second reason is that the accounting theories are now looking forward to include a broader scope than the past and it is increasingly incorporating non-monetary aspects that has monetary implication on the firm. HRA is one of such topics. Evaluation of various human resource accounting methods and approaches was done by these following tools:

- Approaches Based on Historical Costs; Economic and Current Value
- Approaches; Replacement
- Costs; Opportunity
- Costs; Efficiency Ratios and
- Expected Realizable Value.

Khan (2011)<sup>[19]</sup> wrote about human capital disclosure practices of top Bangladeshi companies. This was the first paper documenting Human Capital related disclosures in a transitional economy like Bangladesh. This research contributed to HRA by providing empirical status of HC reporting in the context of a developing country. The purpose of this study was to examine the extent of human capital reporting in major Bangladeshi companies using the HC reporting framework, thereby making a contribution in the area of HC reporting practice in a developing country context. Using content analysis technique, three years of annual reports of 32 leading public limited companies was analyzed. The companies were selected on the basis of the market capitalization. After that, the annual reports were examined to identify any HC reporting trends. The results show that the HC reporting practices of leading Bangladeshi firms are not as low as projected in relation to the total list of items reported. It was found that the most commonly disclosed HC items were information on employee training, number of employees, career development and opportunities that firms provide, and employee recruitment policies. Moreover, the degree of intervention of some Bangladeshi regulators increased in 2009-2010 and thus the extent of reporting also increased in that time. Using content analysis technique, this paper looked into the extent of HC reporting and its trend for around three years in the reports of 32 Bangladeshi public limited companies based on their market capitalization. The researchers found that the firms reported HR in a moderate manner. More specifically, Bangladeshi companies report more on items like number of employees, career development, employee training, and opportunities that firms provide and employee recruitment policies, these

items being reported by all of the sample, than other items. Most companies reported on employee benefit in details and more than one half reported the educational backgrounds of employees, employee involvement in the community, employee compensation plans, and the list of training programs took place and employees participation. The paper denotes that over time the rate of HC disclosures is increasing, possibly driven by the initiatives from the regulators. It was also found that, among all sectors, the banking sector discloses more HC items while the power and electricity and textile sectors report the least of such information. Moreover, more than 30 per cent of banking institutions reported that they have established their own training institutes to achieve employee excellence. This is an excellent feat by the firms but the disclosure on these investments is very limited, commonly only a few lines, this creates a scope for the provision of further information.

Sen (1991)<sup>[29]</sup>, in another article stated that human resources do not satisfy the criterion of "ownership" required of an asset in the traditional sense of the Steam and thus no organization has any legal right verifiability. It is tough to assign quantitative value to attributes like loyalty, proficiency, morale, intelligence, skill etc. Moreover, neither companies act or tax law docs have any provision for implementing HRA.

Akhtaruddin (1996)<sup>[2]</sup> in paper said, public sector enterprises in Bangladesh have a strong position in the economy. In the context of Bangladesh, the performance of an enterprise depends greatly on the quality of HR. But, in traditional setting, HR is not given proper importance. Improvement of HR require timely and proper information and HRA is supposed to serve the purpose. The study made an opinion survey regarding the applicability of HRA in public enterprises. Majority of the respondents thinks HRA should be made mandatory in our enlisted companies.

## 5. Methods and Procedures of the Study

The study is exploratory in nature based on extensive review of relevant studies done earlier and comparative pictures of the various aspects of HRA have been discussed to arrive at concluding remarks.

## 6. Methods of Human Resource Accounting

Different from conventional accounting systems, Human Resource Accounting serves the purpose of quantifying the cost and value of the most important asset an organization has- Human Resources. Based on the objectives, the methods of Human Resource Accounting are broadly categorized into two distinct branches- Cost based models and Value based models. In the following section of the article, tools and techniques of each category have been detailed reflecting the prospects and challenges of them whenever applied by organizations.

### 6.1 Cost Based Models

Cost based models assess the investment made and expenses incurred for the Human Resource of a particular organization. Some of the below mentioned models also quantify the value of human capital from replacement or opportunity cost paradigms. Notably, cost based models, while ascertaining the value of an individual person or a position, take into account both the acquisition and the maintenance cost over a given period. This article will be focused on four different cost-based models- historical cost,

replacement cost, opportunity cost and standard cost.

#### 6.1.1. Historical Cost

Developed by William C. Pyle in late 1960s, Historical cost approach was first applied in R.G. Barry Corporation, USA. This model sums up costs incurred for recruitment, training, familiarization and development of human resource and thereby ascertain the total value of human resource. The total cost for acquisition and development is capitalized (treated as human asset) and over the estimated lifetime of the workforce, this expired portion the value of this asset is gradually written off (amortized). This practice is similar to conventional accounting system for treating an asset. If a person leaves the job or dies before the expected service period, the unamortized value of the resource is carried to Current Revenue side of Pro Forma Income Statement.

#### 6.1.2. Replacement Cost

Replacement cost model assigns the value of human resources in terms of costs, e.g. recruitment, hiring, training, formal and informal orientation, placement, that would be incurred so as to replace either the existing human capital. It was first introduced by Eric G. Flamholty in 1984. He branched out the model into two parts -Individual Replacement Cost and Positional Replacement Cost. The Individual replacement cost model assess the cost of replacing the existing employee with an individual with same level of efficiency. Recruitment outlay, acquisition costs, formal and informal training, cost of orientation, efficiency recovery cost, development cost, cost of low productivity in training- all these critical parameters are measured in Individual Replacement Cost. The inherent feature of this model makes it challenging to assign a correct numeric value of replacing individuals. The other model primarily focuses on the position an employee holds rather than the individual holding a position. Positional replacement cost is measured by costs of recruitment and selection at entry level, costs of developing an individual at intermediary level in order that the personal can reach the mentioned position with standard level of efficiency and separation costs at critical level.

#### 6.1.3. Opportunity Cost

Opportunity cost model of human resource accounting was first suggested by Hekimian and Jones in 1967. However, in conventional accounting system, opportunity cost is defined as the best alternative value given up in order to pursue another option. But this model of human resource accounting denotes that '*opportunity cost is the value of an asset when there is an alternative opportunity of using it*' which is quite similar to economists' perspective. Moreover, if employees with a particular set of skills are readily available as well as abundant, zero opportunity cost for them is measured. According to this model, employees are shown as assets in the balance sheet, if at that point of time they are scarce in number and have alternative use in the organization. As such, this model is used in organizations where there are limited number of employees and for the human resources which are scarce. Another way to determine opportunity cost in this model is competitive bidding where managers for other departments or units bid for employees. Thus, an employee, having skills to contribute to other units, is valued by the bidding price.

**6.1.4. Standard Cost**

Unlike historical cost model, standard cost model categorizes total number of employees working in an organization into homogeneous groups on the basis of their hierarchical positions in the organogram. After defining the groups, standard cost of recruiting, hiring, familiarizing, training and development for each group is calculated. In this model, the value of an employee is fixed by the standard cost of the group he or she belongs to. Moreover, this model avoids the differences in skills and efficiency among the members of a same group. As a result, this method of valuation, introduced by David Watson, makes standard cost model very simple to use.

**6.2. Value Based Models**

Unlike the cost-based models, value-based models assign economic value of an employee looking at the dashboard of the future services the employee is going to render. Value based models are popular in-service industry where human resource is the locomotive of the organization and the future of it is drawn by its employees. In the following section, Present Value of Future Earnings Model, Reward Valuation, Hermanson’s Unpurchased Goodwill and Net Adjusted Present Value Models are summarized.

**6.2.1. Present Value of Future Earnings Model**

Also known as Lev and Schwartz Model, this model assigns economic value of human assets based on two parameters- the expected period of service provided by the employees and their estimated future earnings. Moreover, the cost of capital is determined so as to discount the future earnings of them. Thereby, present value of future earnings of the employees are calculated. The whole process can be expressed in the following equation.

$$E(Vy^*) = \sum_{t=y}^{T} TP_y(t+1) \sum_{t=y}^{T} Li/(1+r)^{T-y}$$

where,

$P_y(t)$  = Probability of death at age  $t$ .

$V_y$  = Value of the Human Resource at the age  $y$ .

$r$  = Person specific rate of return

$I$  = Annual earnings of the employee

$T$  = Age of retirement

It is evident that Lev and Schwartz Model ignores the possibility of career movement in future or leaving the firm before the expected tenure. Similar to standard cost model, this method of human resource accounting categorizes the employees into different homogenous group based on age, skills and positions and both average earnings and present value of human resources are calculated for different classes.

**6.2.2. Reward Valuation Model**

In 1971, Eric G. Flamholtz improved Lev and Schwartz Model by integrating the probability of movement of an employee into different job positions over the service tenure in the organization. Flamholtz’s model is known as Reward Valuation Model since an employee’s stochastic process of changing roles across the organization is associated with different sets of rewards. This model defines the expected realizable value of an employee by the present value of the set of future services provided by him or her. However, incorporating the probability of movement among mutually exclusive job positions prior to retirement or death is highly

difficult to determine. Present value of future earnings calculated by Flamholtz’s model gives better estimated value of human asset than Lev and Schwartz Model. Below the formula of the model is illustrated.

$$E(RV) = \sum_{t=1}^m \sum_{i=1}^m SiP(Si)/(1+r)^t$$

Where,

$E(RV)$  = Realizable Value of the employee

$S_i$  = The value of  $S$  in each service state,  $i$

$P(S_i)$  = Probability of obtaining the value of  $S_i$

$t$  = Time period

$r$  = Rate of return

$m$  = State of exit

**6.2.3. Hermanson’s Unpurchased Goodwill Model**

The underlying assumption of Hermanson’s Unpurchased Goodwill Method is every organization will earn normal rate of return. Super normal profit by the firm is attributed to its human resources and the differences in profit determine the value of human asset. In this model the ratio between earnings after taxes and total assets of the firm is calculated. Then this ratio of the particular firm is compared to the ratio of the industry to determine the HR value.

**6.2.4. Hermanson’s Adjusted Discounted Future Wages Model**

This model determines the value of human asset by the present value of the future wages, salaries and compensation payable to the employees for their rendered services. The uniqueness of this model is the adjustment of the future streams of compensation by efficiency ratio. This efficiency ratio is the critical value for determining the effectiveness of the human resources.

Hermanson’s Adjusted Discounted Future Wages model has four steps to quantify the value of human capital. First of all, the total amount of future compensations is determined. The present value of future wages is calculated discounting at the market rate of return. Efficiency ratio is calculated comparing the last five year’s performance of the firm to that of the industry. In this model, ratio of each year is given a weight (in reverse order) where the most recent year is given the highest weight. Finally, the present value is multiplied by the estimated efficiency ratio. The equation of efficiency ratio is given below:

$$\text{Weighted Average Return of Investment of the firm} / \text{Weighted Average Return of Investment of the Industry}$$

**6.2.5. Ogan Model**

This model is also known as certainty equivalent net benefit model. Pekin Ogan (1971) [26] improved Morse Model of human resource accounting by integrating the certainty factor. Morse model states that the value of human resource is the present value of the future benefits provided by them to the organization. In Ogan model, the present value is multiplied with certainty factor. Below the equation of the model is given.

$$K_kj = [\sum_{j=1}^n tk = t1/(1+r)^k] \times vaj$$

Where,

$K_kj$  = Adjusted Net Present Value of human resource

$L$  = end of expected service tenure  $j$  = ordinal number of individuals

$r$  = discount rate

$V_a$  = Certainty equivalent net benefit;

$t$  = time period

$a = k + t$

The determinants of certainty equivalent net benefits are two – net benefit and certainty factor. Net benefit is calculated from the total cost incurred by the organizations for a particular employee e.g. startup cost, maintenance cost and costs of training and development. Employee's performance index and the monetary value of his or her potential comprise the major part of net benefit. Certainty factor is the probability of continuation of service and employee survival for a particular period of time.

### 6.2.6. Stochastic Rewards Model

Stochastic Rewards Model was developed by Eric G. Flamholtz. This model identified some major variables that are help to determine the value of an individual to the organization. He determined the movement of employees from one organization to another as Stochastic Process. Eric G. Flamholtz suggested different approaches to assess the value of HR of the company in this model. In order to quantify human resource value the period any employee work in the organization, role of employee and value of present position are determined and discounted expedited service rewards. To be precise an employee value is the product of individual conditional value and the profit that the individual offers to the organization in his/her service life. The conditional value comprises of productivity, transferability and prompt ability, skills and activation levels are also the determinants of an individual's conditional value. Flamholtz has measured the expected realizable value of an individual as

Where  $E(RV)$  = expected realizable value

$R_t$  = Value derived by an organization in each possible state

$P(R_t)$  = Probability that the organization will have  $R_t$

$t$  = time

$n$  = state of exit  $r$  = discount rate  $i = 1, 2, 3, \dots$

### 6.2.7. Sk. Chakraborty Model

Sk. Chakraborty of Indian institute of management Calcutta was the first Indian to attempt at valuation of resources. This model was similar to historical cost model, he noticed the cost of

recruiting, learning, selection, training and development of each employee should considered for acquisition cost method of valuation and be treated as different revenue expenditure, this is subject to gradual written off. The balance, not the written off amount, should be shown separately in the balance sheet under the head of investment. To derive the present value of HR average feature tenure of employment of employee's and average future salary should discounted at an appropriate rate, it is shown as investment in the asset side of balance sheet which is to be added to the capital employed in the liability side. Separate valuation can be made for managerial and non- managerial employee. The discount calculate the present value should take as expected average after tax return on capital employed, taken from the conventional balance sheet. The chakraborty model basically considered a combination of acquisition method and present value.

Where

$V$  = Value of a category of employee  $N$  = Number of employees

$AS$  = average annual pay

$K$  = after tax return on capital employed

$i = 1, 2, 3, \dots, n$  years (average tenure of employed)

### 6.2.8. Lev and Schwartz compensation model

This model developed in 1971 by Lev and Schwartz for valuing human resources. Lev and Schwartz model is popular for calculating the value of HR used by public sector like SAIL and BHEL. It is based future earnings of an employee till his retirement. According to the model value of human assets is estimated for a person at a given age which is the present value of his remaining future earning from his employment and this represented by the following.

Where

$V_r$  = value of an individual or  $r$  years old

$I(t)$  = the individual's annual earnings up to retirements age

$T$  = retirement age

$r$  = discount rate specific to the person  $t$  = active year of service

The model categorized whole work force in the various homogenous groups such as unskilled, semi-skilled, technical staff, managerial staff and so on and also into different age groups. By using the formula calculated average earnings for different classes and age groups and present value of HR. Lev & Schwartz also recommended the use of cost of capital of the organizations for the purpose of discounting the future earnings of the employees to arrive at the present value. They recognized individual employee's economic value to the organization.

## 7. Human Resource Accounting and International Financial Reporting Standards

Since 2001, the International Accounting Standards Board (IASB) has been developing and promulgating the IFRS (International Accounting Standards Board, 2009). Prior to 2001, the International Accounting Standards Committee (IASC) issued International Accounting Standards (IAS), which were adopted initially by the IASB when it replaced the IASC. While the IFRS do not currently have standards requiring HRA, it could be argued that they are moving closer to providing more flexible approaches to accounting measurements and reporting. For example, the international standards IAS 38 Intangible Assets and IFRS 3 on Business Combinations allows for the recognition of the intangible asset goodwill, which indicates a willingness to allow for valuation of assets that are not traditional tangible assets, such as human resources. The valuation of goodwill often involves complex assessments of fair values as well as periodic reassessments to determine whether the fair values have become impaired. These more difficult and challenging measurements of goodwill and other fair values are similar to some of the challenges documented in the past related to the measurement of human resources, particularly when using the value approach to HRA. Thus, the movement toward fair value accounting saw in recent years for both U.S. GAAP as well as for international standards indicates a more sophisticated approach to the measurement of assets, tangible as well as intangible. This might suggest a willingness to recognize the need for, and consider the measurement and use of HRA in future external financial reporting.

## 8. Critical Evaluation of the Methods of Human Resource Accounting

The abovementioned methods have both prospects and challenged when applied in practice by firms of different size and industry. The drawbacks of one method necessitated further research which in turn introduced better solution mechanisms for the prior problems. In the following section of the article, different methods of human resource accounting are critically evaluated based on two parameters- challenges and prospects. Historical Cost Model of W.C. Pyle is simple to apply in organizations. The costs associated with employee recruitment, acquisition, training and development are identifiable and measurable. However, these are sunk costs which are less important for future decision making. Most often historical cost method fails to value employees correctly who require less training and development costs. In addition, it overlooks the potential value of future services likely to be performed by the employees. Moreover, maintenance costs and skills gained through experience are not incorporated into human asset calculation. With amortization, human capital decreases over time though in reality the scenario is absolutely the opposite. As a result, the gap between market value and book value of human resource tends to be bigger. When an employee retires before the expected time, this method fails to provide a proper result.

Replacement cost model has made an effort to narrow the gap since the current value of human resource is partially represented by the replacement cost of it. Both cost of vacancy and loss of productivity for job movement and displacement, ignored in the historical cost model, are incorporated in this model. Nevertheless, the followings challenges make Flamholtz's model difficult to apply in practice. Regarding individual replacement cost, impossibility arises in finding exact replacement of an employee as well the associated replacement cost. In addition, estimating the cost of replacement in organization is highly subjective. Employees with unique set of skills and experience have extremely higher value in this model and it superimposes their influence in compensation contracts. As a result, organizations practicing replacement cost model often incurs higher cost in retention. This situation worsens since market imperfection always exists and employees with market attractive skill sets are overvalued. High performing key personnel are often seen to be undervalued because the replacement cost model is highly affected by external forces – inflation, trade union, labour law etc. The behavioural impact on the undervalued employees may lower down their performance and efficiency.

Hekimian and Jones's opportunity cost model of human resource accounting broke some of the limitations of the replacement cost method. But the prospect of the mentioned model is overshadowed by the challenges it faces in application. According to the model, an employee is valued only if the person has alternative use. The competitive bidding from another departments or organizations units, in most cases, misleads the figure of human asset since employees with specific set of skills can be the key player of his or her respective department but has little to offer in another unit. Moreover, subjectivity in bidding price is evident in real world. In the previous section of the article, it has been mentioned that in opportunity cost model only scarce labour force is shown in the asset side of balance sheet and people with readily available and common set of

skills have no valuation. Undervaluation of high performing employees hampers the future performance of them. As a result, the underlying assumption of scarcity makes the model limited in use. Competitive biddings are criticized by practitioners since it deals with human resources.

Standard cost model is relatively easier to understand and practice. Since the costs, determining HR value, are standardized, the valuation of groups have become easier than before. But the challenges lie in classifying different employees into separate groups, upgrading the human resource value and amortizing human capital. Similar to historical cost model, the current value of human asset is not reflected in books. The skills and efficiency among the members in the same group have wider range but this model fixes their value by the standard cost of the group.

The valued based models, though they have rigorous calculation process, provides better results than the cost-based model. The main prospect of these models is valuation is based on future services. Lev and Schwartz model evaluated employees incorporating their future earnings. The current value of the employees is determined by discounting the future earnings at person specific rate of return. But the value of human resource does not depend only on the future compensation and salary. This model only takes into account the probability of death. So, other than death and retirement, if a person leaves the firm before the expected service period which is often overstated, this model will certainly fail. Another assumption of the model challenges its practicability. It is assumed that employees will remain in the same position before retirement. As a result, the possibility of career movement – promotion, demotion and transfer is completely ignored. In reality, career movement is frequent is most of the organizations in all the countries. With movement in career ladder, the rewards and earnings also change. Thus, the present value of future earnings is highly likely to produce erroneous result. Like the cost-based models, this method ignores skills, experience and development and external factors in human resource valuation. In addition, ascertaining person specific discount rate in a large organization is not possible.

Stochastic model is the better version of present value of future earnings. Flamholtz integrated the possibility of career movement in his model. This model is highly scientific in theory but the inherent complexity in calculation makes it difficult to apply both in small and large organizations. Specially, determining the probability of an employee's staying in a particular job position requires bulk amount of historical data and rigorous analysis. Additionally, person specific discount rate has made the model more complex. External factors, skills and experience are ignored in human resource valuation although these factors are critical to market value of the mentioned asset. Sole dependence on future earnings misleads the purpose of human resource accounting.

Hermanson's unpurchased goodwill model of human resource accounting attributed the super normal profits of a firm to its human resources and based on it, the model calculates HR value. Whenever a firm earns normal profit, human resource is extremely undervalued. Moreover, super normal profit can be a result of factors other than human resources. In those cases, HR value will be overstated. Hermanson's Adjusted Discounted Future Wages model is criticized for the arbitrary weightage in efficiency ratio. Valuation of HR by multiplying present value of future

wages with efficiency ratio does not reflect individual differences in skills and contributions.

Ogan Model is not the exception. It has brighter prospects in service organizations where employees determine the future. The performance appraisal index, highly correlated to net benefit, is taken into account. It predicts the value of benefits the employees will provide in future which is not easy to quantify for many organizations. The certainty equivalence factor requires rigorous calculation. Non-monetary value of human resource and group dynamics are not integrated. Human resource accounting itself has some challenges to overcome. In external financial statements, human resource is supposed to be shown in the asset side of the balance sheet but data regarding human resource is considered to be highly sensitive since this asset is the main driver of service industry. The complex models and rigorous calculations discourage the firms to adopt HR accounting methods. Researchers are trying to develop a convenient method for reliable valuation of human resources. Universally accepted standards are not established in this field of study yet. As a result, all the companies of a certain industry are not seen to adopt similar models which would facilitate comparisons. Differences in human resources in global companies worsens the prospect of human resource accounting. In most cases, the inherent complexity in the valuation of cross functional groups has become a critical issue since, from manufacturing to service industry, flexible and cross functional groups are given assignments of core importance to organizational success. In developing world, the concept of human resource accounting is not widely known among HR executives. To improve the prospects, the mentioned challenges have to be overcome.

## 9. Accounting Treatment of Human Resources Accounting

The accounting treatment of human resources under various methods can be done in three parts

### 9.1 Real Capital Cost Part

- All capital cost associated with the human resources, such as – training cost, should be capitalized by
- Human resources capital (HRC) Dr. Bank Cr.
- And the cost should be written off during the working life of the employee, as- Income statement Dr.
- Human resources capital (HRC) Cr.

### 9.2 Present Value of Future Salary/ Wage Payment

- At the time of capitalizing value of human resource according to Lev & Schwartz valuation (weather at the year-end or at the during year), whenever we hire human asset or company want to begin accounting for human asset –
- Human resources capital (HRC) Dr. Human Resources reserve Cr.
- At the time of Salary; Payment- Salary Dr.; Cash Cr.
- If difference is more than salary then balance should be credited to P&L A/C. Now amount debited in HRR should be charged in form of depreciation/amortization from income statement-
- Income Statement Dr.; Human Resource Capital Cr.

### 9.3 Suggested use of Fund for HRC

- Fund for HRC should be used only for some specific purpose such as- training of employees, writing off of

abnormal losses caused due to leaving/death of employee, welfare of employees so that they may be more satisfied etc. entry for transferring will be- Income Statement Dr. Fund for HRC Cr.

- Entry for capitalization of human resource with the same amount will be- HRC Dr. Human Resource Adjustment Cr.
- In case of abnormal losses generate for many years after leaving/death of employee these losses can be written off from fund over these years. Entry will be- Fund for HRC Dr. Income Statement Cr.
- Reverse entry at the time of leaving/death of employee will be- Human Resource Adjustment Dr. HRC Cr.
- Amount capitalized in previous year (in this part) should be basis for incentive for current year.

## 10. Human Resource Accounting and Reporting Standards

The struggle to establish human resource accounting in conventional accounting standards is evident. Lack of universally accepted standards poses challenge in cross company comparisons. From 1960s efforts have been made to determine an accepted way to show human asset in the balance sheet. But no universally recognized method has yet been introduced regarding the proper valuation of human resource. In the previous section of the paper, the challenges of each model have been detailed. As a result, disclosure of human asset, which controls all other resources of an organization, in financial statements is not frequent. IFRS and GAAP deals with physical and financial assets but human asset cannot be included any of them. Nevertheless, development is making the way for incorporating assets which are not physical in nature. IAS 38 of International Financial Standards Board covers intangible assets. For being intangible assets, human resource must fulfill two criteria – the cost of the asset must be identifiable and reliably measurable and it must generate future benefits for the organization in which it is employed. Future economic benefits can be from either of the two sources – revenue generation and cost savings. Although human resource provides future economic benefits, the cost of the asset cannot be reliably measured. Universally recognized scientific method to solve this particular problem is yet to come.

Generally Accepted Accounting Principles (GAAP) of United States have fair market value approach for specific current assets wherein the value of the assets in the balance sheet are shown at fair market value which is in turn derived from the expected future benefits rather than the historical costs of the assets. In the previous section of the article, the replacement cost model and opportunity cost model have already been discussed. These models, in spite of having certain challenges and underlying assumptions not practical in real world, attempt to find the current market value of human asset. The development in valuation of human resources in a scientific way and growing interest of reporting standards in intangible assets are paving the avenue for human resource accounting.

## 11. Perception of Human Resource Accounting: Case of Bangladesh

From a survey conducted on the HR professionals of organizations from different industries (FMCG, Banks, Consultancy and E-Business firms) the perception about



Human Resource accounting was studied. It was found from analysis that only 52% of the companies stated their HR values in their annual reports. Coming to more specifically about Human Resource accounting, only 32%

of the respondents think that the top management of their organization emphasizes on HRA practices. 68% of the respondents responded negatively or are unsure about the top management’s perspective on this topic.

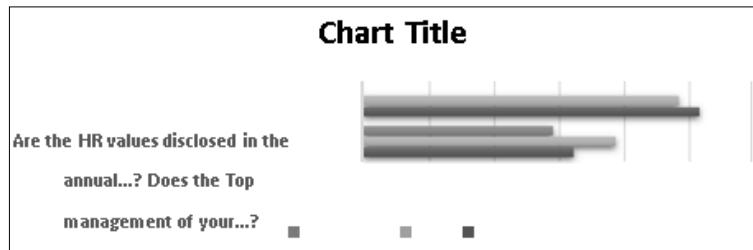


Fig 1

But the personal opinion of the respondents suggests that they are positive about the benefits of taking up HRA

practices.

Table 1

Description	Sig. (2-tailed)	Mean	Std. Deviation
The Quality of the Financial Statement increases due to the inclusion of Human Resource Value	.007	3.55	1.060
Human Resource Accounting practices improve the performance of employees	.000	4.06	.512
True potential of the company is valued only after the inclusion of HR in the financial statement.	.002	3.55	.925
HRA reflects the amount of wealth and profit created by each employee	.000	3.77	.845
HRA system is costly to maintain	.393	3.16	1.036
Benefits of HRA exceeds the associated costs	.003	3.55	.961

\*The response was collected using a 5-point Likert scale and it was analyzed using 95% significance level.

It was found from the study that majority of the respondents think that including HR value enhances the quality of the financial statements. The mean of the response score is 3.55 which is well above the median neutral score of 3. The T test alpha value is .007 which shows the mean positive response is statistically significant.

Same way, majority of the respondents think that HRA practices improve the performance of employees. The mean of the response score is 4.06 and alpha value is 0.00. Moreover, the HR professionals surveyed in this study think that a company’s true potential can be truly measured after including HR in the financial statements and HRA reflects wealth and profits generated by the employees.

But the respondents remained neutral in the issue of costs of maintaining HRA systems. The mean score was 3.16, standard deviation was 1.036, but the alpha value was .393 which indicated the null hypothesis (that the mean score is 3) cannot be rejected.

But finally, most of the respondents think that the benefits of adopting Human Resource Accounting practices outweigh the costs it incurs. So, to the HR professionals in Bangladesh, it seems that though the practice of Human Resource accounting is not that prominent, HR professionals are positive about the prospects of HRA.

**12. Findings and Observations**

**12.1. Benefits of HRA**

Labor is the father of wealth and it should be taken in to consideration in estimating wealth. Cost incurred on any human resources need to be capitalized as it gives benefits measurable in monetary terms. The major benefits of HRA are as follows

- It develops effective managerial decision making.
- It enhances the quality of management.
- It prevents misuse of human resources.
- It helps the efficient allocation of resources.

- It increases human asset productivity.
- It improves their morale, cooperation, job satisfaction and creativity.
- It develops human efficiency.
- It influences the individual behavior, attitude and thinking in desired direction.
- It helps in long term investment decisions.
- It facilitates good performance measurement assessing strengths and shortcomings of an organization.
- The success of an organization depends on quality working force at all levels. It develops business success rapidly.
- It provides good basis of human asset control.
- It helps the development of management principles.
- It ensures good monitoring of effective uses of human resources.

**12.2. Constraints of HRA**

- There is no specific guideline for measuring the cost and value of human resources.
- Uncertainty of human resources creates uncertainty in its valuation in a realistic approach.
- Sometimes discouraging attitude of human resources may frustrate them leading to low productivity.
- While valuing the human assets, demand for rewards and compensation might be higher.
- The nature of amortization to be followed is yet to be fixed up.
- Tax laws do not recognize human assets and in that sense it might be theoretical only.
- Several methods are available in valuing human resources but there is lack of their wide acceptance.
- There is need for developing suitable methods for its valuation.
- IAS/IFRS/BASs does not provide any guidelines for the

treatment of HRA approach.

### 12.3. HR Treatment in Financial Accounting Perspective

- Identify the asset's cost and estimate the period of amortization.
- There is difference in opinion in calculating intangible assets, deferred charges in international accounting literature.

### 12.4. Managerial Accounting Perspective

There are good uses of acquisition costs and learning costs, substitution costs, opportunity costs and replacement costs, economic value models, standard cost method, competitive bidding method, non-monetary measures etc.

### 12.5. Measurement of HRA

The approaches used for measuring HR are mainly cost approach and the economic value approach. The cost approach may be historical cost and replacement cost basis. The historical cost of human resources is the sacrifice that is made to acquire and develop the resource. Cost of recruiting, selection, hiring, placement and orientation etc. are included here. Salaries, time spent by the supervisors for induction and training are also included. The replacement cost is the cost of human resources to be spent for existing employees, are to be replaced. Costs of recruiting, selection, hiring, placement, orientation on the job training might be incurred to replace human assets. Other cost methods are standard cost method and competitive bidding method. In the standard cost method, standard costs related to recruitment, hiring, training and development are fixed up annually. The total costs show the worth of human resources.

### 12.6. Steps in Accounting for Human Resources

The first step is to determine what HR costs are to be capitalized. This is essentially matter of classification HR costs into asset and expense components. Cost should be treated as assets if the expected benefits from them relate to future time periods. It has future service potential. The second step is to amortize the cost incurred by an organization on its employees for recruiting, hiring, orienting, familiarizing, training and developing them. It involves measurement of that portion of the human assets service carrier, which is consumed during a particular accounting period. The main purpose behind amortization of human assets cost is to match the consumption of a human assets services with the utility derived. The third step is to appreciate the value of organization employees every year at a particular percentage rate. This is needed because human resources appreciate in value because of their experience over years. The more an employee ages, the more he/she gains experience and value. The fourth step is to adjust human assets accounts. When a material change in an organization employees expected working life occurs (because of any of the factors, namely, bad health, early retirement plan, technological obsolescence), the employee assets needs to be adjusted. This amortization of human assets is analogous to a write-off of physical assets. In certain cases, adjustment of human assets accounts becomes necessary.

### 12.7 Recording of Costs Related to Human Resources

It has already been pointed out earlier that (1) social cost (2)

acquisition cost including costs of recruitment, hiring, selection and placement of employees,(3) orientation and on-the-job training costs, including salaries paid to the employees during their probationary period, (4) formal training development costs of employees,(5) separation costs of employees, (6) costs incurred for gravid female employees, (7) rewards for extra –ordinary performances and academic attainments and (8) extra –ordinary health costs needed to be “assetized” since the benefits from them are expected to be derived for more than one year. To fulfill one vital accounting principle –“matching of costs and revenues” one is required to “assetize” the eight categories of costs mentioned above. On the other hand, all the elements of “maintenance expenses” need to be treated as revenue expenses.

### 13. Findings & Conclusion

Human resources are the energies, skills and knowledge of people which are applied to the rendering useful services or production of goods. It is the method of identifying and measuring data about human resources and communicating the information to interested persons. While valuing human resources, emphasis can be given on acquisition costs, substitution costs, opportunity costs, replacement costs, economic value models, standard cost method, non-monetary measures etc. As per accounting standards disclosure of human resource accounting information follows historical cost approach to human asset valuation but this fails to show current cost. This is why economic value approach is more relevant. Still true cost of capital for discounting the net cash flows related to human assets is also difficult to find out. As a result replacement cost valuation method and non-monetary behavioral approach might be suitable for valuation of human resources of an organization. Our Companies Act 1994 does not provide for valuation of human resources. As result disclosure of such information has become voluntary to our business management. There is need to prescribe the specific provisions for valuing human resources and disclosing the details of investment in human assets in the form of training and development expenses, salaries and other allowances etc. through annual reports. In case of research, HRA has attracted many scholars for its importance. Mainly two schools of theories have emerged to include human resources in the accounting process- value based method and cost based method. None of the models under these methods are regarded self-sufficient and scientific by the peer researchers. Moreover, there is often need of huge amount of data input to run those models and eventually it ends up being time consuming and costly. The benefits generated by HRA models only outweigh the costs for only very large organizations.

### 14. Acknowledgements

The authors are thankful to those persons who support to carry out this research work. The authors are also thankful and grateful to the previous authors for their kind help in collecting necessary data and information.

### 15. References

1. Acland D. The Effects of Behavioral Indicators on Investor Decisions: An Exploratory Study. *Accounting Organizations and Society*. 1976; 1(2-3):133-142.
2. Akhtaruddin M. Human Resource Accounting Survey

- on Its Applicability in the Public Sector Enterprises of Bangladesh. *Rajshahi University Studies*. 1996; 4(Part-C):53-62.
3. American Accounting Association, *Terms and Concepts in Accounts*, New York, 1980.
  4. Bullen ML. Human resource accounting: A useful tool for measurement and management in organizations, *Leadership and Organizational Management Journal*, 2007, 85-103.
  5. Canadian Accounting Association (CAAA) Annual Conference, 2006.
  6. Elias NS. The Effects of Human Asset Statements on the Investment Decision: An Experiment, *Empirical Research in Accounting: Selected Studies*, 1972, pp. 215-233.
  7. Eric GF. The Impact of Human Resource Valuation on Management Decisions: A Laboratory Experiment, *Accounting, Organizations and Society*. 1976; 1(2/3):153-165.
  8. Eric GF, Ericad M. Current Issues, Recent Advancements, and Future Directions in Human Resource Accounting, *Journal of Human Resource Costing & Accounting*. 1999; 4(1):11-20.
  9. Eric GF, Rangapriya KN, Maria LB. Human Resource Accounting Today: Contributions, Controversies and Conclusions, *Journal of Human Resource Costing & Accounting*. 2004; 8(2):23-37.
  10. Flamholtz EG, Kannan NR, Bullen ML. Human Resource Accounting today: Contributions, controversies and conclusions. *Journal of Human Resource Costing & Accounting*, 2004; 8(2):23-37
  11. Flamholtz EG, Sullen ML, Hua W. Measuring the ROI of management development: An application of the stochastic rewards valuation model, *Journal of Human Resource Costing and Accounting*, 2003; 7(1-2):21-40.
  12. Flamholtz E. Should Your Organization Attempt to Value its Human Resources? *California Management Review*. 1971; 14(2):40-45. Retrieved December 22, 2017, from <https://doi.org/10.2307/41164333>
  13. Hansson B. Is it time to disclose information about human capital investments. *JPF Samsung Research Institute*, 2012.
  14. Hendricks JA. The Impact of Human Resource Accounting Information on Stock Investment Decisions, *The Accounting Review*, 1976; pp. 292-305.
  15. Herman T, John BM. Financial implications of accounting for human resources using a liability model, *Journal of Human Resource Costing & Accounting*. 2008; 12(2):124-137.
  16. Hermanson RH. *Accounting for human assets*. Research monograph no. 99. Atlanta, Georgia: Business Publishing Division, College of Business Administration, Georgia State University, 1986.
  17. Hossain MS, Islam MR, Bhuiyan MM. Recognition, Measurement and Accounting Treatment of Human Resource Accounting. *International Journal of Ethics in Social Sciences*. 2014; 2(2):91-104. Retrieved December 23, 2017, from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2691896](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2691896)
  18. Islam M. A Survey of Human Resource Accounting. *The Cost and Management Accounting Journal* (July-August), 1998, 4-7.
  19. Khan HUZ Khan, Habib-Uz-Zaman. Human Capital Disclosure Practices of Top Bangladesh Companies (August 15, 2011). *Journal of Human Resource Costing & Accounting* Vol. 14, Issue 4, pp. 329- 349, 201. *Journal of Human Resource Costing & Accounting*. 2010; 14(4):329-349.
  20. Kodwani DA. *Human Resource Accounting - A New Dimension*, 2007.
  21. Lev B, Schwartz A. On the Use of the Economic Concept of Human Capital in Financial Statements. *The Accounting Review*. 1971; 46(1):103-112. Retrieved from <http://www.jstor.org/stable/243891>
  22. Likert R, Pyle WC. Human Resource Accounting: A Human Organizational Measurement Approach. *Financial Analysts Journal*. 1971; 27(1):75-84.
  23. Loqman M. Human Resource Accounting (HRA). *The Cost and Management*, XV(1 (January-February)), 1987, 5-11.
  24. Mamun SA. Human Resource Accounting Disclosure of Bangladeshi Companies and Its Association with Corporate Characteristics. *BRAC University Journal*, 2009; 1:35-43.
  25. Ogan PA Human Resource Value Model for Professional Service Organizations. *The Accounting Review*. 1976; 51(2):306-320. Retrieved from <http://www.jstor.org/stable/244841>
  26. Pekin O. Application of a Human Resource Value Model: A Field Study, *Accounting, Organisations and Society*, 1976, pp. 195-217.
  27. Salimuddin MA. Intellectual Capital and Corporate Performance: A Value Creation Efficiency Analysis. *The Bangladesh Accountant*, 2010, 1-7.
  28. Schwan ES. The Effects of Human Resource Accounting Data on Financial Decisions: An Empirical Test, *Accounting, Organisations and Society*, 1976, pp. 219-237.
  29. Sen DK. Human Resource Accounting: Where Does it Stand Today? *The Cost and Management*, 1991, 7-14.
  30. Sen DK. *Anatomy of Human Resource Measurement and Accounting*. Ph.D. Thesis, Bangla Academy. Managerial Decision Preferences, *The Accounting Review*, 2005, pp. 904-914.
  31. Sen DK. *Anatomy of Human Resource Measurement and Accounting*. Ph.D. Thesis, Bangla Academy, 2005.
  32. Tomassini LA. *Assessing the Impact of Human Resource Accounting: An Experimental Study*, 1977.