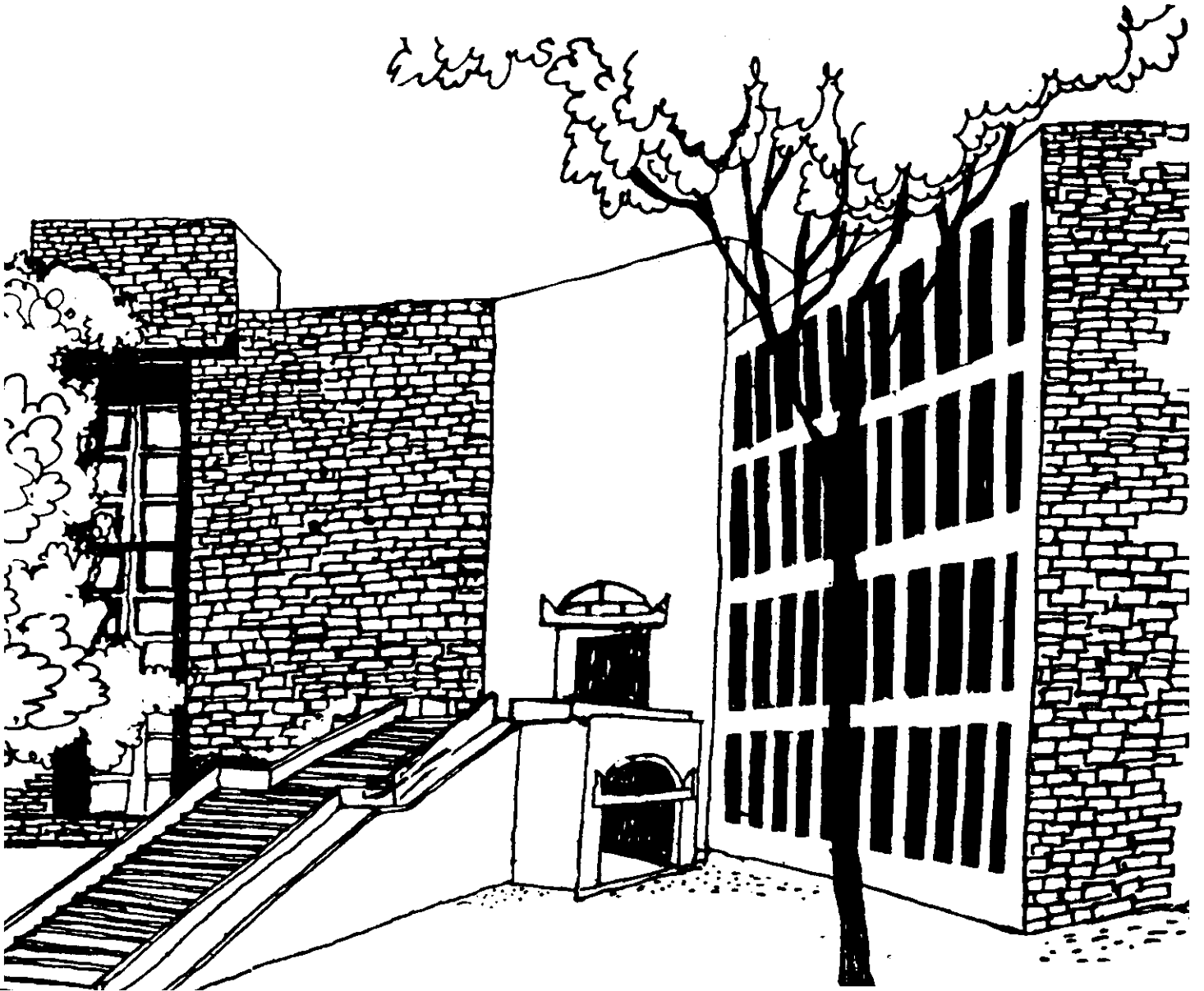




# Working Paper



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WP 228

Inflation Accounting in India:  
A Case Study of the Bharat Heavy Electricals Limited

Ramesh Gupta

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INFLATION ACCOUNTING IN INDIA -  
A CASE STUDY OF THE BHARAT  
HEAVY ELECTRICALS LIMITED

by

Ramesh Gupta

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Inflation Accounting in India -

A Case Study of the Bharat Heavy Electricals Limited

Abstract

In the last decade, a considerable amount of research has been done justifying the need to introduce inflation accounting in reporting the financial results of a business unit.

In this paper, I have reviewed the recent developments in inflation accounting and the role played by the accounting professional bodies in the U.K. and U.S.A. The role of our two accounting bodies in India has been one of dismay. In reporting Current Cost Accounts, Indian corporations have not been very forthcoming either. The BHEL is the only company which has been keeping up with the international developments.

In this paper, a detailed study of the BHEL Current Cost Accounts (CCA) for the year 1976-77 has been made. Each major item of the CCA is analysed in depth, evaluated in the context of ED-18 provisions. The various related issues are deliberated upon providing an appropriate conceptual framework. The BHEL CCA has been presented according to the provisions of "An Interim Recommendation" which came into force much after the publication of its 1976-77 annual report. In the last, the BHEL profitability on historical cost and CCA basis has been evaluated.

## Inflation Accounting in India -

### A Case Study of the Bharat Heavy Electricals Limited

In the last decade, a fair amount of research has been done justifying the need to introduce inflation accounting in reporting the financial results of a business unit. A number of studies have been made by economists and accountants on this subject and a variety of theories have been put forward. One cannot help feeling that neither the subject is easy to understand, nor is it easy to resolve the host of complex issues involved. The investigation of the problem has not proceeded very far before it became evident that price level adjustment means different things to different people. In a recent paper "Accounting for Changing Prices - Recent Developments"\* I have critically reviewed the various concepts and practices of accounting for changing prices which may have general acceptance.

#### Historical Background

The American Institute of Certified Public Accountants (AICPA) was the first body in the world to call for an extensive study of the problem in 1961. Its Research Division came out with Accounting Research Study (ARS) No. 6 titled "Reporting the Financial Effects of Price-Level Changes." As an offshoot to it, the Accounting Principles Board of the AICPA issued Statement No. 3 "Financial Statements Restated

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\* Ramesh Gupta, "Accounting for Changing Prices - Recent Developments", Working Paper Series No. 222, Indian Institute of Management, Ahmedabad.

for General Price-Level Changes." In U.K., the Accounting Standards Steering Committee (ASSC) in May 1974 issued a "Statement of the Standard Accounting Practice" (SSAP No. 7) intending to require the quoted companies to provide accounts adjusted for changes in the purchasing power of money as supplement to the statutory accounts prepared under historic cost conventions. Meanwhile the British Government appointed an "Independent Committee of Inquiry into Inflation Accounting" to look into all aspects of the problems of accounting for price changes.

The Sandilands Committee in its report in September 1975 recommended "Current Cost Accounting" (CCA) as opposed to "Current Purchasing Power" (CPP) method which was generally accepted method to account for changing prices. To implement the Sandilands recommendation an "Inflation Accounting Steering Group" (IASG) was appointed under the chairmanship of Mr. Douglas Morpeth. Their proposed draft known as ED-18 was released on November 30, 1976. To the surprise of the most, on July 6, 1977, a majority of British chartered accountants voted down the provisions of ED-18. Not to abandon inflation accounting completely, on November 4, 1977 the Accounting Standards Committee (ASC) issued a provisional statement - "An Interim Recommendation" - until the issues could conceptually and agreeably be resolved.

In USA, the issues related with accounting for changing prices are still debated. The AICPA, to assist its rule making body Financial



Accounting Standard Board (FASB) in its efforts to develop a conceptual framework of accounting and reporting, has appointed a task force to study the problems related with inflation accounting. At governmental level, the Security Exchange Commission (SEC) in March 1976, through its Accounting Release Series No. 190 has made it mandatory for approximately 1000 of the largest US manufacturing corporations to disclose the current replacement cost of inventories and their productive capacity. It also requires that depreciation expenses and cost of sales based on current cost of the goods and services used must also be disclosed.

#### Situation in India

The accounting profession in India has not kept pace with the other countries with regard to accounting for changing prices. Neither of our two accounting institutions - The Institute of Chartered Accountants of India (ICAI) and The Institute of Cost & Works Accountants of India (ICWAI) - has made any effort to encourage research or experimentation by corporate management in this area. Besides USA and UK, the accounting bodies in other countries, i.e., Australia, New Zealand, Canada, Germany, Mexico, Netherlands, etc., have come up with exposure drafts to stimulate debate on the relative merits of various systems of accounting designed to reflect the impact of inflation. We seem to be solely relying on the steps taken by the International Accounting Standard Committee. It has issued IAS 6

entitled "Accounting Responses of Changing Prices." This failed to trigger off the desired debate in India. Our Institutes have not issued any exposure draft or taken up the issue with governmental regulatory bodies.

Due credit should be given to the Institute of Cost & Works Accountants of India (ICWAI) for sponsoring two studies in the area of inflation accounting. One was undertaken by Mr. Bahadur Murao and published in 1975 under the title of "Inflation Accounting as a Tool to Fight Inflation." The study was characterised as 'commendable and comprehensive' by the then President of ICWAI, Mr. V. Kalyanaraman. I find very little in it to comment about, except that it was the first study of its kind in India. The problem has been left undefined and the approach is stale. In fact the book is nothing but a digest of previous works and articles listed in the bibliography.

The other study published about the same time (in July 1975) is titled as "Inflation Accounting : Tools and Techniques" by Mr. P. Chattopadhyay. The book presents a couple of case studies to illustrate the effect of inflation on financial statements. A detailed analysis and step by step approach in making adjustments have been demonstrated. The study also reproduces extracts from annual reports of Carborundum Universal Limited (1973-74) and Ashok Leyland Limited (1973-74) in which they have shown the effects of inflation on their financial position. Both the companies have used wholesale price indices to adjust the

accounts, and for no explicit reasons, have discontinued to include such information in their subsequent financial statements.

Besides these two publications by ICWAI, the School of Accountancy and Mathematics, Calcutta also sponsored a study by Mr. Asit Kumar Sengupta. The study published under the title "Inflation Accounting in India." About one-fourth of the book is devoted to explain what we mean by price index and how are they constructed, and the various indices available in India and so on. Later on he goes through the alternative methods of inflation accounting in a cursory manner. Nowhere one gets a glimpse of conceptual depth or discussion. We do not yet have a systematic study in the Indian context, while internationally the literature on this subject is fast growing and fast changing. Our accounting institutes really need to appoint a competent committee to investigate the problem in Indian context and bring out a comprehensive treatise so as to keep the accounting profession up-to-date.

#### Corporate Annual Reports

At corporate level, we have mentioned earlier that two companies, Ashok Leyland and Carborundum Universal, have taken lead in publishing supplementary financial statements adjusting for general price-level changes. Recently, the Bharat Heavy Electricals Limited (BHEL), a public sector enterprise, has made attempts in keeping up with international developments. In its 1975-76 (twelfth) annual report an attempt has been made to present the company's financial picture adopting the CCA

method as recommended by Sandilands Report. In its 1976-77 (thirteenth) annual report it has presented the current cost accounts prepared on the principles recommended by the Morpeth Committee set out in Exposure Draft 18.

We must commend the noble objectives of the company to bring out the impact of inflation on the financial position of the company. Besides current cost accounts, the company has also been reporting human assets, value added statement, a detailed statement of accounting policies and a statement of its objectives. No wonder, the Institute of Chartered Accountants of India have adjudged the company's annual report and accounts for the two consecutive years (1975-76 and 1976-77) as the best and has awarded the Silver Shield. Based on the BHEL experience, it has been reported that a committee of the Government of India is considering the possibility of introducing inflation accounting statement as supplementary statements in the annual reports of the public sector undertakings. A few other public sector enterprises (notably the Bharat Earth Movers Limited) have been preparing such inflation adjusted accounts internally, but have not come out yet to publish in their annual reports.

#### Purpose of this Study

In this paper, we shall make a detailed study of the BHEL Current Cost Accounts for the year 1976-77. Each major item of the current cost accounts (CCA) would be analysed in depth, evaluated in the context

of ED-18 provisions (Morpeth Committee recommendations). Various related issues would be deliberated upon providing an appropriate conceptual framework. The BHEL has presented the CCA according to ED-18 provisions. ED-18 has been rejected by a majority vote of British Chartered Accountants in July 1977. In its place, the Accounting Standards Committee (ASC) has issued a provisional statement "An Interim Recommendation." We shall present the BHEL CCA as required by the provisions of "An Interim Recommendation." In the last, we shall also evaluate the BHEL performance in terms of its profitability to its shareholders in nominal and in real terms accounting for purchasing power loss of their equity investment.

To facilitate references, I would like to list the tables and exhibits to be used later in the analysis.

Exhibit 1 Balance Sheet data for the year 1975-76 and 1976-77.

Source is Page 20 of the BHEL 1976-77 annual report. Net current assets have been split into monetary and non-monetary items (i.e., inventories).

Exhibit 2 Current Cost Accounts for the year 1975-76 and 1976-77.

The source is pages 53 and 54 of the BHEL 1976-77 annual report.

The following tables show the CCA accounts prepared by the author from published information.

- Table 1 Corrected current cost accounts
- a) Profit and loss account and appropriation account
  - b) Balance Sheet
- Table 2 Statement of change in Shareholders' net equity interest after allowing for the change in value of money.
- Table 3 CCA prepared as per "An Interim Recommendation."
- a) Gearing adjustment calculation
  - b) Current cost statement.
- Table 4 Shareholders' equity investment in the BHEL - equity is expressed in terms of current purchasing power and computation of internal rate of return (ROR).

#### The BHEL - Background\*

In order to meet the needs of power generation, India entered the field of manufacturing heavy electrical equipment. The first plant was set up at Bhopal by the Heavy Electricals Limited (HEL) during Second Five Year Plan (1956-61). The range of heavy electrical equipment included turbines and generators for generation of power, transformers and switchgears for transmission of power, and industrial and traction motors and controls, rectifiers, etc., for utilization of power. However, due to a rapid industrial development specifically during the sixties, the HEL was unable to cope up with the increasing demand for a higher range of heavy electrical equipment. To augment the manufacturing capacity for this heavy electrical equipment and other items not manufactured at Bhopal, a new company, the Bharat Heavy Electricals Ltd (BHEL) was incorporated on November 13, 1964. In order to pool the

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\* ALL FINANCIAL DATA REGARDING THE BHEL USED IN THIS PAPER ARE IN MILLIONS OF RUPEES.

technical expertise and available resources of the two companies and to ensure no duplication of product lines, the BHEL and the HEL were merged to form a single company known as the BHEL on January 1, 1974.

Today, the BHEL is one of the largest ten manufacturers of power plant equipment in the world with a unique spectrum of products and services. Its plants are scattered all over the country, i.e., Bhopal, Tiruchirappally, Hardwar, Hyderabad, etc. In last five years, the BHEL production has grown at an average compound rate of over 35 per cent per annum from Rs 1031 to Rs 4442. Last year, 1976-77, the company registered a turnover of Rs 4697 - an increase of 25 per cent over previous year (Rs 3743 in 1975-76).

Pre-tax profit was Rs 629 in 1976-77 as against Rs 547 in 1975-76. Post-tax profits amounted to Rs 314. Cumulative disposable surplus amounted to Rs 285. Company's summarised financial statements (based on historical costs) are given in Exhibit 1.

#### 1976-77 Historical Cost Accounts

From Exhibit 1, we observe that company's share capital is Rs 1300 contributed over the years. The company started its operations in 1964-65 with a contributed capital of Rs 555 (including the HEL capital). In 1965-66 there was an additional contribution of Rs 411.1, in 1966-67 Rs 170.8, in 1967-68 Rs 13.1 and in 1971-72 Rs 150.

Reserves and Surplus during the year 1976-77 have increased from Rs 357.8 to Rs 561.1 - an increase of Rs 203.3. This has been made

possible by having an after-tax profit of Rs 314.5 and after providing Rs 33.2 for prior-period adjustment, and Rs 78 for dividend. This will be the first year, when company is distributing dividend.

In this fully owned Government company, the net worth in 1976-77 is Rs 1861.1 and the other sources of finances are borrowings amounting to Rs 2510.3. Compared to the previous year (1975-76) the debt financing has reduced by Rs 649.8 from a all-time high of Rs 3160.1. In debt financing the Government loans (inclusive of interest accrued) are Rs 1703 in 1976-77 and Rs 1611 in 1975-76.

Under the utilization of resources, the gross block of fixed assets has increased from Rs 2496.1 to Rs 2917.4. The net addition has been to the tune of Rs 421.3 which is an approximate increase of 17 per cent. The balance in accumulated depreciation account shows an increase of Rs 136.2 over the previous year's figure of Rs 891.9. This gives us a net block of Rs 1889.3 as compared to Rs 1604.2 in 1975-76. There is an additional item capital expenditure-in-progress of Rs 280.2 in 1976-77 (Rs 239.9 in 1975-76) grouped with fixed assets. Investment in other companies (subsidiaries) is Rs 14.5 as compared to a paltry sum of Rs 0.4 in 1975-76. During 1976-77, the company has acquired majority shares in the REMCO and the MPL Bangalore.

The net current assets of the company are Rs 2187.4. The total current assets inclusive of loans and advances are Rs 6530.6 of which inventory (a non-monetary item) is Rs 4614.4. The balance Rs 1916.2 of



current assets are of monetary nature. The current liabilities, all of which are of monetary nature, are Rs 4343.2. Thus, net current assets of Rs 2187.4 consists of inventory worth Rs 4614.4 less net monetary liabilities of Rs 2427. The figures for previous year 1975-76 are Rs 2959.5 for net current assets, Rs 4749.5 for inventory and Rs 1781 for net monetary liabilities.

The 1975-76 year's balance sheet also shows an additional item of Rs 13.9 as miscellaneous expenditure - expenditure to the extent not written off or adjusted.

In the profit and loss account for 1976-77, the relevant items for our purposes are pre-tax profits Rs 629.5 (Rs 546.6 in 1975-76), provision for tax Rs 315 (Rs 322 in 1975-76), dividend Rs 78 (nil in 1975-76) and prior period adjustment of Rs 32.2. The turnover for the year is Rs 4697.2 compared to Rs 3742.5 in 1975-76.

#### Current Cost Accounts

Exhibit 2 shows the current cost accounts as has been presented by the BHEL in its 1976-77 annual report. The important items to be noticed are in:

- a) Profit and loss account : cost of sales adjustment and additional depreciation.
- b) Appropriation account: Surplus arising from cost of sales adjustment and revaluation of fixed assets; and Appropriation to revaluation reserve.
- c) Balance sheet : Reserves, Revaluation reserve, Gross fixed assets, and Accumulated depreciation.

All other items in these statements are same as in historical cost accounts. Included is a 'Statement of change in shareholders' net equity interest allowing for rise in the value of money which will be dealt with later on.

Cost of Sales Adjustment (COA) has been made based on averaging method as suggested by Sandilands and accepted by the Morpeth Committee. The opening and closing stocks have been brought to a common average stock price based on indices published by the Reserve Bank of India. COA has been worked out on the basis of difference between the historical opening and closing stocks and the current cost difference of opening and closing stock. To illustrate the procedure, let us assume opening and closing stock at historical cost (HC) are Rs 700 and Rs 540 respectively. The average price increase during the year is 10 per cent and at the end prices are 20 per cent higher compared to beginning prices. It means that if price index for stocks at the beginning is 100, average price index and end-year price index would be 110 and 120 respectively. The COA would be calculated as follows:

a) Decrease in inventory at HC

Opening stock	700
Closing stock	<u>540</u>
	160

b) Decrease in inventory at COA

Opening stock at average prices	$700 \times \frac{110}{100}$	= 770
Closing stock at average price	$540 \times \frac{110}{120}$	= <u>495</u>
		275

c) Cost of sales adjustment is Rs 115 (Rs 275 - Rs.160) by which cost of sales would increase and profits decrease.

In case of BHEL, the opening inventory for 1976-77 is Rs 4749.5 and closing inventory is Rs 4614.4, a reduction of Rs 135.1. If corrected for price changes in stocks, such difference in opening stock and closing stock is Rs 152, thus, requiring COSA of Rs 16.9. For the previous year (1975-76), such adjustment is Rs 26.6.

The BHEL has also reported the CCA in 1975-76 annual report (page 52-53). In that report COSA for 1975-76 has been shown as Rs 230.1 with a comment that it is based on appropriate indices. For the same year (1975-76) in 1976-77 report, COSA is only Rs 26.6. It is surprising to note that COSA has become 1/9th of what it has been shown earlier for the same year. In the absence of any published information, all we can do is to cross our fingers and trust the calculation. Presumably they have made a mistake while reporting in previous year, or have changed the basis of calculation drastically.

#### Fixed Assets

The gross block of the fixed assets revalued at current costs in 1975-76 is Rs 5750 compared to Rs 2496.1 valued at historical costs. The gross value has increased by 130 per cent over acquisition costs. This is an accumulated increase over all the previous years. The basis for revaluation has been stated in the report as follows:

In line with the recommendations of the Morpoth Committee fixed assets have been revalued at current market rates wherever practicable or on the basis of official price indices. Land which has been taken at nominal cost of Re. 1 in the historical accounts has been revalued on the current market rates.

Buildings have been revalued taking into consideration the current rates of construction. Plant and machinery have been revalued on a combination of current cost estimates and indices published by Reserve Bank of India.

In the current year 1976-77, the value of the gross block on CCA basis is Rs 6203.7 - an increase of Rs 453.7 over the previous year. To find the increase in the gross value of fixed assets due to price changes over the year, we must subtract the acquisition cost of new assets during the year. The acquisition cost of Rs 421.3 subtracted from the total increase of Rs 453.7 leaves a sum of Rs 32.4 as gain on fixed assets due to price change.

Accumulated depreciation based on CCA is Rs 1981 for 1975-76. For 1976-77 the CCA depreciation is Rs 265.1 (Rs 136.2 provided in HC accounts and Rs 128.9 provided as additional depreciation in CCA accounts). Thus, the accumulated depreciation at the end of 1976-77 is Rs 2246.1 which is the sum of last year's accumulated balance (on CCA basis) of Rs 1981 plus this year's CCA depreciation Rs 265.1.

On CCA basis, the additional depreciation for the year 1975-76 is Rs 107.1. For 1976-77 it is Rs 128.9 which is higher by 20 per cent over previous year's charges. The gain due to revaluation of fixed assets during the year is only Rs 32.4 which is about .56 per cent of last year's current cost values of Rs 5750. If we do not account for backlog depreciation, the additional depreciation (over HC) on CCA basis should be Rs 107.1 plus .56 per cent of 107.1 which equals to Rs 107.7. The actual additional depreciation provided is Rs 128.9 which

implies that there is a provision of backlog depreciation to the extent of Rs 21.2 included in the additional depreciation. Our inference gets substantiated, when we analyse the accumulated depreciation account. As stated earlier the accumulated depreciation account begins with a balance of Rs 1981 in which if depreciation for the year Rs 136.2 (on HC basis) and Rs 128.9 additional depreciation (on CCA basis) are added, the closing balance becomes Rs 2246.1, indicating that no provision for the backlog depreciation has been made except through profit and loss account.

This treatment goes very much against the ED-18 provisions in which it is clearly stated (vide para 11) that the provision for backlog depreciation should be charged directly against the related revaluation surpluses, rather than to the profit and loss account. Certainly the BHEL has violated the principles set out in ED-18.

#### Surplus Arising from Revaluation of Fixed Assets

In appropriation account, surplus arising from revaluation of fixed assets is shown as Rs 2197.2 for the year 1976-77, which is somewhat misleading to the reader. The revaluation surplus from fixed assets for the year 1976-77 is only Rs 32.4 (assuming backlog depreciation is taken care of by profit and loss account - a position taken by the BHEL though is not correct according to ED-18 provisions). The amount shown is a cumulative gain over the years which should not appear in one year's appropriation account. The appropriation account is supposed to show the results of this year's activities while balance sheet items are meant to

reflect the cumulative effect. The amount of Rs 2271.8 shown for 1975-76 can be condoned on the basis that this was the first year of preparing current cost accounts. Though in this case also, if we can determine figures for earlier year (1974-75) only net increase or decrease due to price change for the year only should be shown.

Reserve Account in CCA balance sheet for 1975-76 is shown at Rs 415.3 which seems to be a net amount of Rs 561.1 (reserve account on HC basis) minus Rs 145.8 for additional depreciation and COSA. Again, the treatment is not proper. The reserve account on CCA basis for this year should be:

Last year's balance	Rs 224.2
Prior-period adjustment	(33.2)
This year CCA profits	168.7
Dividend	<u>(78.0)</u>
	281.7
	=====

Revaluation Reserve account in balance sheet shows a balance of Rs 2214.1 which is the same as shown in the Appropriation account. The revaluation reserve account should have following balance:

Last year's balance	Rs 2298.4
This year's revaluation surplus	
Inventory	Rs 16.9
Fixed assets	<u>32.4</u>
	<u>49.3</u>
Closing balance	Rs 2347.7
	=====

The backlog depreciation should be adjusted from this account, but to follow the BHEL practice, it has been written off against this

year's CCA profits. It reduces the general reserve account and to that extent revaluation reserve account is overstated.

From the above analysis, you would notice that once the company has begun keeping CCA accounts, it should try to link one year's accounts with those of subsequent year. From the BHEL presentation, the CCA of the two years (1975-76 and 1976-77) look separate set of accounts, the later year accounts unrelated to the previous year's. The corrected Profit and Loss account, Appropriation account and the Balance sheet have been presented in the Table 1(a) and 1(b).

Statement of Change in Shareholders' Net Equity Interest after allowing for the Change in Value of Money

In addition to the Appropriation account, the ED-18 also recommends that there will be a note to the accounts entitled "The Statement of the Change in the Equity Interest after Allowing for Changes in the Value of Money" showing whether the shareholders' net equity interest, valued both at the beginning and end of the year in CCA terms, has been maintained in real terms, that is to say, in terms of the purchasing power of the rupee.

In this statement the BHEL has really blundered. In their presentation (see exhibit 2) for 1975-76 and 1976-77, net equity interest at the beginning of the year is shown at historical cost, that is, contributed capital plus surplus and reserves. The ED-18 recommendations clearly specify that it should be in CCA terms. It is possible that the amount for net equity interest at the beginning for 1975-76 on CCA terms may not

be available, but for 1976-77, it was certainly available (it is Rs 3822.6, see exhibit 2). For 1975-76, the initial year of the CCA system one can prepare the statements using the contributed equity on HC basis and making the adjustment for cumulative purchasing power loss over the years (see Tables 2 and 4).

In the BHEL statements, the 'amount required to compensate for the change in the value of money during the year' is calculated for the year using wholesale price index (WPI). In the year 1975-76, the price index declined, therefore, the amount shown is negative. For the year 1976-77, the price index used does not seem to be correct. It shows a percentage change of 15.87, while RBI Wholesale Price Index data (1970-71 = 100 series) indicate that the price index in March 1977 as compared to March 1976 has been only 12 per cent higher. The respective indices for March 1976 and 1977 are 162.6 and 182.1. Further, the 'gain for the year after allowing for change in the value of money and after dividend' are shown as Rs 2347.3 and Rs 2008.4 for 1975-76 and 1976-77 respectively. Nobody would believe that in one single year 1976-77, the company has gained Rs 2008.4 due to price change.

In my opinion, the BHEL has made fundamental and conceptual error in preparing this statement. The equity investment has been made over a period of time which if expressed in purchasing power of 1975-76 rupee terms is equal to Rs 2677.5 (see table 4). It implies that the amount required to compensate for the change in the value of money cumulative over all previous years is Rs 1377.5. In 1975-76 accounts, being the first



year of introducing the CCA system, we do not have a reasonable basis to estimate beginning equity in CCA terms. In such situation, one can show the total amount of capital contributed (on HC basis) as opening equity and the cumulative purchasing power loss over the years as the 'amount required to compensate for the change in the value of money.' The respective amounts are Rs 1300 and Rs 1377.5 (see table 2). The net equity at the end of the year 1975-76 in CCA terms is Rs 3822.6, and therefore, the cumulative gain so far is Rs 1145.1. This is not one year gain, it is a gain over 12 years of company's life.

For 1976-77, the net equity interest at the beginning of the year is Rs 3822.6, the amount required to compensate for the change in value of money during the year is Rs 458.4 (using price indices of 182.1 and 162.6 for 1976-77 and 1975-76 respectively with a base of 1970-71 = 100). To maintain the purchasing power of the equity investment at the beginning of the year, the company should have at the end net equity before dividend in CCA terms Rs 4281.0. The CCA equity at the end is Rs 4007.4 from which Rs 78 is distributed as dividend, leaving Rs 3929.4 as net equity interest. The company is short of Rs 351.6 in order to maintain the purchasing power of its beginning equity. This is termed as "loss for the year after allowing for the change in the value of money and after dividends." The corrected statement is shown in Table 2.

#### Developments Subsequent to the BHEL 1976-77 Report

In 1976, the publication of ED-18 seemed to be an important landmark in the history of British accounting profession. "In accounting

profession," as Prof. Baxter puts it, "it was a giant leap forward, aiming at revolutionising most branches of accounting at one blow, and to introduce brand new concepts and methods." Blow did not last too long. On July 6, 1977, a majority of British Chartered Accountants effectively killed the Morpeth proposals (ED-18). The amalgam of British Accounting Bodies - The Consultative Committee of Accounting Bodies (CCAB) stepped and asked Mr. Hyde to produce a first-aid measure quickly. On Hyde Committee's recommendations, Accounting Standard Committee (ASC) on November 4, 1977, issued a provisional statement known as "An Interim Recommendation."

The "Interim Recommendation" requires three adjustments to be made to the financial results as computed on historical costs conventions. The adjustments are additional depreciation, cost of sales adjustment and the gearing adjustment. The gearing adjustment is to account for purchasing power loss or gain on net monetary assets and liabilities.

The first two adjustments are the same as recommended by the ED-18. In the BHEL's case the amount involved for additional depreciation are Rs 128.9 in 1976-77 and Rs 107.1 in 1975-76, and for the cost of sales adjustments are Rs 16.9 in 1976-77 and Rs 26.6 in 1975-76.

For gearing adjustments, rule vary according to whether the figure for net monetary assets is positive or negative, that is, whether company has net monetary assets or net monetary liabilities position.

Where monetary assets exceeds monetary liabilities, the profits should be charged with an adjustment for the purchasing power loss in value over the year. The charge is to be found by applying an "appropriate" index factor to the net balance of monetary assets.

Where monetary liabilities exceed monetary assets, inflation accounting aims to show the benefit of gearing. The guidelines state that "where the total liabilities of the business, including preference share capital, exceed its total monetary assets, a calculation should be made of the proportion of the net monetary liabilities to the net balance of monetary liabilities plus the equity share capital and reserves (including asset revaluation surplus). An amount equals to this proportion of the depreciation and cost of sales adjustments should be credited as a separate adjustment in the statement."

In the BHEL case, the calculations are shown in Table 3(a) and a CCA statement according to "Interim Recommendation" is presented in Table 3(b). To calculate the gearing ratio for 1975-76, we have taken only the end-values for equity and net monetary liabilities, since beginning figures on CCA basis for this year are not available. For 1976-77, the average values are taken, since it is recommended that to calculate gearing proportion "averages from the opening and closing balance sheet of the accounting year should be used."

#### Review of the BHEL Performance

The BHEL has total equity investment of Rs 1300 contributed over a period of years (Rs 555 in 1964-65, Rs 411.1 in 1965-66, Rs 170.8 in

1966-67, Rs 13.1 in 1967-68 and Rs 150 in 1971-72). This equity investment if expressed in purchasing power of the 1976-77 rupee terms is equal to Rs 2999 (see Table 4). The company during its existence has not distributed any dividend; 1976-77 was the first year when it would be distributing dividend amounting Rs 78.

The equity investment of Rs 1300 has grown to Rs 1939.1 measured on historical costs basis and to Rs 4007.4 on CCA basis (both the figures include the declared dividend of Rs 78 in 1976-77). If we do not adjust for purchasing power loss, that is, if our concept of capital maintenance is to maintain capital in nominal terms than our rate of return (ROR) for the period 1964-65 to 1976-77 (over the BHEL's life) is 3.8 per cent on HC basis and 11 per cent on CCA basis. If our concept of capital maintenance is in terms of maintaining the purchasing power of equity investment then ROR on CCA basis reduces to 2.7 per cent which is about 2/3rd of the computed ROR based on the present accounting practices. The figure itself speak for the need to adjust account for changing prices.

There are a few other significant observations which can be made from the BHEL accounts. First, fixed assets values have kept pace with general rising prices. The value of gross block over 12 years (1964-65 to 1975-76) has been ahead of general price-level changes and therefore, we see a net gain of Rs 1145.1 on CCA basis (see Table 3). Of course, this figure also includes the operating gains which is hard to separate in the absence of CCA accounts for the earlier years. If retained funds on HC basis

(the amount of reserves and surplus) are taken as agreeable surrogate for cumulative operating gains then the revaluation gains would be equal to Rs 783.3 (i.e., Rs 1145.1 - Rs 357.8).

In the year 1976-77, we needed Rs 458.4 to compensate for change in the value of money, but our revaluation surplus and CCA profits amounted to only Rs 184.8 (Rs 168.7 CCA profits minus 33.2 prior period adjustment plus 49.3 revaluation reserve) resulting in a loss of Rs 273.6. Further, the BHEL has distributed the dividend of Rs 78 which increases the loss for the year to Rs 351.6. Clearly the values of the fixed assets did not keep up with rising general prices. The Wholesale Price Index increased by 12 per cent, while RBI index for machinery equipments declined from 172 to 170 over the year 1976-77. The increase in the value of fixed assets was a small sum of Rs 32.4, compared to the amount required to compensate the purchasing power loss of Rs 458.4. This explains the loss incurred in the year 1976-77 on current cost basis. In contrast, the accounts prepared under HC method report a profit of Rs 314.5 before dividend.

Second, the debt-equity ratio in this company is very high. On HC basis such ratio for 1976-77 is 1.35 (here, debt includes only long-term debts). On its borrowings, the BHEL does not have to provide for purchasing power loss. In fact, the more assets are financed by the debt, the better off is the company during inflation. To that extent the BHEL losses after allowing for change in the value of money have been comparatively low. But if we look at their debt structure carefully, we notice

that the Government borrowings account for about 2/3rd of the total debts (in 1976-77 it is about Rs 1700 out of total 2510.3). In this fully owned Government undertaking, the major lender is also the sole shareholder. One has to ask whether Government loan should be treated like other debts or should it be considered a convenient way of accommodating the pressing financial needs of the BHEL by its sole shareholders. In other words, can it be considered a substitute for equity investment with similar risks since the terms and conditions do not suggest that it is a loan negotiated in a free and competitive market? Now, if the shareholder is also anxious to protect the value of its involuntary debt to his enterprise, then the amount required to compensate for the change of value of money for the BHEL would be substantially higher. Even just to account for one year purchasing power loss on the Government debts (it is Rs 204.2 in 1976-77) the loss would increase to Rs 555.8. (We may recall here all the financial data in this paper are in million rupees.)

### Conclusion

The upshot of the above discussion is that while the BHEL should be given due credit for introducing a commendable innovation in the field of financial reporting, it is pity that the BHEL experiment has suffered from avoidable errors and pitfalls. I hope the BHEL will bring about the desired changes in its forthcoming statements and thus perfect the innovation.

## BHARAT HEAVY ELECTRICALS LIMITED

Balance Sheet\*

(Based on Historical Costs)

(Rs in millions)

	As on <u>31.3.1977</u>		As on <u>31.3.1976</u>	
Share capital	1300.0		1300.0	
Reserves and Surplus	<u>561.1</u>	1861.1	<u>337.8</u>	1657.8
Borrowings		<u>2510.3</u>		<u>3160.1</u>
		<u>4371.4</u>		<u>4817.9</u>
Fixed Assets	2917.4		2496.1	
Less: Accumulated Depreciation	<u>1028.1</u>	1889.3	<u>891.9</u>	1604.2
Capital Expenditure		280.2		239.9
Investment		14.5		0.4
Net Current Assets				
Inventory	4614.4		4749.5	
Net Monetary Liabilities	<u>(2427.0)</u>	2187.4	<u>(1781.0)</u>	2959.5
Miscellaneous Expenditure		<u>-</u>		<u>13.9</u>
		<u>4371.4</u>		<u>4817.9</u>

\* Source: The BHEL's Annual Report for the year 1976-77.

Exhibit 2 (Contd.)

(Rs in millions)

	<u>1976-77</u>	<u>1975-76</u>
<b>BALANCE SHEET</b>		
<u>Capital employed</u>		
Share capital	1,300.0	1,300.0
Reserves	415.3	224.2
Revaluation Reserve	<u>2,214.1</u>	<u>2,298.4</u>
Net Worth	3,929.4	3,822.6
Borrowings	<u>2,510.3</u>	<u>3,160.1</u>
	<u>6,439.7</u>	<u>6,982.7</u>
<u>Employment of Capital</u>		
Gross fixed assets	6,203.7	5,750.0
Less: depreciation	<u>2,246.1</u>	<u>1,981.0</u>
	3,957.6	3,769.0
Capital expenditure in progress	280.2	239.9
Investments	114.5	0.4
Net current assets	2,187.4	2,959.5
Miscellaneous expenditure	-	<u>13.9</u>
	<u>6,439.7</u>	<u>6,982.7</u>

**STATEMENT OF CHANGE IN SHAREHOLDERS'  
NET EQUITY INTEREST ALLOWING FOR RISE  
IN THE VALUE OF MONEY**

(Rs in millions)

	<u>1976-77</u>	<u>1975-76</u>
Net equity interest at the beginning of the year	1,657.9	1,601.5
Net equity capital introduced during the year	-	-
	1,657.9	1,601.5
Amount required to compensate for the change in the value of money during the year	<u>263.1</u>	<u>(126.2)</u>
	1,921.0	1,475.3
Net equity interest at the end of the year before dividends on equity capital	<u>4,007.4</u>	<u>3,822.6</u>
Gain for the year after allowing for the change in the value of money	2,086.4	2,347.3
Dividend on equity capital for the year	<u>78.0</u>	-
Gain for the year after allowing for the change in the value of money and after dividend	<u>2,008.4</u>	<u>2,347.3</u>



Table 1 (a)

CORRECTED CURRENT COST ACCOUNTS

<u>Profit &amp; Loss Account</u>	(Rs in millions)	
	<u>1976-77</u>	<u>1975-76</u>
Turnover	<u>4,697.2</u>	<u>3,742.5</u>
Profit before tax and interest	956.5	858.4
Less: Interest payable	<u>327.0</u>	<u>311.8</u>
Profit before tax and after interest	629.5	546.6
Less: Cost of sales adjustment	16.9	26.6
Less: Additional depreciation	<u>128.9</u>	<u>107.1</u>
Current cost profit before tax	483.7	412.9
Less: Tax	<u>315.0</u>	<u>322.0</u>
Profit after tax	<u>168.7</u>	<u>90.9</u>
 <u>Appropriation Account</u>		
Current cost profit after tax	168.7	90.9
Surplus arising from:		
Cost sales adjustment	16.9	26.6
Revaluation of fixed assets	<u>32.4</u>	49.3
Appropriation to revaluation reserve	(49.3)	<u>2,271.8*</u>
Dividend	<u>78.0</u>	2,298.4
Balance carried to balance sheet	<u>90.7</u>	(2,298.4)
		<u>-</u>
		<u>90.9</u>

\* Being first year of CCA system, all accrued revaluation gains are shown in this year's (1975-76) Appropriation Account. Thereafter, only current year's figures to be shown.

Table 1 (b)

CORRECTED CURRENT COST ACCOUNTSBALANCE SHEET

(Rs in millions)

	<u>1976-77</u>	<u>1975-76</u>
<u>Capital employed</u>		
Share capital	1,300.0	1,300.0
Reserves	281.7 <sup>1</sup>	224.2
Revaluation Reserve	<u>2,347.7<sup>2</sup></u>	<u>2,298.4</u>
Net worth	3,929.4	3,822.6
Borrowings	<u>2,510.3</u>	<u>3,160.1</u>
	<u>6,439.7</u>	<u>6,982.7</u>
 <u>Employment of Capital</u>		
Gross fixed assets	6,203.7 <sup>3</sup>	5,750.0
Less: Depreciation	<u>2,246.1<sup>4</sup></u> 3,957.6	<u>1,981.0</u> 3,769.0
Capital expenditure in progress	280.2	239.9
Investments	14.5	0.4
Net current assets	2,187.4	2,959.5
Miscellaneous expenditure	-	13.9
	<u>6,439.7</u>	<u>6,982.7</u>

- 
1. Reserves : Opening Balance + CCA profits - Prior-period Adjustment  
Rs 224.2 + 90.7 - 33.2
  2. Revaluation Reserve : Open. Bal. + gain on revaluation of Inventory and fixed assets  
Rs 2298.4 + (16.9 + 32.4)
  3. Fixed Assets : Open. Bal. + New acquisition on HC + Revaluation Gain  
Rs 5750 + 421.3 + 32.4
  4. Accumulated Depreciation : Op. Bal. + HC Depreciation + CCA additional depreciation  
Rs 1981 + 136.2 + 128.9

Table 2

Statement of Change in Shareholders' Net Equity Interest  
after Allowing for the Change in Value of Money

	(Rs in millions)	
	<u>1976-77</u>	<u>1975-76</u>
Net equity interest at the beginning of the year	3,822.6	1,300.0
Amount required to compensate for the change in value of money during the year 1976-77	458.4	1,377.5*
	<u>4,281.0</u>	<u>2,677.5</u>
Net equity interest at end of year before dividend on equity capital	<u>4,007.4</u>	<u>3,822.6</u>
Gain/(Loss) for year after allowing for the change in the value of money	(273.6)	1,145.1
Dividends on equity capital for the year	<u>78.0</u>	<u>-</u>
Gain/(Loss) for year after allowing for the change in the value of money and after dividends	<u><u>(351.6)</u></u>	<u><u>1,145.1</u></u>

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\*1975-76 being the first year of CCA system, Rs 1,377.5 million represents the accumulated sum of the amount required to compensate for the change in the value of money. The other figures also show the cumulative effect upto 31-3-1976.

Table 3 (a)Gearing Adjustment Calculation

According to ASC's Statement 'An Interim Recommendation'  
issued on November 4, 1977.

(Rs in millions)

	<u>As on 31.3.1976</u>	<u>31.3.1977</u>	<u>Average</u>
<b>1. <u>Net Monetary Liabilities</u></b>			
Borrowings	3,160.1	2,510.3	
Other monetary liabilities	<u>1,781.0</u>	<u>2,427.0</u>	
	4,941.1	4,937.3	4,939.2
<b>2. Equity (including revaluation reserves)</b>			
	3,822.6	2,929.4	3,876.0
for 1975-76	$\frac{4941.1}{4941.1 + 3822.6}$	=	.5638 <sup>11</sup>
for 1976-77	$\frac{4939.2}{4939.2 + 3876}$	=	.5603 <sup>2</sup>
<b>4. <u>Amount of gearing Adjustment</u></b>			
	<u>1975-76</u>	<u>1976-77</u>	
Depreciation adjustment	107.1	128.9	
Cost of sales adjustment	<u>26.6</u>	<u>16.9</u>	
	133.7	145.8	
Multiply by gearing ratio	<u>.5638</u>	<u>.5603</u>	
Gearing adjustment	<u>75.4</u>	<u>81.7</u>	

- Ratio is calculated using only end-values of net monetary liabilities and net equity (on CCA basis). Being first year of CCA opening values are not available.
- Ratio is calculated using average of opening and closing values.

Table 3 (b)

CURRENT COST STATEMENT  
(According to "Interim Recommendation")

(Rs in millions)

		<u>1976-77</u>	<u>1975-76</u>
Sales		<u>4,697.2</u>	<u>3,742.5</u>
Profit before tax		629.5	546.6
Less: Adjustments for			
Depreciation	128.9		107.1
Cost of sales	<u>16.9</u>	<u>145.8</u>	<u>26.6</u> <u>133.7</u>
		483.7	412.9
Gearing adjustment		<u>81.7</u>	<u>75.4</u>
Adjusted profit before tax		565.4	488.3
Provision for tax		<u>315.0</u>	<u>322.0</u>
Profit after tax		250.4	166.3
Less: Dividend		<u>78.0</u>	-
Adjusted retained profit		<u>172.4</u> =====	<u>166.3</u> =====

Table 4

Profitability Evaluation of Shareholders' Equity Investment inBharat Heavy Electricals Limited

(Rs in million)

<u>Year</u>	<u>Equity Additions</u>	<u>Wholesale Price Index 1960-61 = 100</u>	<u>Investment in Purchasing Power of 1975-76 rupee</u>	<u>Investment in Purchasing Power of 1976-77 rupee***</u>
1964-65	555.0	122.3	1,283.8	1,437.8
	(initial)			
1965-66	411.1	137.5	845.8	947.2
1966-67	170.8	158.9	304.1	340.6
1967-68	13.1	160.3	23.1	25.9
1971-72	150.0	192.3	220.7	247.2
1975-76		282.9		
Total	1,300.0		2,677.5**	2,998.7

	<u>HC</u>	<u>CCA</u>
Net equity* as on 31-3-77	1,939.1	4,007.4
Rate of Return	3.82%	11% equity not adjusted for purchasing power loss. 2.7% equity adjusted for purchasing power loss.

\* Net equity as on 31-3-1977 includes Rs 78 million for dividend declared.

\*\* Rs 2,677.5 million consists of Rs 1,300 million shareholders' contribution upto 1976 and the balance of Rs 1,377.5 million is the amount required to compensate for the change in the value of money.

\*\*\* Conversion factor used to convert in purchasing power of 1976-77 rupee is  $(182.1 \div 162.6) = 1.12$ . Here 182.1 is wholesale price index for last week of March 1977 and 162.6 is that of March 1976. For example, for 1964-65 the investment of Rs 1283.8 expressed in purchasing power of 1975-76 rupee would be equal to Rs 1,437.8 (i.e.,  $1283.8 \times 1.12$ ) in purchasing power of 1976-77 rupee.

Source for price indices: Economic Survey, 1977-78.

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