"Capital is a necessary but not a sufficient condition to progress."  

Efficacy of capital: The SEBs in India have been the recipients of various incentives, subsidies and other types of financial support, directly and indirectly from the State Government and public sector financial institutions. Yet their operation so far has resulted only in deficits and their financial position has caused perennial concern and disappointment to all concerned. It is a common phenomenon by and large with all SEBs and ASRB is not an exception. It is pertinent to discuss Financial Management of Electricity organisation hereunder to review the matter. The importance of capital to an undertaking, whether it is a private or public, hardly requires any elaboration. As blood is to human body capital is to an undertaking. Though the capital is required for starting and running a concern, need of increasing capital investment is necessary when the expansion of business or operation is desired. A gradual increment in capital composition has been observed as can be had from Table 3.1. The incremental growth in capital reflects the growing character of a prospering electricity organisation entering.

1. Rangar Murti, Problems of Capital Formation in Underdeveloped Countries, p. 2
### Table 7.1: Loan Composition of the Board (Rs. in lakhs)

<table>
<thead>
<tr>
<th>Year</th>
<th>Government Loan</th>
<th>LICI Loan</th>
<th>RTC Loan</th>
<th>Debt and Debentures</th>
<th>Total Loan/External Finance</th>
<th>P.C. of (2) over (6)</th>
<th>Internal Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958-59</td>
<td>532</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>532</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>1959-60</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>100</td>
<td>21</td>
</tr>
<tr>
<td>1960-61</td>
<td>260</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>260</td>
<td>100</td>
<td>32</td>
</tr>
<tr>
<td>1961-62</td>
<td>328</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>327</td>
<td>100</td>
<td>27</td>
</tr>
<tr>
<td>1962-63</td>
<td>832</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>994</td>
<td>94</td>
<td>49</td>
</tr>
<tr>
<td>1963-64</td>
<td>1271</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1271</td>
<td>100</td>
<td>47</td>
</tr>
<tr>
<td>1964-65</td>
<td>415</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>631</td>
<td>100</td>
<td>36</td>
</tr>
<tr>
<td>1965-66</td>
<td>697</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>697</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>1966-67</td>
<td>494</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>494</td>
<td>100</td>
<td>130</td>
</tr>
<tr>
<td>1967-68</td>
<td>610</td>
<td>300 (33)</td>
<td>-</td>
<td>-</td>
<td>910</td>
<td>67</td>
<td>146</td>
</tr>
<tr>
<td>1968-69</td>
<td>490</td>
<td>-</td>
<td>-</td>
<td>83 (14)</td>
<td>580</td>
<td>86</td>
<td>165</td>
</tr>
<tr>
<td>1969-70</td>
<td>360</td>
<td>-</td>
<td>-</td>
<td>300 (46)</td>
<td>660</td>
<td>54</td>
<td>202</td>
</tr>
<tr>
<td>1970-71</td>
<td>399</td>
<td>100 (12)</td>
<td>22 (2)</td>
<td>275 (57)</td>
<td>809</td>
<td>49</td>
<td>259</td>
</tr>
</tbody>
</table>

Contd.
Table 3.1 (Contd)

<table>
<thead>
<tr>
<th>Year</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971-72</td>
<td>123</td>
<td>200</td>
<td>35 (5)</td>
<td>303 (45)</td>
<td>660</td>
<td>20</td>
<td>295</td>
<td></td>
</tr>
<tr>
<td>1972-73</td>
<td>40</td>
<td>170</td>
<td>87 (10)</td>
<td>550 (68)</td>
<td>923</td>
<td>4</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>1973-74</td>
<td>35</td>
<td>150</td>
<td>74 (9)</td>
<td>578 (69)</td>
<td>637</td>
<td>4</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>1975-76</td>
<td>179</td>
<td>345</td>
<td>241 (18)</td>
<td>578 (42)</td>
<td>1343</td>
<td>14</td>
<td>404</td>
<td></td>
</tr>
<tr>
<td>1976-77</td>
<td>637</td>
<td>-</td>
<td>361 (21)</td>
<td>688 (47)</td>
<td>1680</td>
<td>38</td>
<td>668</td>
<td></td>
</tr>
<tr>
<td>1977-78</td>
<td>3336</td>
<td>180</td>
<td>301 (7)</td>
<td>925 (17)</td>
<td>4642</td>
<td>72</td>
<td>661</td>
<td></td>
</tr>
<tr>
<td>1978-79</td>
<td>3463</td>
<td>300</td>
<td>363 (7)</td>
<td>963 (19)</td>
<td>5088</td>
<td>68</td>
<td>860</td>
<td></td>
</tr>
<tr>
<td>1979-80</td>
<td>4600</td>
<td>-</td>
<td>552 (9)</td>
<td>1128 (18)</td>
<td>6280</td>
<td>73</td>
<td>1174</td>
<td></td>
</tr>
<tr>
<td>1980-81</td>
<td>5525</td>
<td>799</td>
<td>872 (10)</td>
<td>1258 (15)</td>
<td>8434</td>
<td>68</td>
<td>1999</td>
<td></td>
</tr>
<tr>
<td>1981-82</td>
<td>4407</td>
<td>331</td>
<td>1201 (16)</td>
<td>1678 (22)</td>
<td>7616</td>
<td>58</td>
<td>2758</td>
<td></td>
</tr>
<tr>
<td>1982-83</td>
<td>4809</td>
<td>361</td>
<td>796 (9)</td>
<td>2238 (27)</td>
<td>8204</td>
<td>58</td>
<td>2766</td>
<td></td>
</tr>
<tr>
<td>1983-84</td>
<td>6509</td>
<td>1611</td>
<td>2450 (11)</td>
<td>10571 (50)</td>
<td>21141</td>
<td>33</td>
<td>2822</td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the brackets in column 3, 4, and 5 indicate percentage share to total loan.

to one of the fundamental ingredients of industrial growth in a backward region.\(^2\) ASRB has had to resort to borrowing for financing its expansion programmes. Due to reorganization of ASRB in 1975 under the North Eastern Areas (Reorganization) Act 1971, the capital composition of ASRB had declined in the year 1976. Immediately consequent to bifurcation composite capital outlay had been shared by newly born Meghalaya State Electricity Board (MSRB) with ASRB.\(^3\)

Since ASRB was formed under the provisions of the Electricity (Supply) Act 1948, before going to discuss the capital composition of ASRB we have to review the provision of the said Act as related to finance. The Act as amended in the years 1949, 1956, 1979, 1962, 1966, 1976, 1978 and 1983 endeavours to tailor its working in relation to the changing requirement of the society and the economy of the State. During mid-seventies a comprehensive review of the Act with reference to Finance, Accounts and Audit was carried out with a view to bring necessary amendments. These amendments were contemplated to make the Board a commercially viable entity.

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2. The Government of India under the Planning Commission declared the entire North Eastern Region as the backward area, except three districts in Assam, namely, Dibrugarh, Sibangar and Darrang.

3. Assets, rights, liabilities and employees of the composite ASRB had been taken over by MSRB and ASRB in exercise of power conferred by clause (a) of Sub-section (4) of Section 73 of NE Areas (Reorganization) Act 1971 and in continuation of the order of the Govt. of India in the Ministry of Energy, Department of Power, No. EL-II.5(11)/73 dated the 20th March 1975.
It is pertinent to examine critically the provisions of the Act along with the amendment.

There are two kinds of capital such as financial capital and capital stock.

"Financial Capital implies monetary counterpart of real capital, that is to say, the money which has been employed for acquisition of real capital of the business." Financial capital can be supplied either by the owner of the business or by others who constitute its creditors. That part of the financial capital which is supplied by the owner is known as Capital stock. Capital stock implies long-term finance. In an electricity undertaking power is produced by the tangible physical assets. In the process of working money capital is invariably converted into tangible physical capital.

**Operation and Capital Structure:** The Act had laid down that the Electricity Boards constituted in each state for generation, transmission and distribution of power available within the state, shall not, as far as possible, carry on their operation at a loss and shall adjust their charges (Tariff) accordingly from time to time. Revenue receipt of the Board represents

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4. Dr. S.K. Basu, Lectures on Management Accountancy, Chatterjee Publishing Concern, 1979, p. 313

5. Section 99 of the Act.
revenue from sale of power, licence fees and subsidies from Government if any. Revenue expenses constitute operation and maintenance cost, establishment and administrative cost, cost of fuel, cost of energy purchased from outside, depreciation charges, transfer from general reserves and other funds and interest on borrowings. Other sources are composed of long-term borrowings from the State Government and other financial institutions, provident fund accruals, security deposit from industrial consumers and meter charges. Obligation for serving of loan instalment along with periodic interest thereon is a charge against capital receipts. Net capital receipt implies capital receipts minus total capital repayments.

For clarity of the idea a statement of operating revenue, operating expenses and revenue and appropriation account has been incorporated in Appendix I, II and III.

Contingent liabilities: In case the Board is unable to meet all its revenue expenses out of its resources, Section 67 makes it obligatory to exhibit the obligation for these expenses in order of priority. Such liabilities outstanding are to be shown as contingent liabilities below the Balance Sheet.

6. Statement of contingent liabilities incorporated in annual account

   (i) For interest on Government loan: opening balance =
       Add: Prior periods' adjustment =
       Add: Interest accrued for the current year =
       Less: Amount waived =
       Net interest to be paid,
This Section of the Act provides if in any year depreciation and interest charges could not be met out of operating surplus, the portion thus uncovered should be shown as liabilities. It inducts the additional chance that any surplus arising in the future years might be applied in meeting the depreciation and interest charges of the earlier years as accumulated under contingent liabilities. This fortifies the public information system over the ability of meeting fixed charges out of revenue surplus.

Despite earmarking provision in this respect in the Act, the Board did not exhibit the item of contingent liabilities in the face of the Balance Sheet despite having considerable amount of such liabilities up to the year 1970. This is an example of non-compliance of the Act on the part of the Board.

According to commercial practice interest on loan is a charge against profit for the current year. In respect of Electricity Board because of their inability to repay the interest amount out of Government loan, the same is allowed to accumulate year after year. Consequently a portion of uncovered interest is converted to principal amount. This conversion mechanism is dependent upon the quantum of finance available from the Government against the interest burden. The part of

<table>
<thead>
<tr>
<th>Less : Provide for the year</th>
<th>Contingent Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii) For non-Government Loan</td>
<td>Total Contingent Liabilities</td>
</tr>
</tbody>
</table>
the interest neither charged against revenue nor transferred to principal amount is then clubbed with contingent liability. It is the practice unlike the commercial organisation where interest obligation is provided for against revenue even in case of insufficiency of profits. This procedure breeds undercharging of revenue expenditure and overstatement of profits. In respect of UGB, under commercial system of accounting magnitude of losses would have been higher than that reported in annual accounts.

**Loan Capital vs. Share Capital:** Electricity generation being a capital intensive venture and moreover an infrastructural ingredient for growth impetus in a developing country like ours, involves greater amount of capital investment. This being the case, private capital flow feels shy into such project having relatively longer gestation period as compared to expected yield. So, the restoration of loan capital is justified. Instead when the Board ventures with share capital and sustain loss perpetually every year then the contributor will not be encouraged to invest in that matter. On the contrary loan capital removes the problem of uncertainty of market subscriptions. Even though the Board has been incurring losses, lenders are not willing to stop their arrangement as they will get their stipulated interest amount at a latter period. The Board being a public utility and service organisation can't always depend on share capital.
Further, in respect of loan capital return on it is guaranteed in terms of contractual interest which is chargeable against revenue income. On the other hand, return on share capital is not assured, and surplus over capital investment is dependent on ability to generate income. Due to loan capital, perpetuity of operation is not disturbed even if it sustains loss. On the contrary, loss against share capital may lead to discontinuance of the operation of a going concern. The loan capital has a relative edge and comparative advantage over the share capital. Interest on loan capital will be first charged in the profit and loss account, after that net profit of the enterprise will be ascertained. Interest on loan has a priority of payment to the lenders. Then if any profit is left, tax will be levied on the residual income which will go to the Union Government. It is for this reason that most of the SEDs in India are run on loan capital from the State Government, rather than equity share capital. The original Electricity (Supply) Act of 1948 provided only for loan capital and not for share capital. However, though the Amendment Act of 1976 prescribes for share capital also, but most of the SEDs in practice do not resort to share capital till 1984. The Amendment

7. Section 65(2) of the Act.
8. Section 121 of the Act.
Act also enables the State Government to convert a part of the outstanding loans into Equity Capital under Section 66A. It specifically lays down that there should be net revenue surplus to finance the capital works, such amount should be determined by State Government, but does not specify the rate of return to be achieved.

**Accounting System:** An electrical undertaking being a capital intensive venture has to invest huge amount in lines and electrical fittings. Its general characteristic is different from other concerns. Similarly the accounting procedure is also not the same. Theoretically Double Accounting system has been followed in electricity boards. This had been followed in England in 1818 and gradually in other European countries, in Railway company, Gas companies and Electricity companies having their unique feature of working. Under this system, the Balance Sheet is divided into two parts: first part being Capital Account and second part being General Balance Sheet. However, in practice the related matters of the Capital Account are presented into two parts such as Statement of Capital Raised and Appropriated, and Statement of Capital Expenditure. Again the Revenue Account is divided into two parts: first part being Revenue Account identical to Profit and Loss Account and second part Net Revenue Appropriation Account as Profit and Loss Appropriation Account for a trading concern.
SRBs are required to invest huge amount in fixed or permanent assets. It is desirable that information about the amount spent on fixed assets and sources from which funds for the same have been obtained should be disclosed in the capital A/C, viz., statement of capital raised and appropriated and capital expenditure as clearly as possible. So, the elements of capital a/c can be better styled as Receipts and Expenditure on capital. And the balance of this A/C should be transferred to General Balance Sheet. SRBs are public utility concerns satisfying never-ending public demand, are expected to maintain perpetuity in services. This can be possible only if they continue to keep their permanent assets always in running condition and maintain them preferably out of revenue. Under Double Accounting system permanent assets raised in the books of accounts are maintained at their original cost while the annual depreciation and any shrinkage in its value is accounted for in a separate Account styled as Depreciation Fund A/C which is shown in the liability side of the Balance Sheet. Unlike other limited companies the same is not shown by way of deduction in the asset side of the Balance Sheet. Any addition to the permanent assets is added to the original value of the assets. Any deterioration in the original asset value is shown by way of depreciation in the debit side of the Revenue A/C. This system is unique for only public utility concerns.
But in practice this principle is not followed by AS&E.10

**Uniform Commercial Accounting System:** Accounting may be defined as the classification, recording and presentation of monetary transaction in a given period in a disciplined and logical manner. Of the several systems of accounting, the most important are the cash accounting and accrual accounting system. The cash accounting system which was widely prevalent in the earlier half of this century has slowly gone out of use except in Governmental and certain quasi-Government bodies like AS&E. Its place has been largely taken by the accrual or mercantile accounting system. Because this system has some inherent advantages as compared to its predecessor.

Departmental accounting or Governmental accounting does not serve the purpose of commercial organisation. The AS&E hitherto had been following Governmental accounting system with head codification in respect of different incomes and expenditures. Having experienced complexities with the head codification the SIBs introduced since 1978-79 digital codification. This would ensure uniformity of accounts among all the SIBs. Incidentally similar other all India organisation like Industrial Finance Corporation of India, IDBI, RBI have

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10. Annual Statement of Accounts, AS&E. The Board shows the amount of depreciation by deducting the same from assets in the Balance Sheet. This indicates non-compliance of Double Accounting principle.
been following digital codification system among their respective branches in the country. Digital codification preserves the secrecy of information. Notwithstanding the system as in SEBs does not satisfy the requirements and queries of the World Bank as to rate of return, viability indicator, leverage ratios and other analytical information. In order to comply with the conditions of earning rate of return of 3 to 15 per cent as desirable stipulated by the World Bank, the CTA emphasized adoption of uniform commercial accounting procedure from 1st April 1985 to strengthen the financial viability of SEBs. Accordingly the recent amendment to the Indian Electricity (Supply) Act, Maintenance of Annual Accounts Rules 1985 has been formulated. Now it is mandatory to prepare accounts under the schedules prescribed therein. This stipulates adoption of Merchandise Accounting system in place of earlier Cash Accounting system. To this end the CTA emphasized complete switching over to merchandise system with a time span of four years.

Viability of the Board: The Electricity Supply Act 1948 deems and electricity organisation a commercial entity despite service

motive. The aim of this organisation is not to earn business profit but to run at a Break-even point.\textsuperscript{12} The Act in this respect simply mentions that, as far as possible, the Board shall not run at a loss and under such circumstances there is no need for prescribing any rate of return on capital investment. And due to this, contingent liabilities of the Board went on piling up to Rs. 7,126 lakhs as on 31st March, 1985. The major factors which contribute to such situation are:

**Reason for losses:**

1. Unlike other public sector undertaking the capital structure of the Board consist mainly of loan. The Board has no share capital. This has led to interest payment even on works-in-progress not yet installed for commercial production.

2. Even though the Board is unable to generate adequate internal resources to meet its planned capital outlays, it had to take loans. The Board has been all along running at losses. To meet up its expenses both capital and revenue, it had resorted to borrowing mainly from State Government. Due to perpetual default for over a pretty long time in repayment of loan along with interest, the State Government declined to...

\textsuperscript{12} No profit, no loss point is that point in which Revenue is equal to Expenses. The mathematical formula for Break-even point is

\[
\frac{F}{C_{p}} = 0
\]

where \(F = \) total Fixed cost at the present level of sales and \(C_{p} = \) percentage of contribution to sales.
extend further loans during the year 1967-68. This leads to borrowing from other financial institution at a somewhat higher interest rate.\textsuperscript{13}

(3) Quite a sizable part of the investment appears to be locked up in work in progress.\textsuperscript{14} Since the Board has not been willing to capitalize the interest liability, the interest on capital tied-up in work-in-progress forms a part of normal revenue obligation which is a charge against profit.

(4) The prime source of revenue for an electricity organisation is tariff collected from consumers. In the light of the spirit of constituent legislation the Board is to function at a Break-even point (BEP). BEP is a point of intersection at equilibrium of the elements of cost and revenue. Tariff being an item of revenue, significantly influence the fixation of BEP. Ironically enough virtually the Board has little power in fixing the tariff rates. Fixation of tariff rate is a periodic duty of the Board. While such rate was fixed for the first time in 1958, then again in 1965, 1971, 1983.  

\textsuperscript{13} Rate of interest on loan from State Government and LIC is 5 to 7 per cent and 7 to 8.5 per cent respectively in 1974 as against 7 to 9 per cent and 9 to 11 per cent in 1984 respectively.

\textsuperscript{14} Out of total asset of Rs. 40258 lakhs works in progress is Rs. 13024 during the year 1981; F.C. share being 33.
1977-78 and recently in 1981. It has come to the knowledge of the present researcher during the course of investigation that a tariff rate once fixed by the Board is invariably altered by the Government by way of external intervention into the unilateral discretion of the Board. This is not an exception with AESB but has been a common feature of such public enterprises where administered prices are induced by the Government. The Government through its action reduces the magnitude of tariff in respect of preferential class of consumers such as agricultural and industrial consumers.

(5) Non-availability of adequate supply of superior quality coal for the thermal plant leads to greater consumption of Furnace oil (F.0.) and raw coal. Thus divergence in quality and quantity content of input induced increase in cost of generation.

(6) HIGHER CONSUMPTION, TRANSMISSION AND DISTRIBUTION LOSSES: Use of relatively sub-standard quality coal, system losses-comprising losses in transmission, transformation and distribution, pilferage, coupled with unsophisticated technology have contributed significantly towards the operating losses. As a case in point, system losses is as high as 20 per cent as against standard norms of 15 per cent as stipulated by the Rajadharsha Committee Report on Power 1980.15

15. Committee on Power, Government of India, New Delhi, 1980, p. 79
But as a matter of fact, a considerable amount of system losses has not been accounted for by the Board and such loss is virtually much higher than reported. The amount of such loss has further been accentuated by the free supply of electricity to the employees of the Board unlike other state Electricity Boards of the country. 16

(7) Low capacity utilization also contributes to the losses of the Board. Capacity utilization is less than 55 per cent in every year which is below the national standard norms of 50 per cent of the total installed capacity. Generation of additional power can be significantly improved by fuller capacity utilization instead of undertaking power venture.

(8) Ascertaining of capital cost in respect of works done through the contractor is a difficult proposition. Item-wise classification of cost as to revenue and capital is not available from the contractor. The asset thus constructed through contractor broods over statement of capital assets and understatement of revenue losses. This is because total amount of contract price is not the real intrinsic value of the asset since its construction includes certain revenue expenses too. Then this revenue expense of construction would be adjusted against revenue income it would accentuate the volume of

16. Other CTBs give allowance to the workers but HST gives free supply of electricity.
operating loss. 17

(9) Violent change even more than 100 per cent in price of material nullified the discount factor of 15 to 20 per cent assumed in the present value. Discount factor when does not conform to the actual level of price rise it results greater cost involvement. Further the presumption of discount factor is done on the price level of the year of presumption. and the year in which work is completed by this time price level has gone up manifolds. This factor reduces the overall profit margin of the Board.

(10) Default amount of electricity dues overdue from an industrial consumer at Guahati could not be collected in due course of time. After lapse of three years on an appeal the industrial consumer was allowed to deposit the tariff in instalments. Even after this the defaulter did not clear up the dues. The Board went to the High Court. At the point of final announcement of decree he goes for mutual settlement of the case which was ultimately accepted. Then he made a part

17. Certain construction companies resort to a different type of accounting treatment. The entire amount spent is debited in various account heads and sum total of these expenses is debited to Preoperative Expenses and Bank a/c is credited. On completion of the project/construction etc. or in course of currency of construction this preoperative expenses are allocated over different items of fixed assets. Entry for that is done by debiting various fixed assets £/o and crediting Preoperative Expenses £/o. By this course the company can claim greater amount of depreciation expenses from tax or inflated assets value.
payment of the original dues after a gap of seven years. In this deal the board loses revenue for those seven years in addition to the alternative income that otherwise would have accrued had that amount been paid in time. It lost interest income on the overdue amount for the seven years.

Components of Capital: The block capital as well as working capital of the board are financed from both external as well as internal sources. The external sources comprise of loan from State Government, loan from other financial institution like LIC, RCF and by issue of various Bonds and market borrowings. The internal sources being depreciation provision, capital receipts, reserves and surplus and security deposit by consumers. The above Table 7.1 shows the internal and external generation of resources from its inception. The AST mostly resorted to external sources. Internal source such as ploughing back of profit is, however, cheaper than any other source of finance as there is no repayment and interest obligation. Nonetheless, the main reason for preferring external source is that AST hardly earns any profit for which it could not generate any additional internal source of fund. As a result external source of finance is being utilised which reduces the long term profitability of the board. It is observed that the single major source of finance is borrowing from state Government. Though in the year 1967-68 LICI financed loan to ASTC and RCF in the year 1970-71 their shares are lower as
compared to State Government. The P.C. share of different classes of licences is shown in the above table. Again internal generation is lower than external source of finance. Whatever may be long term financial leverage, the policies of the organisation is tailored to availability of loans. And the reasons behind it are as follows:

**Reasons of less finance:**

(1) The power projects are capital intensive. Investment in hydro or thermal projects is so high that it is not possible to collect such amount by making several calls in respect of share issue. Again the money to be invested is required at a time. So, it is not convenient to have share capital.

(2) Costation period is too long and return on such investment is not high and that too not assured. Due to this, individual interest in participation of power sector does not found encouraging for want of adequate remunerative return on capital. As a result, there is no equity participation in electricity undertaking.

(3) It is basically an infrastructural capital investment rather than profiteering commercial investment. The main object of bringing energy in public sector under the provision of the Act is to make it a public corporation. Directive principles of State policy under the constitution aim to remove inter-regional as well as intra-regional economic disparity,
balanced equal growth of all the regions of the country for the purpose of exploring the vast potential resources. Trading upon such potentiality bestows the responsibilities on the Governmental sector for making political institution and economic investment as well.

(4) Social cost of such electricity generating project is quite significantly high and distinct from commercial cost. It is equally complex to calculate the social cost as compared to monetary cost of the project. The same proposition applies equally with social benefit also. The twin virtues of social benefit over social and monetary cost justify Governmental survivality in an organisation with greater monetary losses but unmeasurable social benefits.

(5) Such enterprise being engaged in construction of long term projects and investment proposal can’t assure guaranteed dividend like other commercial ventures. Unpredictability of generation of income from such social projects may discourage private participation in the share capital. Finding no other alternative but for institutional agencies the AECB had entered into loan agreement with LIC. To begin with, rate of interest on LIC loan is virtually higher than that of State Government loan.18 Not only the rate of interest on loan purveyed by State Government is lesser, but its non-monetary

favourable impact on the Board is much higher. For the Board to get a moratorium period ranging from 9 months to 18 months during which no interest is to be paid. This twin benefit enjoyed by the Board have significantly improved its resource position. Otherwise the precarious financial position would have been worse. Availability of finance at an easier term from Government ends has provided a psychological edge. Thiselections the pace of the effective utilization like other body corporate. This highlights weak financial prudent policies on the part of the Board.

**Capital composition and autonomy of the Board**

In a commercial organization control over the affairs follows the amount of capital contributed. The synthesis that may emerge from the above Table 3.1 has been that up to the year 1963 the State Government had contributed 100 per cent lease capital except in the year 1963. In addition to the lease capital, in the year 1963, the Board issued Bond and Debentures for the first time to the extent of Rs. 162 lakhs only; the P.C. share to total lease being 16. This depicts the character of capital composition. By virtue of sole contribution in the capital the control over the affairs of the Board has been vested with the Government. From the commercial prudence, the control partially should have been left with the Board. With the advent of LIC in 1968 with 30 per cent capital contribution and BWC with 1.5 per cent in 1971, the proportionate discretion
and control have not been switched over to these organisations. As a result the percentage share contribution of State Government has come down to 4 during 1973-74. Even then unlike other commercial organisation the power of governance and control has been still persisting by the State Government. This is not by way of mere capital holding but more so by dint of empowering legislation.

**Investment profile in Power Sector:** It is a common parlance to discuss the development issue with reference to investment on it. But in all respect it may not hold good that higher the investment better the development. The present researcher attempts to analyze the data presented in Table 3.2 and 3.3 and to state whether retarded growth of power sector is the result of insufficient capital investment in this sector at state and national level.
<table>
<thead>
<tr>
<th>Period of plans</th>
<th>Total plan outlay (Rs. in lakh)</th>
<th>Outlay on power (Rs. in lakh)</th>
<th>P.C. outlay to total outlay</th>
<th>Additional installed capacity (MW)</th>
<th>Total installed capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Five Year plan (1956-61)</td>
<td>5,790</td>
<td>380</td>
<td>7</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td>3rd plan (1961-66)</td>
<td>14,500</td>
<td>2,750</td>
<td>19</td>
<td>163</td>
<td>164</td>
</tr>
<tr>
<td>Annual plan (1966-69)</td>
<td>8,659</td>
<td>1,158</td>
<td>13</td>
<td>5</td>
<td>169</td>
</tr>
<tr>
<td>4th plan (1969-74)</td>
<td>20,600</td>
<td>3,568</td>
<td>17</td>
<td>48</td>
<td>217</td>
</tr>
<tr>
<td>5th plan (1974-79)</td>
<td>27,797</td>
<td>15,000</td>
<td>54</td>
<td>26</td>
<td>243</td>
</tr>
<tr>
<td>6th plan (1980-85)</td>
<td>1,11,500</td>
<td>37,068</td>
<td>43</td>
<td>168</td>
<td>411</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan periods</th>
<th>Total plan outlay (Rs. in crores)</th>
<th>Outlay on power (Rs. in crores)</th>
<th>P.C. of outlay on power to total outlay</th>
<th>Additional installed capacity (MW)</th>
<th>Total installed capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd plan (1956-61)</td>
<td>5580</td>
<td>685</td>
<td>11</td>
<td>2,000</td>
<td>4,700</td>
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<tr>
<td>3rd plan (1961-66)</td>
<td>8551</td>
<td>1334</td>
<td>16</td>
<td>4,300</td>
<td>9,000</td>
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<tr>
<td>Annual plan (1966-69)</td>
<td>6843</td>
<td>1877</td>
<td>27</td>
<td>4,000</td>
<td>13,000</td>
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<td>4th plan (1969-74)</td>
<td>15769</td>
<td>2523</td>
<td>16</td>
<td>3,700</td>
<td>16,700</td>
</tr>
<tr>
<td>5th plan (1974-79)</td>
<td>99226</td>
<td>7294</td>
<td>19</td>
<td>9,800</td>
<td>26,500</td>
</tr>
<tr>
<td>6th plan (1980-85)</td>
<td>158710</td>
<td>19365</td>
<td>12</td>
<td>14,576</td>
<td>41,076</td>
</tr>
</tbody>
</table>

Source: Public Electricity Supply, All India Statistics, C&IA, Government of India, New Delhi, for the periods.
The Co-efficient of correlation between total plan outlay \( x_1 \) and outlay on power sector \( y_1 \) in Assam is

\[ r_1 x_1 y_1 = 0.94 \]

Again the co-efficient of co-relation between the additional investment in power \( x_2 \) and additional installed capacity \( y_2 \) in the State is

\[ r_2 x_2 y_2 = 0.055 \]

Testing the significance of the co-relation co-efficient with the 'student t'

When \( t_1 = 3.43 \), and \( t_2 = 0.06 \)

the tabulated value of

\[ t_{0.05, 4} = 2.78 \]
\[ t_{0.01, 4} = 4.60 \]

Thus the calculated value of 'r' is highly significant in case of \( r_1 \) as the calculated value of 't' being greater than the tabulated value, wherein we find that the investment in power sector in Assam in relation to other sector is highly satisfactory. On the contrary the tabulated value of 'r' is insignificant in case of \( r_2 \) which indicates that the additional generating capacity is not fully satisfactory in relation to investment in power sector in the State. This is due to the fact that creation of additional installed capacity is not only dependent on capital alone but also on other
variables such as machineries, skilled labour, procedural delay, environmental obstruction also responsible for that.

Similar statistical test has been conducted by the present researcher over the figures on all India level. It is found that the Co-efficient of correlation between the total plan outlay and outlay on power as well as the additional investment on power and additional installed capacity at national level are:

$$r_1X_1Y_1 = 0.98 \quad \text{and} \quad r_2X_2Y_2 = 0.84$$

Testing the significance of correlation co-efficient with the help of 'student t' when $t_1 = 9.8$, $t_2 = 3.05$. These values are much above the tabulated value of 't' when tabulated value of

$$t 0.05,4 = 2.78$$
$$t 0.01,4 = 4.60.$$  

It is evident from the above that the performance at national level is much satisfactory than that of the State of Assam. It proves beyond doubt our hypothesis that there is scope for improvement in the operational activities of the Board.

Codification of accounting heads: In order to have easy reference and identification of different items of expenses or
sources of incomes they are placed under different heads of codes. This is not only practised in case of Government Accounts but also in Bank, LIC and other similar public and private sector undertaking. This codification of accounts is equally applied in ASEB too. Separate heads or codes are used for sources of income and expenses alike. It shows scientific development of accounting practice in the Board. The main objectives of codification are precise expression, concealment of internal records to outsiders, administrative control over the accounting system, uniformity of heads of expenses and incomes among different sources. It also aims at automation for easy accounting process and curbing the controlling power of the State Government.

Accounting system conveys the results of monetary transactions in a given period. Commercial accounting, to be precise, enables "establishing performance" with reference to a given period. The commercial accounting being followed in Electricity Boards represents periodical assessment of performance. Performance is the offshoot of a number of variables connected therewith.

The term performance is a relative one and it is measured in terms of value judgement of the concerned respondent. The performance of SEDs in general might be assessed in terms of smooth working - financial and physical, and uninterrupted power supply to the consumers. The former
is the resultant effect of mismanagement and political
intervention on the Board and the latter is the accumulative
effect of multicornered variables.

Review of Committee: Number of committees were set up by
the Central Government from time to time to conduct an indepth
study on different areas of the Boards. The Venkatarame Committee in 1964 examined the rate of return criteria for
S&Es. The Venkatarame Committee in 1974 outlined the
financial objectives for the S&Es. The Bhargava Committee in
1976 recommended regarding tariff revision and various
technical measures for the improvement of the working of the
Boards. But in 1971, the Power Economy Committee observed the
matter of cost reduction and cost control. Again in 1980,
Rajadhyaksha Committee report vividly expressed the different
viewpoints in respect of working of the S&Es.

These different studies at the national level fail
to highlight the shortfall in respect of any specific

19. Finance, cost, tariff, organization and management, Rural
Electrification are different areas of S&Es.

20. R. Venkatarame was the Chairman. This committee was
formed by Union Government with a view to form a stream
line on S&Es.

21. This committee reviewed Power planning and Development,
Project formulation and implementation, operation and
maintenance, Finance, Financial Management and tariff,
Rural Electrification, Organization and Management, and
Research and Development.
organisation. All the abovementioned reports are the authoritative analysis on macro approach. Micro level analysis is necessary for proper evaluation of performance. With this end in view an empirical study has been conducted on some of the functional areas of the ASRB. Vis-a-vis some other Boards. For the purpose of making a uniform comparison an inter-Board analysis has been made. For the sake of convenient comparability the collected data have been tabulated in the form enclosed in Appendix.

**Arrangement of financial data:** Information system differs not only in respect of different Boards, but strangely enough the same differs even for the same Electricity Board from year to year. Thus it is expedient to standardise the format of financial information uniformly for all the SDBs. So, we have arranged the data in standard format as given by the GFR. It includes:

1. Statement of operating revenue
2. Statement of operating expenses
3. Net Revenue and Appropriation Accounts
4. Balance Sheet (Liabilities)
5. Balance Sheet (Assets)
6. Statement of Fixed Assets
7. Statement of Contingent Liabilities.
Divergence in presentation of accounting information and certain financial statement is presumed for the reason that the Boards are autonomous body under the state public sector. The necessity of affecting an uniform Commercial Accounting system for all the Boards in common has been severely felt as has been done in respect of all the limited companies under section 211 of the Schedule IV of the Companies Act 1956. It is fortunate enough that under the pressure of the World Bank the Central Government initiated a move in February 1985 to bring an uniformity in Commercial Accounting system of all the SDCs under the aegis of the Central Institute of Rural Electrification, Hyderabad. It has entrusted the work to M/S A.F. Ferguson, Bombay. The sooner it is implemented the better. But Accounting system of the Boards is governed by the Electricity (Supply) Act 1948 as amended up-to-date. Uniformity may be affected by inserting certain schedules and formats in the Act.

Accounting Information System: Any change in the accounting policy ought to have been disclosed in the face of the annual Report. It is the part of the disclosure of information in the Final Account. This disclosure would facilitate the interpretation of Financial statement. 22 The accounting

22. Jawaharlal, Corporate Annual Reports, Steerling Publisher Pvt. Ltd., New Delhi, 1985, p. 126. "where, the Indian Companies Act 1956 (amendment) requires the disclosure of adequate information of this type."
information contained in the annual report of ASCB has been found inadequate in terms of information contained therein. Such an organization with vast capital investment and multi-farious accounting ought to have given detailed information as to:

(1) Condensed Balance Sheet
(2) Statement of Ratios and P.C. of various items,
(3) Revenue and Expenditure Statistics,
(4) Revenue and Sales statistics,
(5) Statement of Stores consumption and amount recoverable,
(6) Statement of Physical and other statistics,
(7) Statement of sources and Application of Funds,
(8) Statement of arrears and recovery.

The deficiency and inadequacy of information has been pinpointed by none other than the Accountant General of India.23 In the light of the severity of the case, the traditional accounts ought to be supplemented by the above complementary statements for the sake of correct and prompt decision.

23. Auditors' Report on the Accounts of 1900, Annual Financial Statement 1901, p. 43
accounting and financial prudence capital expenditure ought to have been made by ploughing back of profit. In respect of our Board under study, operating revenue has been, however, encouragingly higher than the operating cost except in the years 1966 to 1970 and 1981. The surplus revenue income when matched against recurring commitment charges like interest on loan and depreciation on fixed assets the residual revenue is thus negativated for all the years under review. Hence the Board besides sustaining accounting loss it thus cannot facilitate ploughing back of profits for acquisition of capital assets. Positive operational growth is the upshot of efficient use of material for maximum production. However, the Board, by virtue of an amendment in 1983 to Section 39 of the Electricity (Supply) Act 1948 ought to have adjusted their tariff for ensuring that the total revenue in any accounting year should leave a surplus of not less than 3 per cent. This amendment has been made in accordance with the 11 per cent return as recommended by the Venkataraman Committee.

Material Management and Inventory Control

Concept: The importance of scientific method of inventory control and material management can hardly be overemphasised, specially in an undertaking like the 1938. Economic operation of an undertaking demands ready availability of scarce, purchase of materials according to specification, proper and
timely utilization of spares kept in stores, fixing maximum and minimum limits of stock, regular physical verification of stores and their proper maintenance etc. This can never be achieved unless the organization follows the modern and scientific method of material management technique. Lack of attention to any of the above requirements may have serious impact on the economic running of an organization. For this reason an attempt is made to evaluate the contribution of material management and inventory control to the total performance of ASIB.

An analysis of the Financial Statement of ASIB indicates that material cost accounts for 14 to 15 per cent of the total expenditures, and on an average it keeps about 10 to 15 weeks consumable stocks in hand. The inventory carrying cost comprising of the interest, insurance, storage, accounting and other items of stores overhead aggregate to about 8 to 10 per cent of the value of inventory held. The present researcher is quite convinced that with the help of better system of material management it should be possible to

24. Material cost in 1981 is Rs. 373 lakhs and total operating cost is Rs. 2716 lakhs, the P.C. share being 14.

25. The closing stock for the year 1980-81 is Rs. 373 lakhs against total consumption of stores of Rs. 1681 lakhs held for 11 weeks.

bring down the inventory level to the barest minimum, and that even a modest 10 per cent reduction in the amount of inventory would release over Rs. 37.3 lakhs of finance per year for alternative use. Consequently there will be a saving of Rs. 3.7 lakhs in cost of carrying inventory per annum. In order to reduce the level of inventory in hand the Board will have to streamline all the functional areas right from materials planning, purchasing, stores, inventory control, the control over wastes, disposal of scrap, obsolete and surplus.

*Organisation for material management:* As the management of inventory is an interconnected function with other units it would be necessary to look into the organisational set up of the Board. The concept of integrated material management is still new to the AED. Most of the SEDs in India such as Bihar, Punjab, West Bengal, Kerala, Tamil Nadu, Madhya Pradesh and Assam have centralised purchase and stores functions. In each SED there are four to five Chief Engineers (CE) covering the following functional areas:

1. Generation,
2. Distribution,
3. Major work or construction of projects,
4. Thermal,
5. Operations.
The abovementioned functional areas are composed of both civil and electrical construction. Like ASRB, U.P. and Bihar SEBs have Chief Engineers (Civil) for civil construction.

All the Chief Engineers (CEs) are authorised to purchase materials, plants and equipment within a certain specified financial limitation and subject to rules and instructions governing such purchase. The unique features of material management is that the major part of purchase is centralised at controller of stores (COE). Materials have been classified as A, B and C in terms of quality and money value.

The operational efficiency and financial position of the SEBs in most states are causing serious concern. If the SEBs can't generate larger resources, it will not be possible to finance the huge investment in the power sector. In spite of revising their tariff rates from time to time the Board could not enhance its viability and raise additional internal resources for meeting expanding investment requirement.

Material management inter alia is one of the potential areas improvement of which would energise the functional aspects. In this line the committee on power 1980 underscored that the material management system of the SEBs requires to be completely overhauled. With the advent of this new concept, control over the materials might be exercised in the following suggested lines:
(1) A modest reduction of 5 per cent in the value of materials and equipment consumed would have replenished the operating loss for the current year, besides servicing various interest obligation for the same year.

(2) A similar reduction in the closing inventories would have further diversified the resources blocked therein for other alternative avenues and help them in discharging their liabilities in terms of repayment of principal and payment of interest thereon.

Our investigation has unearthed the following deficiencies in respect of Material Management persisting in the organisation.

i. Organisational rights and responsibility: The material management in ASEB has been found to be diffused and non-integrated. There has been no clear cut definition nor demarcation of the authority about the acquisition of materials. Different categories of officials are bestowed with equal purchase capacities whereas the requirements of those officials are not same. Requirement varies with the jurisdiction of the official concerned. There is no satisfactory Management Information system by which reports reach the different levels either in respect of the purchase or in regard to inventories.

It is thus crystal clear that the purchasing power are delegated by statute and not by need. This is a crucial
functional area, control of inventories ought to have been need based rather than the status of the personnel. Inadequate material planning retards the expansion of newer plant and maintenance of existing one. Material needed for projects and transmission and distribution expansion deserves special cognizance. Improper material management is responsible not only for delay in commissioning of the project but still significant it breeds prevailing time and cost overrun.

Quality control of the materials is virtually absent in the organization.

2. Purchase policies and procedures adopted: ASD follows the policies and procedures as the Governmental organisation with slight modification here and there. The same traditional system has by and large been followed without any dynamism as regards external change in the quality content of the materials. The colossal time and cost overrun of construction projects in ASD are partly due to inadequate material management policies.

No major motivational efforts have been made to make the official cost conscious. The administrative lead time is high and as a result cost escalation takes place. This is the offshoot of procedural stagnation and official redtapes.

Though the centralised purchase is practised in ASD for a few items, entire purhasing system is not completely centralised. The officer-in-charge is interested in utilising the budget allocation without matching the same with the
requirement and practicability.

Invitation of tenders and rating of the same degraded the quality control. The selection of tender is made mainly on consideration of price and not on reputation of the supplier. This might reproduce its adversity over the entire system of inventory control.

3. Management Information system: Communication gap has been observed between the Head Office and field unit owing to poor quality of the content, irregularity, lack of cohesion etc. A serious shortcoming has come to the notice of the present researcher that as many as six reports covering a period of eight to ten years contained the same contents without addition or subtraction during the period. The lassery in compiling data for information system at field level has been far short of the necessity. For want of adequate information as regard the field units the decision at the Head Office level is always misleading and the deliberations are at times and savens. These reports are not integrated into a system which provides all the relevant data and information needed by the different levels in the form that they can make use of it and at the right time. Another major deficiency is the lack of agreement between the reports from different sources including accounts and at different time showing a significant divergent with the original records. The time lag involved in collecting, transmitting and processing the information can
be reduced by creating a data Bank within the organisation. It would be a good piece of work if all the reports could be integrated into a system and they are built up from stage to stage based on reliable data, with suitable provision for cross-verification and agreement with account is designed. 27

A B C Analysis: Materials have been classified as A, B and C. The A class of material is purchased by COE centrally at headquarter level. Major items of B material is purchased by COE and minor part is purchased by Superintendent Engineer (S.C.) at circle level. But the C category is purchased by Sub-Divisional Officer (S.D.O.) and Executive Engineer (E.E.) at divisional and sub-divisional level. The classification of A, B and C is based on the value of materials. The purchased items of high value are kept under the supervision of COE at Central Office. Comparatively petty items are kept at the circle and Sub-Divisional level. During the course of our investigation it is observed that for the purpose of compilation of data on material consumption, estimation of future demand of materials and furnishing flow of material informations to Head Office, the service of a Statistician is indispensable in this regard. But no such personnel has been found in operation.

In other SEDs purchased is looked after by material manager entrusted with that exclusive duty while in our SED this function is discharged by Engineer in addition to his other normal duties. In course of investigation it has been observed that there is no system of material management and inventory control in the Board. During the centrally located controller of store, there is neither any person nor any control unit. It is highly desirable that the Board injects the service of a technical personnel for inventory control. It is however desirable that the use of computer service in certain selective areas such as meter reading, billing, data processing as has been practised in U.P., SED, BSED, PSSE may equally be applied in ASEB also for improving efficiency and better control.

The SEDs employ A/B/C analysis for operation and maintenance of raw materials inventory. The action for procurement of A class items and the fast moving (Critical items) spares, right from their annual and periodic planning has been performed through computer programming. The use of computer system for billing and storing in UPSEB is of recent origin. But in ASEB no such attempt has been made so far. Creation of a statistical cell within the Board is a must. This will keep up-to-date data on purchasing, vendor rating, lead time, analytical revision and other information like obsolete and surplus materials, spare parts, replacement and discarding
policies with regard to obsolete equipment etc. Statistical handling of information in consonance with Management Information System is pre-requisite for better inventory management. But traditionally purchase requirements are not from the approval of the purchase committee. Naturally adhesion prevalent in this system can't enforce visitade of inventory control. Thus our earlier hypothesis that there is no scope for improvement of operational efficiency of the board does not stand valid. These are the potential areas where the Board should ponder over to achieve long term business success.

Tendering System: ASWB being a quasi-Government body it has to procure its raw materials, spare parts by virtue of public tender. In the pretext of lowest tender often sub-standard spares and equipments are purchased. Sub-standard items entails greater cost of operation and maintenance. Again negotiation system of tendering creates chances of unfair means. The lowest tendering system is not always desirable. So, the importance has to be attached to quality of design and not on price alone. For this purpose the incharge must have requisite autonomy and power for better quality purchase.

The stores are supplied only by the officially approved suppliers. In course of our investigation it has been found that there are many occasions when even the rate of supplies of stores from non-approved suppliers though much
cheaper than that of approved suppliers could not be procured owing to officialism. The lobby of the contractors has been found to be powerful in getting the approval. Consequently this region has been termed as "Contractors Paradise". Similar is the case with procurement of capital equipment for Bharat Heavy Electrical Limited (BHREL). It has been unethically pursued by the CEA for purchase of equipments from BHREL. Ironically the supply of steros and equipments from BHREL does not conform to the quality design as stipulated. This is a contributory factor either for poor designing at the Board level or faulty machines of the BHREL. As a case in point at the final stage of completion of fourth unit of EFPS at Salakati, the design for the thermal unit had been found to be defective. 28 In respect of second and third units also, at Salakati, the equipment supplied by BHREL has been found to be of poor quality leading to closure of the unit. The plea advocated for the same has been stated to be the "toothling trouble" with the equipments. 29 To remove this toothling trouble BHREL has been perpetually deputing their staff at the project site.

In fine, the cognitive dissoncy of financial and material management has impoverished the scanty financial

28. Discussion with the Project Manager, EFPS, Salakati

29. Lecture of the State Power Minister at EFPS, dated 24th November 1985. Toothling trouble means equipment trouble at the time of installation and initial operation.
resources. Introduction of a sound material management can capably contribute towards the site of cost saving. An area clubbed with critical assessment of the heterogeneous issues covered in this chapter might spotlight probable areas for betterment of operation.