Chapter 8
PROFITABILITY, ACCOUNTABILITY AND SOCIAL RESPONSIBILITIES
OF THE BOARD

"Public ownership is a means for controlling the
basic industries and services on which the
economic life and welfare of the community
depend. Control cannot be safely left in the
hands of groups of private owners not answerable
to the community."¹

Electricity in Public Sector! Public enterprises have been
prevailing in both socialist and capitalist countries alike.
However in developing countries like ours, public enterprise is
largely a necessity and not a matter of choice. Our Industrial
Policy Resolution 1948 clearly demarcates the areas in which
the states enjoin and progressively plays a dominant part.
This was embodied in the Industrial Policy Resolution 1948 which
states that the public utility concerns should be in the public

¹. Manifesto of the Working Force, Great Britain, 1950, p. 20

The Expert Group of International Centre for Public
Enterprises in Developing countries, Ljubna, Yugoslavia has
opined that public enterprise has two dimensions:
(i) enterprises drawing up commercial accounts, publishing
balance sheet and profit and loss account, governed by the
concept of investment and return, profit and loss etc.,
(ii) enterprises guided by the dimension of public ownership,
control and accountability, besides nebulous concept of
public purpose and public interest.
The proliferation of public enterprises in this country has been augmented for the reasons that strategic importance of economic growth, attitude to high investment requirements, uncertainty of return coupled with greater gestation period. The public enterprises have also been created in situations where private companies have become sick and are on the verge of collapse and then these are taken over by the Government for reviving and revitalising them.

The state has to play a major role in the economic planning and allocation of resources having due regard to the priorities fixed by the state. The public in the state, therefore, continued to be entrusted with the key sectors of the state's economy. The success or failure of any public sector undertaking will certainly have an impact on the economy of the state as a whole. The basic question is whether the public sector is fulfilling the duties assigned to it or not. The present research work has been co-terminus with the presupposition that the 'Electricity Board in issue has succeeded

2. Pandit Jawaharlal Nehru advocated public sector for three reasons: to give control of the commanding heights of the economy, to promote critical development in terms of social gain or strategic value rather than primarily on consideration of profits, and to provide commercial surpluses with which to finance further economic development. (Source: Speech of the Prime Minister published in "Handbook of Information on Public Enterprises, 1970, p. ix)
An experimental approach to profitability, accountability and social responsibility will spot light the areas of success or otherwise of the operation.

Measurement of performance: There can be no two opinion that a measure of the return over investment is an indicator of the performance of any enterprise. Public sector should have both profit and service motive and attempts to reconcile these two ends together. That is to say they attempt to earn profit through service oriented approach. The role of public utilities is basically to provide service or to meet socio-economic objectives. Such objectives are difficult to be brought under the parameter of money measurement. More quantitative items in Balance Sheet fail to exhibit the true performance of such concern.

3. ASID sets out its objectives as (a) Production: (1) More power for greater production, (2) To ensure economic and continued distribution of electric power and minimum losses in transmission, (3) To maintain and improve plant equipment and facility to prevent breakdown thereby ensuring continued and fault free supply, (4) To ensure that its services satisfy the needs of all customers including villages in remote areas. (b) Finance: (1) To ensure a reasonable rate of return on investment, (2) To ensure that electric power and services are available to its customers at fair prices, (3) To endeavor to reduce costs without sacrificing quality or efficiency, (4) To develop and maintain fair and efficient financial system and practices, (c) Personal: (1) To recruit the best talent and skill available, (2) To pay fair allowances to its employees, (3) To provide training facilities for the development of talent and skills, (4) To provide decent working condition. (Source: Statement issued by the Chairman, ASID, Gauhati, 1982)
Profit is quantifiable. However, the societal part performed by a public enterprise has not generally been quantified. The reasons for accumulation of losses for years together has not been earnestly investigated. Consequently specific remedial measures could not be pronounced. Performance of any industrial unit will continue to be measured by its profitability. Analogically, it is relevant to investigate whether the losses sustained by AESB is because of inefficiency in management, labour unrest and indiscipline, improper operation, underutilization of capacity, lesser productivity and whether such loss is uncontrollable or not.

Profitability as a performance potential: Profit is the absolute earning expressed in terms of money. Profitability is the probability of earning in future. Profit is a post-mortem result whereas profitability entails futurity.

Profitability might be expressed in monetary term and also in physical unit. Range of profit is narrower whereas the range of profitability is much wider since it takes into account a number of other future variables.

Profitability is also influenced by accounting cost. The accounting cost for establishment of Kopili Hydel Power Station at Garampani is much higher than the money cost. Accounting cost might be offshoot of many other social variables like upliftment of tribal economy, attachment of
tribal population to economic venture of the state,
participation of local people in Government venture,
diversification of means of livelihood, the aesthetic value of
the project upon the community etc. Though accounting cost is
difficult to be expressed in terms of money unit it might be
higher than the money cost of the project. So, profitability
can be visualised not only in terms of money cost, but also in
terms of accounting cost of the project.

Profitability has been considered the best indicator
of potentiality. Calculation of Rate of Return (ROR) may be a
guide to profitability. In general term efficiency is
measured by the input-output analysis. By measuring the output
as a proportion of the input and comparing result of similar
other firms or periods the relative change in its profitability
can be established.

The ratio of profit to capital employed indicates
profitability of a firm. Thus the chief profitability ratio
is equal to operating profit (net margin) divided by operating
capital employed expressed in percentage. However, return on
capital employed and on capital invested are the two indices of
financial performance of an organisation. As a matter of fact
calculation of ROR is diagonally reverse in different

4. Narain, Laxmi, Principles and Practice of Public Enterprise
Management, S. Chand, New Delhi, 1982, p. 227
circumstances depending upon component elements and purposes of such study. The same differs from organisation to organisation, from purpose to purpose and from year to year. Due to this variation the rate of return on capital employed and on capital invested differs as shown in Table 5.3 of Chapter 5. Again the ROR on capital employed differs when calculated under the World Bank norms and also under norms of Comptroller and Auditor General of India.\(^5\)

The Electricity Board faces major constraints from Rural Electrification (RE) and energisation of agricultural pump sets both of which are unremunerative with low rate of return. The profitability of the Board is subject to severe constraint from discretionary administered price and differential tariff rate on this count superimposed upon it. The Board is not free to distribute power in profitable avenues on its own volition that it can maximise its revenue. Even in respect of power cut the Board cannot follow an uniform policy in respect of all categories of consumers.\(^6\) Extension of power to certain priority sector has to be done at the behest

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5. As per Comptroller and Auditor General of India, capital employed = Net Fixed assets plus working capital; Capital Invested = Long-term loan plus free reserves. But as per World Bank formula, Capital employed = Fixed assets plus one-sixth of operation and maintenance expenses.

6. During 1984, the rate of tariff charged per unit of energy consumption in respect of domestic, commercial, agricultural and industries was 60, 75, 30 and 55 paisa respectively.

7. Agriculture and industrial sectors are taken as priority sector by the Government.
of the State Government policies. Operational loss is the offshoot of subsidized rate charged for priority sectors. This is the point of intersection of commercial consideration with political aspiration. The negative financial performance is co-terminus with the State Government. Inability to resist political pressure downgrading the importance of rational cost oriented tariff policy. Choice as regards tariff rate and selection of priority sector are the prerogative of the State Government, the Electricity Board has been made instrumental simply to implement then.

Inability to service the interest obligations has been accentuated by the absence of liberty in fashioning its tariff rate, under the Electricity Act itself. On the contrary, the State Government has been empowered under the Act to play its role in framing and implementing tariff rate of the Board. Still then the Board has been entrusted with the ultimate responsibility of profitable operation. Section 57 of the Act desires that the Board shall not, as far as practicable, after taking credit for any subvention from the State Government under Section 63, carry on its operation at a loss and shall adjust its charges accordingly from time to time. While in case of private sector licensees, the financial principle governing their working as laid down in Section 57, 57A and the Sixth Schedule of the Act, permit them to adjust their charges

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8. Section 57 provides for charges to be made by Licensee to the customers. Section 57A makes provision for creation of
for the sale of electricity either by enhancing or reducing the rate.

Inference emerges that profit earned by public enterprise does not derogate from the social responsibility. The volume of profit as recommended by the Venkataraman Committee in 1964 has been accepted by the Government. Thus a rate of return of 11 per cent on capital employed has to be aspired for by the Board. Our findings over the Board reveals shortfall in attainment of this minimum rate for years together. But it is a wrong notion that social responsibility sacrifices economic profitability. As a matter of fact both are complementary to each other.

Accountability of the Board: Accountability is really an aspect of responsibility. Electricity Board operates under a frame of publicity like other public enterprises. The constraints, compared to the amenities enjoyed by private enterprises, are very large. The public at large feel a sense of proprietorship over the Board that makes it accountable. Accountability might be viewed from different angles:

(1) **Accountability to the general public**: Since the Electricity Board is a public utility service organisation and

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Ratting Committee. The Sixth Schedule contains the Financial principles and their application.

public funds are invested, it is accountable to the public.

(2) **Accountability to the financier including creditors:**

The State Government and other financial institutions are the suppliers of finance. It naturally makes the Board accountable to the respective agencies.

(3) **Accountability to the legislature:** The Board is accountable to its creator, i.e., the State Government. Mention may be made of Estimates Committee and Public Accounts Committee which exercise control over the affairs of the public organisation. Since these committees are overburdened with the work load, another committee on Public Undertaking was constituted in 1960.10

An important aspect of greater accountability is the high level of business ethics, morality and social responsibility of an organisation.11 The Electricity Board stands as a means

10. This committee was established with a view (i) to examine the Reports and Accounts of the Public Undertakings as specified in the Schedule, (ii) to examine the Reports of the Comptroller and Auditor General of India on the public undertakings, (iii) to examine in the context of autonomy and efficiency of the public undertaking whether their affairs are being managed in accordance with the principles and prudent commercial practice, (iv) to take such other functions vested in the Public Accounts Committee and Estimates Committee or under the Rules and Procedures and conduct of business of the House which are not covered by the above.

11. Harmin, Laxmi, Principles and Practice of Public Enterprise Management, S. Chand, New Delhi, 1982, p. 11
of implementing socio-economic policies of the State Government which has direct relationship with national aspiration. This being the case, accountability of the Board may be judged by social benefits against social costs.

Widespread use of power leads to industrialization and rise in general purchasing power. Available electricity builds up the necessary infrastructure that leads to social and economic growth. For balanced socio-economic growth, cross sectoral and inter sectoral subsidization has been applied. Considerations have been given to the type of use, characteristics of the user and their location. The consequent vacuum in revenue for subsidization of rates has been filled up to some extent by way of intersectoral adjustment for which domestic consumption rate has always been kept above the industrial rate. Ultimate loss sustained owing to subsidization is replenished from budgetary source of the State Government. The underlying idea is to ensure that the Board does not stand to lose commercial revenues endangering financial stability. Notwithstanding,

12. Methods of assessing accountability are (i) accountability through audit, and (ii) accountability through annual Reports.

13. Social cost: The inter-relationship between social cost and benefit has been elaborated as "In every case imaginable, either the direct market price of a particular social benefit or cost can be determined ... or where there is no market price involved the market worth is determined by shadow pricing." (Source: Social Audit Committee Report, Bombay, 9th July 1980; Appointed by the Tata Iron and Steel Corporation Limited.)
however, our electricity Board persistently remains far behind the equilibrium position.

In pursuance to the foregoing discussion a close look into the cost-benefit relationship in depth as regards various rural electrification schemes undertaken might reveal the factual position.

Cost Benefit Analysis : A practical computation: The financial viability of R7 schemes can be determined by dint of cost benefit analysis, against the finance surveyed by REC Ltd, the R7 have been entrusted with instrumenting the various R7 schemes.

The completion of each scheme is limited to 5 years and the financial upper limit is Rs. 80 lakhs per scheme. However, there seems to have no demarcation of number of villages to be brought under R8 schemes. A deeper study of present scheme illustrates that the number of villages are not consistent with amount spent, and creeps certain operational inefficiency. The total cost of scheme is distributed over two heads such as:

(i) Infrastructural cost, i.e., construction of the scheme,

(ii) Load development cost implying the auxiliary

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14. The R7 schemes are categorised as ordinarily underdeveloped (OL), specially Underdeveloped (SU), Minimum Need Programme (MNP), Revised MNP (RMNP) and Sub-Transmission (ST).
construction leading to lead development.

Generally in the first year of construction 40 per cent of the infrastructural cost ought to be disbursed by NLC Ltd. and the rest amount as per the progress of the work. On the contrary, however, 25 per cent of the lead development amount would be provided within the first year and the residual amount on the volume of work completed.

In order to test the viability of the RE scheme the cost benefit ratio\textsuperscript{15} has been analysed hereunder. The inter-relation of cost benefit is usually ascertained on the basis of certain standard pre-defined assumptions. The following are the criteria usually adopted for ascertainment of cost:

1. Population and number of houses on the basis of Census Report 1971,
2. Mains, spur, low tension lines required for electrifying the villages under the scheme,
3. Service connection to (i) Agriculture, (ii) Domestic,

\textsuperscript{15} The analysis of cost benefit ratio helps in evaluating the efficiency of resources utilised for the project. It helps in determining:

(i) whether a power project should be funded and
(ii) the rank ordering of several alternative power projects.

The cost benefit ratio is the present value of gross incremental benefit divided by the gross incremental cost. That is Benefit Cost Ratio =

\[
\frac{\text{Present Value of Gross Incremental Benefit}}{\text{Present Value of Gross Incremental Cost}}
\]
(iii) industries, (iv) commercial consumers. Total load can be computed from respective connected load. This helps in finding out the cost of energy.

(4) Transformers to be installed for easy and economic distribution,

(5) Expected load factor in the coming year on the basis of load forecasting,

(6) Anticipated energy consumption can be calculated on the basis of connected load and utilization of energy in different areas. Besides domestic and commercial consumption, industrial consumption both low tension and high tension are to be ascertained.

(7) Cost saving is the basis of new economic rate of return. This has been calculated on the basis of certain assumptions such as probable cost of energy and the cost of alternative source of energy. The benefit of cost saving goes to the credit of the society instead of the Board. The idea behind this is to save the non-renewable source of energy in preference to renewable sources.

(8) Expected cost of energy sold and revenue to be earned is compared for proper evaluation. The difference between the cost and revenue would provide profit or loss in respect of each scheme.

for mutually exclusive project, Choosing of a project from among mutually exclusive one is done by discounting the stream of net incremental benefit, the difference between "with project" and "without project".
After analyzing the above factors the cost benefit ratio of the NS can be evaluated under the following heads.

(A) **Internal Rate of Return**: It has been termed as

Financial Rate of Return which is calculated by ascertaining the cost of energy sold and the revenue to be earned therefrom. If the cost is lower than the revenue the project is presumed to be financially viable.

\[ 16. \text{Financial Rate of Return} = \frac{\text{Discounted cash flow of revenue}}{\text{Discounted cash flow of cost of energy}} \]

The rate of interest is fixed by R&C Ltd., keeping parity with the expected devaluation of money. During 1985-86 the rate ranges from 7 per cent to 10 per cent according to the nature of the scheme.

Net cash flow: (Capital expenditure including consumer's contribution + operation and maintenance + cost of energy) - Gross revenue.

The net cash flow is to be discounted at stipulated rate of return as given by R&C Ltd. The formula for calculation of Discounted cash flow is not to be evolved by individual Board. The R&C Ltd. provided the discounted value of Re. 1 at different rate of interest for different years and the same is multiplied by the respective cash flow to arrive at Discounted cash flow (DCF). Then the total DCF for all the years is added to get total financial return on the scheme. It is to be noted that operation and maintenance is taken as 3 per cent of capital expenditure. The capital expenditure after 9th year onward has been proportionately distributed over the rest year and the discounting factor for the purpose has been stipulated by R&C Ltd.
(B) **Economic Rate of Return**

This is also another criterion of testing the viability of the scheme. The rate of return is computed by ascertaining the total cost of energy and total cost saving of the society thereof. The main objective of analysing a project under this new criterion is that the project though not financially viable for the Board may be viable from the economic viewpoint of the society.

An intrinsic evaluation of ten schemes in years brings forth the fact that the schemes are not financially viable as the discounted cash inflow after 25 years is negative. The net cash inflow has been negative more than the capital investment. On the contrary after the lapse of the same period the economic rate of return of the scheme stands marginally positive as visible from Table 9.1.

\[ \text{Economic Rate of Return} = \frac{\text{Discounted cash flow of cost saving}}{\text{Discounted cash flow of cost of energy}} \]

The rate of interest has been fixed by NPC Ltd. This differs from time to time and at present it is 10 per cent. This new concept has been evolved since 1981 for easy availing of the World Bank loan.

Here, Net Annual Benefit = (annual investment + operation and maintenance + Marginal Cost) - Total cost saving.

After ascertaining the net annual benefit the same has been discounted at stipulated rate of discount factor as provided by NPC Ltd. to arrive at discounted net benefit. The sum total of discounted net benefit is added up to get the total net benefit for the scheme.
<table>
<thead>
<tr>
<th>Name of the NES</th>
<th>Year of sanction</th>
<th>Estimated cost of the scheme</th>
<th>DCF/Internal Rate of Return (%)</th>
<th>Economic Rate of Return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bilsadpara (SU)</td>
<td>1985-86</td>
<td>39.24</td>
<td>32.13</td>
<td>3.90</td>
</tr>
<tr>
<td>2. Dalgaon (SU)</td>
<td></td>
<td>46.85</td>
<td>61.01</td>
<td>6.21</td>
</tr>
<tr>
<td>3. Paneri (SU)</td>
<td>1984-85</td>
<td>74.85</td>
<td>87.96</td>
<td>7.68</td>
</tr>
<tr>
<td>4. Udalguri (SU)</td>
<td></td>
<td>79.82</td>
<td>100.89</td>
<td>10.77</td>
</tr>
<tr>
<td>5. Dako (SU)</td>
<td></td>
<td>79.03</td>
<td>104.93</td>
<td>7.10</td>
</tr>
<tr>
<td>6. Majhat (SU)</td>
<td></td>
<td>73.50</td>
<td>97.25</td>
<td>12.03</td>
</tr>
<tr>
<td>8. Baghbar Tarabari (IMNP)</td>
<td>1985-86</td>
<td>52.76</td>
<td>69.76</td>
<td>7.64</td>
</tr>
<tr>
<td>9. Sidli (IMNP)</td>
<td></td>
<td>61.63</td>
<td>86.48</td>
<td>7.39</td>
</tr>
</tbody>
</table>

Note: Discounting rate of interest for Internal Rate of Return in case of SU and IMNP is 8 and 7 per cent respectively. The same is 10 per cent in case of Economic Rate of Return for all the schemes. DCF = Discounted cash flow, Minus (\(-\)) = Negative return after 25 years and plus (\(+\)) = Positive return for the same period.

Source: ASED, NR Wing, Guwahati, 1986
Cost benefit ratio is of paramount importance in respect of sanction and execution of the scheme. Though previously the schemes were evaluated from the stand point of finance, now the authority at the helm of affairs desires to know the economic viability also. The indirect socio-economic advantages of the scheme are harnessing of ground water resources for increasing food production, promotion of rural industries, creation of rural employment and prevention of migration from rural to urban sector.

Inter-state comparison: The position of Re schemes in Assam is not similar to that of Punjab, Kerala and Andhra Pradesh. Because the infrastructure in Assam is much lower than that of other states. The prevalence of considerable number of small-scale industries favoured the use of rural electricity in those states than Assam. Here so in area of the selected hill areas because of geographical condition, non-diversification in occupation, and occupational pattern, the inhabitants usually go to bed early. Consequently power consumption in those hill areas is relatively lesser. Again prevailing pattern of


20. Verbal discussion with the Ex-Chief Engineer, V.D.C., during the month of June 1986.
monsoon in Assam by and large had been regular and consistent for which no major use of irrigation pump-set has been observed. Resultantly it in Assam could not make a dent as extensively as in other states of the country. Besides, the major beneficiaries of the IR have been medium farmers, rich rural clusters, who can afford well to pay the full cost of power. It is not possible for the small and marginal farmers and the landless labourer to utilise electricity for their livelihood.

**Social Responsibility:** Though the term social responsibility is vague it is generally understood that the organisation is a better unit which takes due care of employees, consumers and community, contributes to religious, social and charitable causes, and helps the Government in meeting social needs. It has been defined as “obligation to pursue those policies, to make those decisions or to follow those lines of action which are desirable in terms of objectives and values of our society.” An attempt has been made here to review the contribution made by the Board to social obligations. The major responsibilities of the Board towards the state are:

1. To give a strong base for extension of prospering economy with a view to maximise the use of natural resources.


and wealth.

(2) To create employable opportunities for absorbing growing numbers of educated job aspirants.

(3) To plough back return and surplus for harnessing natural potentiality towards productive uses.

(4) To improve the standard of living of the masses by extending electricity to all corners.

The social responsibility is the genesis and the aforesaid composite items of accountability are the spices. Summation of these component items will give the total social responsibilities. But the twin objectives of social responsibility and commercial viability of a single concern might not yield high degree of monetary profits. It has been gathered during the course of present research investigation that Rural Electrification (RE) is presumed to be completed when an electric line passes through a village. More laying down the line is not enough, rather utilization of the same for improving the quality of life ought to have been the criteria for measurement. RE scheme has been found to be a political rather than economic necessity. As a matter of fact, in a village, namely, Gollapara, in the district of Harvota,

23. Similar observation is made by the Committee on Power, Government of India, New Delhi, 1980, p. 89
out of total number of fifty six households only six families availed of the same for domestic consumption. Hitherto no power could be used in the entire village for agriculture and small-scale industries. The success of the scheme alternatively might be evaluated in terms of improvement of quality of life and generation of source of income for the resident.

The execution of massive RE programmes of the state Government has weakened the financial position of the State Electricity Board. This is mainly on account of electric power in rural areas being sold even much below the average cost. Further electricity connection in rural areas is provided at a minimum charge of Rs. 20 only. But the losses have been aggravated due to the inadequate attention paid in planning and designing the RE project, increase in construction cost, low power factors and over capitalisation. However, there is a satisfaction that massive execution of electrification has made a direct impact on socio-economic areas such as:

1. Utilisation of waste land for agricultural purposes to improve the lot of rural masses. The N.R. states on the one hand enjoy abundance of rainfall, ground water and on the other have a cropping pattern with a considerably less irrigation intensity. Except Punjab and Haryana no state in India can afford one-third of total power consumption for agricultural purposes even in 1985. Due to more emphasis on agricultural development rural prosperity prevails and it paid rich dividend
to state economy.  

(2) Development of live-stock, including dairying and poultry farming. As a case in point it can be mentioned that agricultural farming at Rani is the first of its kind in Assam.

(3) Development of small-scale, cottage and agro-industries. As a first step the nursery centre of Huga culture of Assam at Suwalkuchi and that of Dell-metal industries at Najo have been brought under the IF scheme.

(4) Development of trade and commerce and pushing the marketing of agricultural products.

(5) Educating the rural masses by telecommunication system of process of improved agricultural, horticultural, social forestry, spice-culture, sericulture and allied activities. There is a close relationship between electrification of a village and the spread of radios and cinemas as a source of entertainment, improved working conditions in farms, workshops, schools, dispensaries and shops and increase in available working hours etc.

(6) Provision of municipal amenities like street lighting and water supply.

(7) Provision of better medical, health and sanitation facilities.

Geographical character makes the agricultural activities in Assam a seasonal vocation. Surplus agricultural labour during off season might be provided with self-employable vocation by making use of electricity. In order to supplement rural economy with the help of power handles in most of the rural houses in Assam may be converted into poweries.

Our finding with regard to the operation of the Electricity Board in Assam supplements our hypothesis that it has not succeeded to a considerable extent in fulfilling its objectives. This might be due to reasons such as:

- Frequent breakdown of plants;
- Non-supply of required quantum of gas and oil by Refinery and Indian Oil Corporation (Assam Oil Division);
- Shortage in supply of hydel power from Utri at Shillong caused by shrinkage in rainfall;
- Frequent interruption in power supply owing to delay in procuring spare parts from outside the state;
- Delay in repair works;
- Interruption in supply of coal from Bihar and West Bengal to the Thermal power station contributed by Wagon shortage from Railway authority;
- Non-mobility of technical personnel from

one station to another; pilferage of power in distribution line; irregular meter reading and prolong billing of the consumers which ranges over more than one year; misuse of power by the employees; erratic laying of line in rural areas; stoppage of production owing to inter-union rivalry; stoppage of work owing to inter-unit as well as inter-personnel rivalry; underutilization of the installed capacity etc.

A public utility concern catering to the essential needs of all classes of people ought to have taken due cognizance of social complaints and grievances. Virtually, the complaint booth that has been created recently remain inactive. The modus operandi of a public utility concern ought to have been framed in the context of social aspiration.

**Rural Electrification (RE) : A Critical Review**

Prior to the passing of the Electricity (Supply) Act 1948, generation and distribution of electricity was done by a few private utility companies, as mentioned in the first chapter, and the development was mainly concentrated in the urban areas. Rural Electrification is the Achilles' heel of RE in India. Only the theory of Government subsidy cannot make good the losses. Poor maintenance of rural electricity has contributed to non-energization of tube-wells and pump sets.
It has come to the knowledge of the present researcher that the West Bengal State Electricity Board (WBSED) is getting the RE works done by private contractors while WBSED is doing this by its own employees. The latter course will not only serve the purpose of gainfully utilising the surplus staff, but at the same time save a substantial portion of resource which otherwise would have gone to the coffers of private contractor. Generally concrete poles discarded in other normal sections have been put into use under RE scheme. This deteriorates the serviceability of lines.

The achievement of RE scheme is not as satisfactory as compared to other states. Punjab, Haryana, Kerala, Tamil Nadu attain the target of 100 per cent RE whereas in Assam it is only 54 per cent of total 21,995 villages as on 4th May 1987.27 The reasons for shortfall are attributed to non-availability of aluminium conductor, steel and rail poles required for carrying 132 KV lines.

As a common parlance implementation of RE scheme requires certain ground work such as survey of economic level

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27. Among the districts Shibagar tops the list by electrifying 97 per cent of 873 villages while Nongong comes second with 90 per cent of 1961 villages. Ambitious target of electrifying 3,000 villages during 1984-85 had to be dropped out due to resource constraint.
of village concerned, scope of utilising power and potentiality of small and cottage industries, survey over possibility of irrigation and pump set use. But unfortunately those issues in planning stage have been juxtapolated and arbitrarily certain villages are selected for the programme. Nevertheless the delay in execution of scheme has been triggered by the act of nature. A number of RS schemes scheduled to be implemented during dry season up to March could not be carried out for with the advent of rainy season the whole work has to be stopped. Appliances and other tools brought for the purpose are either rusted or pilfered. Consequently, in the next dry season the same had to be replaced by newer stock. This makes the implementation of RS scheme a dearer proposition. Be that as it may, even after implementation of construction, abnormal delay takes place ranging over two to three years in giving connection to the consumers under RS cluster. Although revenue could not be generated therefrom, the eventual interest burden on loan from the NFC has to be borne. Electricity supplied for agricultural purposes was very insignificant. The consumption of electricity for agriculture in RS is only 0.62 per cent of 610 million units sold in 1985. The basic aim of NFC is to accelerate the pace of agricultural programmes and not to provide domestic consumption alone.

**Reasons for delay in execution:** Due to multi-dimensional factors, construction and execution of the RS programme has
been delayed:

1. Non-availability of easy financial assistance from Central and the State Government.²⁸

2. Underformulation or non-formulation of plan for rural energy use.

3. Growth of rural load like rural industries, agricultural pumps etc. is dependent on co-ordinated and concentrated development efforts on the part of respective Government departments. This makes uncertain potential use of energy in rural sector.²⁹

4. No earmarked provision has been made for personnel under RE scheme. However from 1984 onward field level staff are deputed in phases for the purpose.

5. High cost of service connection and internal wiring breed low demand.

6. RE faces enormous problems of mobilising resources and

²⁸. Electrification of 3,000 villages would entail an estimated expenditure of around Rs. 37 crores. But AREB received only Rs. 22.10 crores, of which Rs. 20.39 crores from R O and rest from the State Government during 1984-85. This was enough for electrification of only about 1,600 villages.

²⁹. AREB is concerned at the slow progress of load growth in the villages already electrified. Against the connected load of over 11,000 villages is about 110 MW, but the actual average peak load demand has been in the order of around 25 MW only; the percentage being 25.
materials like poles, conductors, insulators, transformers etc. Theft of conductors is another problem area.

Had there been a separate internal cell for BT the operation could have been much better. Instead clubbing together of BT with general schemes has stagnated its pace. The achievement in respect of BT during 1982, 1983 and 1984 is 70, 63 and 71 per cent respectively of the targeted 1162, 1150 and 2504 villages.\(^\text{30}\) It is disheartening to note that loan sanctioned from BTG could not be availed of owing to slow implementation of the schemes and failure to achieve the prescribed target.

Besides financial and physical constraints even improper accounting system has also contributed to this sorry state of affairs as (1) no separate accounts are maintained for BT works by the respective sub-division and division, (2) the Register of works has not been maintained up-to-date either due to non-receipt of debit advice from the central sources or non-adjustment thereof by the division, (3) Register of works was not maintained separately. Even in case where the Register of works was maintained, posting of expenditure was not up-to-date or the same was posted in lump-sum and not separately under the prescribed sub-head of works, (4) separate consumers' ledg
Disaggregation of result: Notwithstanding that in a predominantly agricultural country like ours, where 80 per cent of the population live in villages, the need for accelerated RE is obvious and deserves due attention and encouragement. It is apparent that the RE programmes have waived out the surplus generated from other than RE schemes. It has been observed that unlike other REs, the system of segregating RE losses has not been made for Assam and Meghalaya. This shows inadequacy of accounting information. Again on account of non-availability of cost data the rural and urban consumers cannot be shown separately. It is, however, a happy sign that the Board having realized the gravity and the need for accounting separately of performance under the RE and normal schemes, decided from 1984 onwards to show the disaggregated result of operation and not by clubbing the two together.

Critical Review of Scheme:

(1) It is apparent that the number of villages and ten estates electrified is given wide publicity, but effective utilization pattern, magnitude of expenditure incurred and corresponding level of income therefrom are never stated anywhere. This is probably to keep aside the negative aspect of the scheme.
(2) Deviation from the estimate approved by R C was noticed in respect of electrification of certain villages and tea-estates. The shortfall in operation is, however, carried forward in the next year by virtue of accounting adjustment.

(3) Excessive utilisation of materials in comparison to the standard requirement fixed by the Chief Engineer, RC, was noticed in Dibrugarh, Newong and Marigao units during the course of investigation.

(4) In course of present research investigation it has been uncovered that the Board under the influence of the State Government has on many occasions been forced to include certain State Government schemes not approved by RC under this fold. Thus an apparently profitable scheme is being pushed back by a non-profitable proposition contributing towards the commercial loss of the organisation. As a case in point Putikahity village in Newong was electrified during 1972-73 at a cost of Rs. 1.73 lakhs which was not an approved scheme, the cost was, however, met by the State Government. This was shown to have been electrified under the RE scheme.

(5) Kochpara village under Guahati "NP" scheme was carried out without the stipulated norm of having sub-station. The stipulation of a sub-station with 63 KVA capacity for RC was not complied with. Further under the batch-patch arrangement very often then not either a station was built without
transmission line or contrary, transmission line was constructed without sub-station. Again completed electrified villages cannot enjoy the facility of electricity for want of 11 KV lighting arrangement. This implies under-availment or non-availment of the benefit for which lefty scheme was launched.

(6) **Electrification of Tea-estates!** Severe irregularity has been found to take place in course of electrification of tea-estates in Assam. According to the terms every tea-estate receiving power under R? scheme has to pay Rs. 25,000 towards security deposit. The Board ought to have deposited the same in their account with a scheduled commercial Bank. Instead of doing so the Board meet the day-to-day running expenditure of the scheme out of the total amount. Otherwise the expenses would have been met by the R?C. Consequently the Board had missed additional resource of Rs. 25,000 per tea-estate so electrified. This retards the percolation of additional resources from the centre to the SBC.

In pursuit of our earlier hypothesis and appraisal of performance our Board cannot be done unilaterally since this is not a mutually exclusive exercise. To this end a comparative analysis of similar Board might help to test the hypothesis.

**Inter Board Review:** It will not be out of place to examine the index of operational criteria of AEBD as compared to other sister Electricity Boards of the country for determining its
efficiency of operation. The parameters of comparison are discussed hereunder:

1. **Installed Capacity and Generation:** There are certain Boards such as Assam, Haryana, Dibar, Orissa, Uttar Pradesh, West Bengal, which have a very low generation of power in proportion to their installed capacity even less than 40 per cent of the capacity. This is, inter alia, owing to lack of demand and load development, machine failure etc. This implies a general underutilisation of capital invested in projects. As a common acceptable standard one KW of installed capacity generates 4,760 KWhs when worked throughout the year for 72 hours per day. Instead even when 60 per cent of capacity is utilised a SEB should at least produce 2,256 units in per Kilowatt. But unfortunately this standard has not been achieved by any Board in India. Yet Andhra Pradesh, Gujrat, Madhya Pradesh, Punjab and Rajasthan, have highest capacity utilization percentage being 55, 54, 52, 57 and 64 respectively during Sixth Plan period.

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33. Review of performance of SEBs in India, Planning Commission, New Delhi, 1985
(2) **Installation cost per KVA**: The cost per KVA of installed capacity is also an index for comparison. Variation in installation cost has direct impact on financial performance of respective Boards. The variation in this respect from state to state can be attributed to such factors as the size of the individual project in respective Board, the nature of the projects, whether thermal or hydro or gas based, the technological factors as indigenous or foreign, time of establishment and capital outlay on Transmission and Distribution (T&D). The outlay on T&D depends in turn on a number of factors such as the number and disposition of the consumers, the nature of power consumption. Bihar, Orissa, Tamil Nadu, Madhya Pradesh, U.P. etc. are running at highest installation cost per KVA of Rs. 11,779, Rs. 4,286, Rs. 3,684, Rs. 3,561, Rs. 3,414 respectively whereas Punjab, Orissa, Maharashtra, SCs are persisting at the lowest cost of Rs. 1,116, Rs. 1,749, Rs. 1,074 respectively.34

(3) **Capital cost vis-à-vis revenue collection**: Capital cost of a Board might well be reckoned with revenue collection with a view to ascertaining the rapidity of flow of revenue. Conversely the capital intensity can be observed from the same ratio. This ratio is the outcome of the interaction of very many ingredients. As against the average ratio of capital cost

34. Report of the Fifth Finance Commission, New Delhi, Planning Commission, 1969
to revenue receipts 6.5 for the country as a whole the ratio for Assam is 22.1, the highest in the country and the same for Haryana is 1.7, the lowest in the country. Though apparently ASRD seems to have the highest proficiency in this pretext but the fact that revenue collection is relatively very insignificant should not be lost sight of. The same ratio has been worked out at 11.4, 9.8, 9.0, 8.6, 4.5 and 3.4 for Kerala, Punjab, U.P., Bihar, Maharashtra and Gujarat respectively which indicates the highest capital intensity in project of those states with a reasonable revenue collection.

(4) **Per Unit rate of revenue**: The rate of revenue per unit shows the level of the tariff levied by the Board. A high rate may be efficient in its working but unless the rates are fixed in a rational way it will not be able to achieve a reasonable rate of return on capital. Alternatively the rate of return is the culmination of (i) general level of tariff, (ii) composition of power generation and (iii) the cost of production etc.

The states of Gujrat, Bihar, West Bengal, Assam, U.P., Andhra Pradesh and Madhya Pradesh SEBs charge the rate of revenue at 68, 66, 63, 55, 52, 51 and 52 paise per unit respectively, which is above the national average of 49 paise during the year 1964-65. On the contrary Kerala, Karnataka,

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Punjab, Orissa, Haryana, Meghalaya and Rajasthan SEBs run at 35, 37, 35, 36, 40, 42 and 46 paisa respectively at below the national level during the same year. Inter Board difference in tariff rate has been reflected in divergence of revenue earning. The magnitude of tariff rate may be visualised in the light of sources of power; while over-working on hydel sources enables to charge a lower rate than the other alternative sources of power.

(5) **Per Unit cost of power generated:** The total cost of power generation consists of capital charges, fuel costs, operating costs and repair and maintenance costs. The cost per unit of power sold together with its break-up multiplied by component elements provide another index of comparative analysis. The major ingredients of cost of generating thermal power are composed of oil and coal. Although the State of Assam and Gujrat is gifted with natural gas, the comparison has only been made with common parameter of coal and oil. AS&B ranks second with 42 paisa per unit only next to Tamil Nadu with 49 paisa per unit during the year 1983-84 in the context of cost of thermal generation as against the national average of 25 paisa per unit. 36 On the contrary cost of generation has been relatively lower in Bihar and West Bengal being 24 and 21 paisa per unit.

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36. Review of Performance of SEBs in 5th and 6th Plan, Planning Commission, New Delhi, 1985
per unit respectively during the year 1983-84, owing to the proximity to the coal field. One of the contributing factors responsible for this higher cost in Assam is due to import cost of coal from Raniganj and Rajmahal in Bihar.

(6) **Working Expenses**: Working expenses consist of operation and maintenance, establishment and depreciation charges. The working expense is an ideal indicator for appraisal of performance. It has been observed that in case of 1960 the working expenses of 24 paisa in 1960 has come down to 14 paisa per unit of power generation in 1970. However, consequent upon the gradual escalation in cost of inputs like coal, oil, gas and transportation during eighties the working expenses has reached the highest level of 134 paisa per unit in 1984-85. Other Boards such as Andhra Pradesh, Karnataka, Mysore, Kerala, Maharashtra, Orissa and Meghalaya, the working expenses are below the national average of 61 paisa per unit while in respect of remaining states the same is above the all India average.

It is apparently true that per unit cost of generation is very low in respect of major hydro based Boards of Maharashtra, Kerala, Punjab, Meghalaya and Tamil Nadu yet their rate of return on capital base has been found negative. This is consequent to:

(1) The average revenue being lower than the average cost of generation.
(ii) The lesser capacity utilization having negativated the eventual advantages of lower working expenses.

(iii) The interest and depreciation charges being relatively higher.

(7) Commercial Profit & Loss: Except Andhra Pradesh, Gujrat, Karnataka, Maharashtra and Madhya Pradesh all other Boards in India have heavy interest arrears. Similarly these Boards named above have shown commercial profits during the year 1982-83 against the loss of other Boards.37

From the foregoing discussion it appears that ALBD has to go miles together to reach its destination in comparison to its sister concerns elsewhere.

37. Profit of Andhra Pradesh, Gujrat, Karnataka, Maharashtra and Madhya Pradesh were Rs. 3,809, Rs. 41, Rs. 1,099, and Rs. 891 and Rs. 6,143 lakhs respectively. Against this position ALBD has commercial loss to the extent of Rs. 5,701 lakhs and interest arrears to the tune of Rs. 10,939 lakhs.

Commercial Loss/Profit = Operating Surplus - (Depreciation + Interest payable on loan).

(Source: Eight Finance Commission, 1984, p. 182)