C H A P T E R - III

FIXED   ASSET   MANAGEMENT

Fixed assets represent assets that are neither readily convertible into cash nor into cash nor intended for resale. Fixed assets add value and utility to the input factors. "Insufficient plant or facilities of the wrong type hamper the operations and lower the returns, and excessive investment in unused or over expensive facilities reduces the rate of return made from the really productive assets."[1]   As a large part of available fund becomes locked up in fixed assets for a long time, it tends to inflate the opportunity cost of capital. Recovery of fund locked up in fixed asset through depreciation or amortisation provides a measure to control the opportunity cost. The amount to be locked up in fixed assets by a firm is determined by the nature of industry, its rated capacity, degree of mechanisation and modernisation. However no uniform proportion can be observed between different firms of the same industry with similar scale of production. Firms with relatively long lived fixed assets of a highly specialised character and of a value of only for specific purpose at particular location seldom bear a very high risk of convertibility and technological changes.

Allocation of funds to fixed assets is a long-term one and, therefore, involves the risk of insolvency and convertibility. To improve the productive capacity, addition to fixed assets from funds of current zone needs replenishment from external

sources as it impairs liquidity of current zone itself and, thereby, equally reacts upon the created additional capacity that becomes unproductive. Hence, regulation and control of funds, both current and long-term, is necessary and this should be based on the productive capacity and the activity level.

In Terai tea fixed assets include land, cultivation and Building, Plant and machinery, Furniture and fixtures, equipments, motor vehicle and cycle, fencing, roads and bridges, bullock and carts, gun etc. As detailed information about the use, size, capacity of individual asset is not disclosed in financial statement, whether such locked up funds in assets are optimally used or not cannot be assertained. Our analysis has been subject to this constraint.

To make the analysis meaningful we have classified the sundry fixed assets into major three groups - Land, Cultivation and Building (LCB), Plant and Machinery (PM) and Other Assets (ORS). The Land, Cultivation and Building (LCB) have been enjoined together because of non-availability of classified figures. To measure the density of investment in fixed assets their proportionate share in gross block (GB), net assets and total investment has been worked out (Table - III.1).

The dominance of investment in Land, Cultivation and Building (LCB) (.5413 of Gross Block) provides a clear indication of a tea being a labour-intensive industry. Measured also in terms of Gross Block, or Net Assets or Total Investment the density of the components of fixed assets provides a clear indication to this

Effect. The fore most indicator, the wage bill, provides that per rupee of cost of goods sold the average wage bill is Re. 0.5274.

TABLE - III.1

Intensity of the Components of fixed Assets
(Mean percentage)

Components	Total invest-ment (TL)	Net Assets	Gross Block
LCB	0.3396	0.3765	0.5413
BMD	0.030790	0.8760	0.3297
ORS	0.0729	0.0809	0.1290
Total	0.4915	0.5334	1.0000

To assess the rationality of fund allocation to fixed zone the linkage of fixed assets with other financial variables is required to be examined. Few important ratios, out of a host of others, have been worked out and placed below (Table-III.2).

TABLE - III.2

FIXED   ASSETS   RATIO

Year	FATA	CGSNB	NBNW	NOFNB
1974	0.4198	1.6367	1.2388	0.2151
1975	0.4053	1.6543	1.0703	0.2328
1976	0.3974	1.7391	1.2368	0.2727
1977	0.3907	2.0457	1.2325	0.2717
1978	0.3800	2.1667	1.9635	(-) 0.1012**
1979	0.3793	1.8307	2.6227	(-) 0.0029**
1980	0.3473	2.4104	5.6689	(-) 0.2875**
1981	0.4093	2.6590	(-) 6.5060*	(-) 0.2640**
Mean	0.4141	2.0224	1.0659	0.0271

*NW is negative.

**NOF is negative as NP $>$ depreciation of NP is negative.

FIXED ASSET INDEX.

It is customary as well as a legal-binding [2] to display distinctly the fixed zone and current zone of assets in financial statement of corporate bodies. The relative size of fixed assets and current assets depends upon the working nature of a concern - manufacturing or trading. In manufacturing concern the fixed assets are invariably of larger size than current assets but tea is an exception to this because of syncronised functioning of agro and manufacturing activities where the former tends to be of

prime importance because of being the only source of the only and single basic input necessary for manufacturing function.

The conversion of current funds into fixed block is a continuous process to adjust productivity and capacity with profitability. The total value of gross block in fixed assets is the sum total value of conversions of current funds in different marginal periods, and the net value of fixed asset is the residual balance of it after providing depreciation.

The fixed asset index reflect the proportionate share of fixed assets (FA) in the total asset (TA) structure and is shown as below:

$$\frac{FA}{TA} = \frac{FA}{FA + CA}$$

$$= \frac{FA}{1 + \frac{CA}{FA}} \quad \text{(by dividing the denominator by FA)}$$

$$= FATA \quad \text{(a Ratio)}.$$

This index provides a basis for ascertaining the size and capacity of the firm, as well as stands as a barometer of credit-worthiness. In the determination of value of index the role of CA is of prime importance. The usual conversion of CA into FA without affecting its own density in the total asset structure is highly desirable. The FA in Terai tea is a continuously decreasing one save that of its sudden jump in the last year of our study. The rate of decrease was checked to a large extent in the later half of 1979-80. The rate of declining trend can be observed from the

following equation which has largely been influenced by the jump in value in 1981.

$$FATA = 0.4141 - 0.0051 \; t;$$

(Standard error of the estimate 0.0176).

The equation discloses that,

(i) not more than 0.4141 of TA have been used in FA; and,

(ii) the FA is gradually declining. The decline in the proportionate share of FA is primarily because of liquidation through depreciation that brought down the book value of the gross block (GB) when renewal, renovation and modernization are more or less non-existent. The NPTA (Table-II.1) adduces evidence to this. The resultant effect is the loss of credit worthiness from long term sources. However, the reducing share of fixed assets minimises the risk of non-liquidity because:

$$TA = FA + CA$$

$$1 = \frac{FA + CA}{TA}$$

$$= \frac{FA}{TA} + \frac{CA}{TA}$$

$$\therefore \; 1 - \frac{FA}{TA} = \frac{CA}{TA}$$

Now, by substituting the value (mean) of FATA, we get,

$$1 - 0.4141 = \frac{CA}{TA}$$

$$\frac{CA}{TA} = 0.5859$$

The result of the equation leads us to conclude that current zone is becoming more liquid to which contribution of FA through its transformed value by way of depreciation plays an important role. However, such improvement in current zone retards the

capacity of fixed assets. Such reversion of funds from fixed zone to current zone is not desirable at all.

FIXED ASSETS TURNOVER.

Capital formation is product of saving-income and output-capital ratios. An improved productivity of assets increases the rate of capital formation when saving-income ratio is assumed to be constant. The function of fixed assets is to improve the productivity rather than improving the revenue of the industry. When marginal revenue drops below the marginal cost of production there becomes the risk of recovering costs - both fixed and variable. But the fixed costs evolving from fixed assets are, by and large, constant irrespective of the volume of sales revenues which is subject to the revenue of the marginal unit. However, whether the fixed cost component could be recovered is generally judged from the fixed assets turnover.

The scale of production can be determined from the size of investments in fixed assets. The larger the size of investment in fixed assets, other things remaining constant, the larger the volume of production. Therefore, the volume of production is the function of net block. With the assumption that goods produced is sold, it can be established that cost of goods sold (CGS) is the function of net block (NB). Therefore, the linkage can be shown as:

$$CGS = CGS NB \; ; \; (a \; ratio)$$
$$= (Asset \; Turnover \; Ratio)$$

This ratio shows the direction of potential productivity of investment in fixed assets, and, thereby, the way in which the firm is heading. It clearly reveals how much fixed assets are necessary for a rupee of sales indicating that "the fixed assets are either working at their maximum or optimum productivity or not."[3] Thus the ratio discloses the soundness of investment policy and latter in turn, provide hints concerning the capacity to recover fixed charges. The high the turn-over of fixed assets the lower the Break-Even-Point (BEP) but a high turnover enjoined with the fall in fixed assets primarily denotes its over utilization.

The turnover rates of Terai tea industry (Table-III.2) is low. The prime factor responsible for such low turnover (mean 2.0224) is the 'land, cultivation and building' that hold 69.09 per cent of total investment in fixed block. Despite this low turn over, the fixed assets in a labour intensive industry like tea cannot be termed as unyielding as the trend of turnover rate depicts an increasing function of time at 13 per cent per annum.

$$CGSNB = 2.0224 + 0.1380 \ t;$$

The gradual increase in the turn over indicates that variations in output have been comparatively favourable than the fixed assets when both were growing. But the growth of output in terms of costs of goods sold (CGS) (3.116 times; mean 68.86) surpasses that of the growth of NB (1.9203 times; mean 32.98) during the period under review; the increasing productivity of NB reflects the increasing CGS which is mainly due to increasing cost of factoral inputs. Hence, it is very difficult to appreciate the increasing productivity of NB.

Sales directly affect the asset structure of the firm via components of CA. Because of the comparative differences between costs of long-term and short-term fund, an optimum frame work of fund allocation between FA and CA is a necessary condition to minimise the obligations to service the Capital funds for total asset structure necessary for a given volume of sales. This allocation, is possible through 'Break-Even' approach transformed into Assets-Volume -Sales concept and can be applied to this industry to ascertain over investment or under-investment. Mathematically this can be devised as below:-

$$TA = FA + CA$$

or

$$I = \frac{FA}{TA} + \frac{CA}{TA}$$

or

$$NS = \frac{FA}{TA}(NS) + \frac{CA}{TA}(NS)$$

$\lfloor$ The right hand side of equation sig- nifies the proportionate share of FA and CA in a given volume of sales (NS). $\rfloor$

Let $FA/TA = fa$, and $\frac{CA}{TA} = ca$

$\therefore$ $NS = fa(NS) + ca(NS)$

or $NS \left(1 - \frac{ca(NS)}{NS}\right) = fa(NS)$

or $NS = fa(NS)\left[\dfrac{1}{1 - \dfrac{ca(NS)}{NS}}\right]$

$= fa(NS)\left[\dfrac{1}{\dfrac{NS - ca(NS)}{NS}}\right]$

$= \dfrac{FA}{TA}(NS)\left[\dfrac{1}{1 - \dfrac{CA/NS(NS)}{NS}}\right]$ (Putting the values of fa and ca).

$TA = FA\left[\dfrac{1}{1 - \dfrac{CA}{NS}}\right]$

∴ Break even point of Capital (BEP_c) = $\dfrac{(FA)}{NS} \cdot \dfrac{(NS)}{NS - CA}$

The analysis indicates that:

when, $TA > BEP_c$ = Over-investment.

$TA < BEP_c$ = Under-investment.

The Terai tea industry discloses over investment (Table- III.3) in the sense that NS does not commensurate with Net block. To remove the imbalance, i.e. to have an equilibrium, the industry has to increase investment in assets(EXHIBIT - III).

TABLE- III.3

Ratio values of TA/BEP_c

Year	Ratio values	Year	Ratio values
1974	1.2460	1978	1.1115
1975	1.3706	1979	0.8478
1976	1.1745	1980	0.9855
1977	1.3203	1981	1.5978

FIXED CAPITAL UTILIZATION.

Long term funds are generally meant for creating fixed assets. The proprietory fund initiates the formation of FA and later on debt capital augments the increase of the size of FA. So the charges of long-term funds are required to be met out of the productivity of FA. with the addition of long-term debt Capital, the ownership charges diminish. But a disproportionate long-term debt

Exhibit No. III — Graph of Ratio Value (IA/BAR) versus Year, 1974–1981.
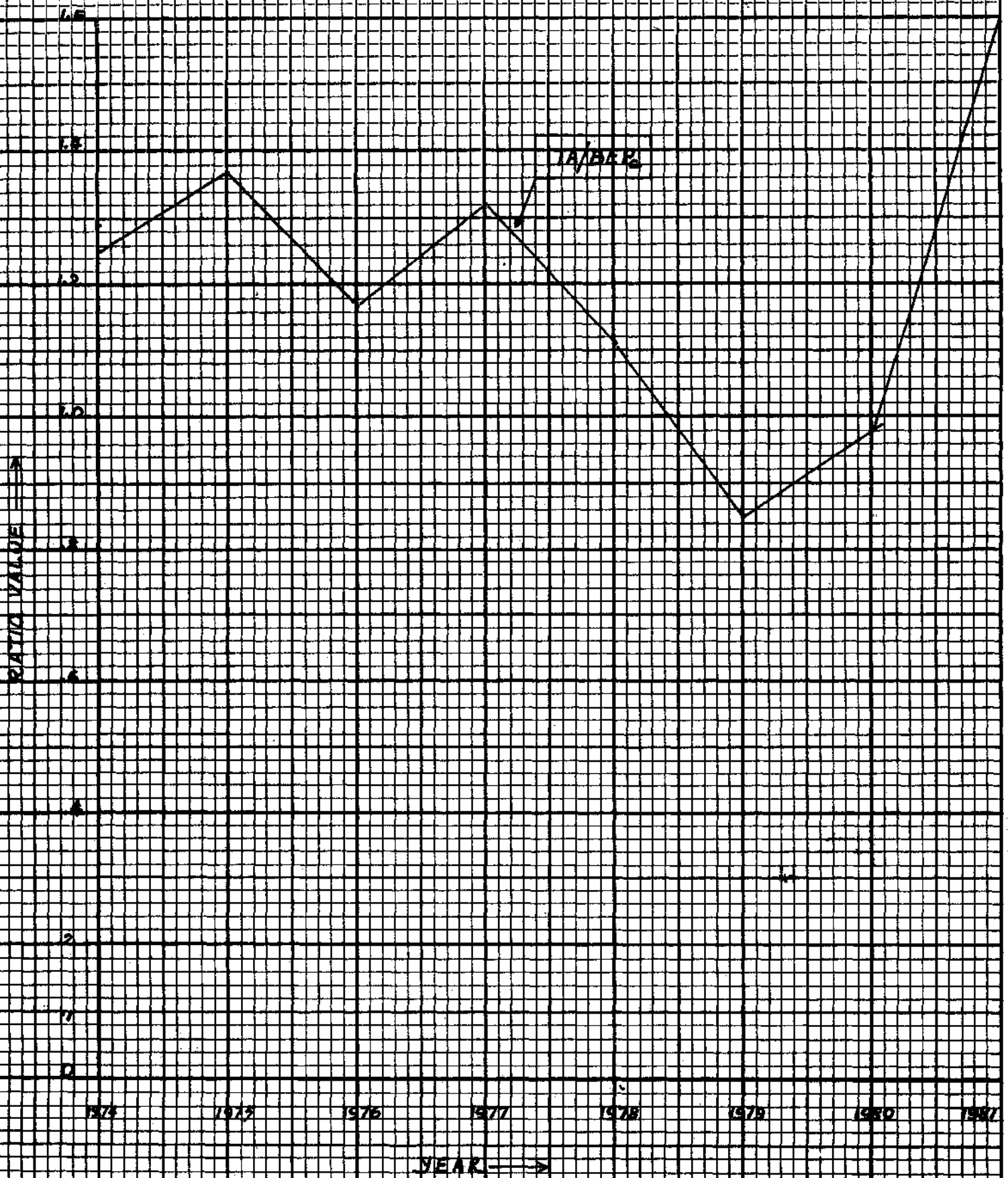
creates risk of insolvency. This relationship between 'owner's
equity' and net block is deemed to be of functional one where the
former is the cause and latter is the effect. This can be visua-
lised from the following equation:

$$\frac{NB}{NW} = NBNW \; ; \; (a \; Ratio)$$

The equation can be transformed into as follows:

$$\frac{NB}{NW}$$

$$= \frac{NB}{NW} + \frac{NB}{Equity} - \frac{NB}{Equity}$$

$$= \frac{NB}{Equity} - (\frac{NB}{Equity} - \frac{NB}{NW})$$

$$= \frac{NB}{Equity} - \frac{NB \cdot NW - NB \cdot Equity}{Equity \cdot NW}$$

$$= \frac{NB}{Equity} - \frac{NB(NW - Equity)}{Equity \cdot NW}$$

$$= \frac{NB}{Equity} - \frac{NB(Reserves)}{NW \cdot Equity}$$

$$= \frac{NB}{Equity} - \frac{NB}{NW} \cdot \frac{Reserves}{Equity}$$

The ratio and its component show the degree of utiliza-
tion of proprietory funds and the nature of financing in fixed
assets. If $NBNW > 1$, it indicates the use of debt capital to a
greater extent in financing FA. A high ratio enjoins higher
depreciation, higher maintenance costs, higher debt servicing costs
and ,thereby, creates pressure situation as all these relate to
current zone (liabilities). Likewise, if $NBNW < 1$, "the networth
is more liquid and the owner's capital is then more effective as
creditor's liquidating protection" [4] and thus provides a desirable

elasticity in liquidity and shields in depression periods. As depreciation is positively correlated with FA, the ratio confirms the managerial effort to have utilization of capacity.

For our sample units in Terai tea, the trend of NBNW can be observed from the equation depicted below:

$$NBNW = 1.0659 - 0.3135\ t;$$

The Terai tea industry is heavily dependent on debt-capital for financing its FA (NBNW $>$ 1). "This is an undesirable condition which indicates the need for additional equity capital!"[5] but within the period under review no firm has expanded its equity base with new issues. Even the permanent working capital has been sustained by borrowing. The ratio is decreasing 0.3135 times annually from its mean value of 1.0659. Funds saved by the way of depreciation is insufficient to meet even the repair and maintenance cost causing NW to decrease by degrees. Besides, the wretched condition of NPNW (Page -42) which is negative [mean value - 0.4906 with a negative slope of time regression (-0.0983)] bears, by and large, a perfect negative correlation with time, depletes the size of NW to the narrowest possible extent. Thus, the increase in the size of NW is because of debt financing and the question of modernisation becomes a distant hope for want of resources.

NET OPERATING FUND RATIO.

Net operating fund provides a measure of the profitability of fixed assets. The profit is the resultant effect of

productivity and depreciation is the measure of fixed asset's liqui-
dated into current assets through production cycle. The "excess of
sales over the expenses that require outflows of funds is called the
net funds provided by operations!"⁽⁶⁾ It is usually a major source
of funds generated through annual profits and depreciation.⁽⁷⁾ The
equation to measure the profitability of fixed assets can be depicted
in the following form:

$$\frac{NOF}{NB} = \frac{\text{Sales Revenue} - \text{Cost of Goods sold} + \text{Depreciation.}}{\text{Gross Block} - \text{Depreciation}}$$

$$= \frac{\text{Net income before tax} + \text{Depreciation (annual)}}{GB - \text{Depreciation}}$$

$$= \frac{NIBT + d. (GB)}{GB - d (GB)} \quad : \quad (d = \text{rate of depreciation})$$

$$= \frac{NIBT + d. (GB)}{GB - d (GB)}$$

Now, considering tax element with NIBT

$$\text{we get,} \quad \frac{(1-t) (NIBT) + d. (GB)}{GB (1 - d)}$$

$$= \frac{PAT + \text{Depreciation}}{\text{Net Block}}$$

It could be observed (Table-III.2) that during first four
years (1974-77) NOFNB (mean values 0.2028) swinged between 0.2134 to
0.2717 with one sharp fall (1975) to 0.0933. For the rest four years
(1978-1981) it burned into a negative one with mean value of
-0.1486. The regression slope with respect to time finally stands
as a negative one decreasing -7.53 per cent annually from the mean
value of 0.0271 for the period under review which can be observed
from the following equation:

$$NOFNB = 0.0271 - 0.0753 \ t;$$

The rise and fall in NOFNB is uneven. The sharp fall during 1978-81 signifies very poor net trading outcome as the marginal tax rate and the rate of depreciation remained more or less constant. The very low value of the ratio clearly indicates the long pay back period of FA. Funds employed in FA failed to generate sufficient flows of net operating fund for the liquidity of industry which was of much necessity as the risk of technical insolvency and, thereby, the legal insolvency of industry was very much high. Freezing of funds in FA had not only reduced the profitability but also the liquidity of funds.

To have a clear view of the tendencies in FA, a study of FATA, NBNW, CGSNB and the NOFNB clearly reveal that NOFNB and CGSNB move diametrically opposite to each other. (The former increases 0.1380 times annually but the latter decreases by -0.0753 times annually). This implies improper relationship between the flow of net operating fund and the cost of goods sold. Again, FATA and CGSNB moves in the opposite direction and, therefore, attests evidence for the proper utilization of FA. The density of NBNW does not reveal its inclination towards NOFNB (the negative value of the regression co-efficient of NBNW is clearly attributable to its only extreme negative value (1981) which is not due to NB but for the negative NW disclosing the effect of net operational results transferred to the equity base. This clearly speaks of inefficient management of funds and their investment. The policies of managing and controlling the available resources appear to have been far away from the financial prudency. The non-cash flow charges like depreciation etc. have not been properly and fairly applied because

of absence of any policy.

DEPRECIATION.

Fixed assets are items not readily convertible into cash in the normal operations of a firm. They are not liquidated in the orderly operations of the firm except as depreciation that is added to the cost of goods sold. Patton and Littleton explained their synthesis that "A unit of plant is a 'store' of service capacity, and the service is rendered in terms of the entire active history of the unit. ... These 'assets' are in fact 'revenue charges in suspense' awaiting some future matching with revenue as costs or expenses".[8] "In any investment the intention is to preserve the initial principal (fund) placed at the risk while realizing maximum return from its use."[9] Firms aim at recovering out of current revenue the amount of investment in fixed assets consumed in the process of generating the revenue and having a sufficient residual income.

"It matters not whether the income is realized in period or lump sum payment, the objective is the same".[10] The reason is that, by being a non-cash charge against operating income in determining net profit, the depreciation (i.e. value of expired utility or loss of usefullness) allowance has had the effect of keeping liquid resources in the business which might otherwise have been distributed in the form of profits. This conversion of FA to CA is referred to as depreciation charge as source of funds.

Of the various permissible methods of depreciation, the Tea industry has accepted the 'diminishing balance method' where

rate of depreciation being constant, the amount of depreciation goes
on diminishing and, thus, is in line with the capacity of assets.
Therefore, from the view point of fund generation, the conversion of
fund of FA via the mechanism of depreciation to CA, also goes on
diminishing.

The adequacy of depreciation charge on FA can be judged
from the below closely-associated-variables of the depreciation, i.e.,
Net Sales (NS), Net Block (NB) and Gross Block (GB).   To asses the
adequacy of depreciation for Terai tea industry, ratios for deprecia-
tion to net sale (DPNS), depreciation to net block (DPNB) and depre-
ciation reserve to gross block (DRGB) have been worked out and given
below:

TABLE - III.4

Depreciation Ratios

Year	DPNS	DPNB	DPGB	DRGB
1974	0.0215	0.0487	0.0254	0.4800
1975	0.0241	0.0505	0.2653	0.4750
1976	0.0245	0.0575	0.0309	0.4629
1977	0.0271	0.0750	0.0420	0.4404
1978	0.0305	0.0738	0.0415	0.4358
1979	0.0302	0.0644	0.0376	0.4158
1980	0.0227	0.0569	0.0321	0.4351
1981	0.0204	0.0565	0.3190	0.4353

Depreciation is a function of use, misuse, maintenance
and obsolescence.   The last one may be occasioned by improved pro-

-duction methods or by such other external causes as changes in demand, and in legislation or regulation leading to reduction of future pro- duction.* Hence, equitable distribution of cost and proper recovery of fund invested in FA is a necessary condition for the survival and thereby, the growth of firm.

The ratio of depreciation (DP) to net sales (NS) discloses amount of depreciation necessary for per-rupee of net sales. The distribution is positively skewed with a co-efficient of + 0.8279. The co-efficient of variation comes to 0.1419 and trend value indicates that:

$$DPNS = 0.0251 + 0.0001 \, t;$$

(Standard error of the estimate = .003)

The reverse trend of DPNS in the latter period have checked the growth rate. This opposite tendency is due to the dissociation of DP with NS. Again, the very small mean value is very much indicative of a very small share of sales that have been set aside for the recovery of long term productive assets.

As DPNB reflects the gross rate of depreciation on all assets, the ratio of total depreciation to gross block (DPGB) with co-efficient of variation of 0.1760, maintaining a very high positive correlation with DPNB reflects the existence of uniform rate of depreciation. The depreciation rate of Terai tea on plants and machinery, is uniform all along, and, more or less, similar nature could be observed on other assets. The low co-efficient of varia- tions in both the DPNB and the DPGB adduces evidence to more or less uniform rate of depreciation, both in relation to the time and the

unit.

The Depreciation reserve is the accumulated fund reco-
vered out of operational activities for replacement. A high DRGB
is thus, indicative of a sound management of funds for productive
assets. Though more or less a uniform pattern of DPGB could be
observed that swings in between 0.4157 to 0.4800 with a mean value
of 0.4475, yet, considering the provision of only 5 per cent of gross
block as scrap value is terms of the Companies Act 1956, this ratio
can hardly cover about 50 per cent of the capital fund in productive
assets. And hence it seems that DR is not a sufficient one for the
long-term growth and survival of the concerned firms. As there is
clamour for the modernisation of the tea industry because of old and
obsolete plants and machinery and other accessories that is telling
upon the productivity as well as qualitative aspects of Terai tea
output, the management initiative is a necessary condition to come
over this lag through redesigning of their existing plans and
programmes.

The above study of management of FA reveals that funds
locked up in FA have not been rightly turned into CA as is required -
and, thereby, it is affecting the liquidity itself. Besides, the
Terai tea shows a sign of over capitalization which is also telling
on profitability and productivity of invested funds. The dispropor-
tionate investment between fixed and current zone created diseconomics
and, thus decisions regarding the allocation and use of funds in FA
need a second thought by the management.

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4. Ibid., p. 293.

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