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16328

REVITALIZATION OF THE HETAUDA LEATHER INDUSTRIES (HLI)

SI/NEP/86/862

NEPAL

Terminal report\*

Prepared for the Government of Nepal  
by the United Nations Industrial Development Organization,  
acting as executing agency for the United Nations Development Programme

Based on the work of  
Geoffrey Shilkin, tannery industry expert and  
Warren Gilbert, economist and financial analyst

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United Nations Industrial Development Organization  
Vienna

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The Foreign Exchange Rate during the period of this study  
was Nepali Rupees 22 = U.S. \$1.00

February 15 to  
April 10, 1987

## INTRODUCTION

This study was conducted during the period 15 February to 10 April, 1987. Its purpose was to assess the present situation of the Hetauda Leather Industries, Ltd., and to prepare a revitalization programme supported by specific financial propositions to revive company operations. The analysts were Geoffrey Shilkin, Tannery Industry Expert, and Warren Gilbert, Economist and Financial Analyst. The report reviews the history of operating problems and deteriorating financial performance of Hetauda Leather Industries Ltd. in Chapter 2. It relates these problems in Chapter 3 to ineffective sales despite active demand in domestic and foreign markets, due in part to difficulties in meeting product standards. Chapter 4 describes the raw materials and consumable inputs of plant operations, and Chapter 5 plant location and site layout. Equipment and machinery capabilities are shown in Chapter 5 to have certain design limitations and need of improved maintenance practices. A general lack of experience and training of both manpower and management is discussed in Chapter 7. Chapter 8 describes the technical and financial basis for a range of revitalization programs which may focus on different markets and products, and Chapter 9 compares the financial and economic results of each.

### Chapter 1: Executive Summary

#### 1.1 Problem Areas

The company started production with new plant and equipment less than six years ago. A sales contract guaranteeing purchase of 75 percent of output seemed to assure penetration of the foreign market, while production for domestic markets was expected to displace the growing volume of imports. The first two years of operation nevertheless produced sluggish sales: the sales/inventory ratio did not reach 19 percent, as finished goods did not meet the specifications of the German investor/importer, and little effort was made to sell to the domestic market.

Foreign management at the plant was limited to one representative of the German investor, whose responsibility was chemical mixes and grading. Domestic management changed three times: the last change leaving the company with no manager for the last two years, during which an accounts administrator has attempted to run the plant. The equipment originally purchased was not of latest design, but was fully priced, and some machinery was not yet installed six years later. An excessive labor force found itself under-employed as daily hide and skin volume never attained even 35 percent of "rated" capacity. Largely unsupervised, and with no formal training, labor interest waned, equipment fell into disrepair as maintenance practices were ignored, and idled machinery was cannibalized to provide spare parts. Failure to meet the industry standards also resulted from improper calibration of equipment to specified tolerances in all areas of the plant. The financial losses which these collective failures produced have wiped out the equity investment and made the company no longer acceptable to the banks for further extensions of credit.

The basis for most of these problems appears to result from inexperience with overall aspects of the business, from purchasing, to supervision of the physical plant,

attention to quality control, and extending to final marketing in the several markets available to the company.

Major problems affecting the plant were found to be as follows: 1) the company did not seek to employ a manager with prior experience in supervising overall plant operations, 2) there were frequent changes in plant administration, 3) labor was untrained in equipment function and calibration, 4) ineffective supervision of equipment operation and maintenance resulted in off-standard products, 5) market requirements were not monitored as to volume, type or standard of product wanted, 6) sales levels provided insufficient revenue to meet working capital requirements or short-term debt obligations, 7) inventories accumulated, 8) hide and skin input volumes were well below plant capacity in all years, 9) an increased dependency on short-term credit doubled short-term liabilities within five years, and finally, 10) consecutive financial losses since year of start-up in January 1982 have eroded creditor confidence and the plant has halted production.

The company has now accumulated debts of Rs 41.3 million (US\$ 1.9 million), which exceeds the value of existing assets. Equity-holders had lost their investment by end-1985, as net worth turned negative and deficits worsened thereafter.

## 1.2 The Potential

At its start-up, the company was a showplace, as a major undertaking in the development process, and the first with capital comprised of government, private, and foreign funds. The economy would have benefitted from value added by use of native raw hides, new employment in an emerging industry, improved foreign exchange earnings, reduced leather imports, and a geographic diversification of industry.

In all these expectations, the company made a contribution. A turnaround from present difficulties, and a future operation which fulfills these promises, still remains.

Existing plant and equipment, while in need of repair work, maintenance, and calibration to specified tolerances, can be readied for production. Limits may remain on volume, among different treatment processes, but a sufficient marketable product can be turned out, under a purposeful management, which forecasts show to be profitable. Ideally, some capital items of equipment might be introduced or modified in important ways. But funds are not expected to be available for more equipment expenditures, from shareholders or creditors long exposed to deterioration of their committed asset values. For this reason, a re-start is proposed with the use of an advance of funds for working capital only, for initial purchase of hides, chemicals, and plant costs on a one-time-only basis. A rapid repayment with an accelerated level of plant activity is the basis for the operating schedules contained in the proposed revitalization program.

## 1.3 Revitalization Program

The revitalization program consists in fact of ten different production options. These alternatives reflect both the range of plant capabilities and the different markets new management may elect to serve. A single plan of action would miss the main point that volume and the type of production are highly variable; choice of a single option forecloses choice of another, so that marketing results and profitability are

predetermined. In order to show how these choices compare to each other, in financial and economic results, and as returns to creditors and shareholders, a better choice may be made by those who must finally decide to emphasize 1) financial payback of creditors, or 2) early restoration of equity, or 3) economic benefits to the nation. For those who may advance the initial working capital, it is shown that a different level of funds is required for each option; a restriction on funds will therefore limit the extent of choice.

Production options range from a hide input volume of 200 daily to 500, with three options providing for production of Wet Blue output only, three other options providing for a combination of Wet Blue and Crust, two options for Crust only, one further option for Wet Blue, Crust and Finished combined, and a remaining option for Finished only. In this way, it is hoped to assemble every possible combination of practical market-and-operating scenario for a comparative evaluation. For each scenario it is shown that there is a corresponding level of working capital required.

Each alternative is evaluated as being mutually exclusive of the others, in order to bring out their special financial and operating characteristics. In fact, this would not be so. Through the forecasted period, it is quite possible for the initial period to begin with Wet Blue, changing after the first year to combined Wet Blue and Crust, and thereafter to other combinations.

In the order of their analysis, each alternative is compared according to:

- 1) The payback period for initial working capital, in weeks.
- 2) The simple rate of return on the payback.
- 3) The annual surplus generated, converted to a monthly sum available for monthly repayments of all liabilities.
- 4) Amounts of payments to individual creditors, in proportion to debt.
- 5) Months to complete total debt retirement.
- 6) Equivalent years to complete repayment.
- 7) In the final year of debt retirement, the value of stockholders equity, as represented by depreciated net plant and equipment.
- 8) Net present value over that time period of the stream of surplus (debt repayments) as the amount of financial gain.
- 9) Internal Rate of Return of these uniform annual surplus amounts against the working capital first committed.
- 10) Economic results, which measure:
  - a) Total employment levels, domestic and foreign.
  - b) Total payroll, domestic and foreign.
  - c) Foreign exchange costs of production.
  - d) Foreign exchange sales values.
  - e) Net foreign exchange earned.
  - f) Ratio of net forex earnings to forex costs.

#### 1.4 Conclusions

The alternative with the highest Net Present Value is number 7: producing 300 wet-blue, 100 crust and 100 finished hides daily. This alternative has a short payback period, retiring all debt in 3.67 years, and providing equity-holders with a surplus over their paid in capital.

Comparative economic analysis also favors alternative number 7. This alternative shows the maximum net foreign exchange earnings and the largest payroll and

employment. It can also supply the domestic market with finished leather, and still maximize foreign exchange earnings.

The different scenarios are presented to demonstrate overall viability of the operating possibilities of the Hetauda plant. By appropriate management of plant and working capital, it is shown that any of these alternatives are workable. Each will repay the advance in less than a year, generate a re-supply of funds for needed purchases of hides and chemicals and operating costs, and yield in addition the needed surpluses for debt repayment, finally restoring the company as a going concern to its stockholders without undue loss of investment. In each case, at the end, economic and financial benefits are regained which are now seemingly lost.

## Chapter 2: Project Background and History

### 2.1 History

Hetauda Leather Industries Ltd. (HLIL) was established on October 25, 1978, under the Nepal Company Act of 1964, with the express purpose of promoting greater self sufficiency in leather production by the use of native raw hides. Related economic benefits were expected to accrue from higher levels of employment in an emerging industrial sector, improved foreign exchange earnings, expanded local supply of shoe leather, reduced levels of shoe imports, and geographic diversification of industry.

The plant is located on about 4 hectares in the Hetauda Industrial District of the town of Hetauda, approximately 170 km by road south of Kathmandu, with the buildings occupying approximately 5900 square metres. The startup of this plant was a major undertaking, impressive in physical appearance and in size of capital investment. It was the first joint stock company comprised of public, private and foreign investment. A German equity participant owns 45 percent of the paid in capital. It was the first plant designed to produce leatherboard from chrome tanning wastes, and the first to receive an overseas credit—from the China National Machinery Import and Export Corporation—for design and construction of plant, and export and installation of all machinery. Initial capitalization estimated by the participants in November 1979, before ground-breaking, was set at Rs 38,770,000, or over US\$3.2 million at the then current exchange rate.

The HLIL plant operated from January 1982 until late 1986. It lost money in every year and is now in default of obligations amounting to Rs 41.3 million.

The chronology of events leading to plant startup are listed below:

Corporate Registration	25 October 1978
Chinese construction team arr.	20 February 1979
Joint venture signed	25 July 1979
Construction begins	13 April 1980
Chinese installation team arr.	30 August 1980
Nepal Industrial Development Corp. Loan approved	1 January 1981
Machinery installation completed	21 January 1981

NOTE: Conversion rate Feb.-Apr. 1987 was Rs 22: US\$1

German technicians arr.	15 August 1981
Trial production	30 August 1981
Chinese technicians depart	12 January 1982
Commercial production starts	14 January 1982

Following trial production runs by the German technical team, and the departure of both the German and Chinese technicians, the plant began operating with a "daily rated capacity" said to be:

100 buffalo hides	200 buffalo hides
250 cow/ox hides	300 cow/ox hides
<u>500 sheep and goat skins</u>	<u>500 pieces total</u>
850 pieces total	(OR) +500 kg of leatherboard

These estimates would turn out to be very optimistic, with installed lining capacity being about 60% of "rated design," and with the level of training and ability of both management and staff well below that needed for successful operations. Production started with 120 people: 35 permanent staff, 85 labourers of which 5 were skilled, 15 semi-skilled and 65 unskilled.

The proposed capitalization of Rs 38,770,000 would finance fixed assets in the amount of Rs 28,438,000 and an initial working capital of Rs 10,332,000 as follows:

Capital Structure		Allocation	
NIDC long term loan	Rs 14,000,000	Land/improvements	Rs 60,000
NIDC guarantee CNMIEC	6,847,000	Buildings/equip.	13,148,000
Deferred credit		Fixtures	100,000
Commercial banks advances	6,141,000	Office equip	50,000
Working capital		Water supply	100,000
Paid in capital	11,872,000	Pre invest exp	1,000,000
		Int. dur. constr.	1,703,000
		Total fixed assets	28,438,000
		Working capital	10,332,000
<b>TOTAL</b>	<b>Rs 38,770,000</b>	<b>TOTAL</b>	<b>Rs 38,770,000</b>

The NIDC loan provided for repayment over 12 years, with a 2 year grace period, and was secured by all fixed assets to be acquired under the loan or by equity capital. A feature of the loan provided that it was contingent upon both an increase in authorised equity, and upon a guarantee by the German participant (Gerfbaut) to purchase 75% of annual output.

NIDC also guaranteed the obligation to CNMIEC for the amount in Sterling of £ 246,582.



In this early period, German (and later Korean) machinery was also put in place, to augment that supplied by the Chinese. It is not known if this was done in recognition that much of the CNMIEC equipment, while fully priced, were copies of older designs which had become relatively obsolete technically. It would later become apparent that this machinery would not function to best effect without continued training of the workforce, and in the absence of overall plant supervision.

A technician employed by Gerbhaut had responsibility only for the quality of deliveries for Germany. Administration of personnel, accounts and hide purchases was by Nepali staff. No centralised authority existed to oversee total production, to include proper calibration of machinery, proper repair and maintenance, worker training and the total production process from beginning to end. This condition existed not only at the start of operations, but strangely persisted throughout the succeeding years of devastating financial losses.

## 2.2 Financial Accounts of HLIL

Income Statements and Balance Sheets are given below for HLIL, for the periods ending in their Fiscal Years 1982 through the first 7 months of FY 1987.

It may be seen from the Income Statements that the level of sales failed to cover cost of goods sold in most years, producing a negative Gross Margin.

The ending merchandise inventory has been shown in the above statements to underscore an aberration of the first two years of operation in particular, and of the remaining period in general. By failure to perceive sales, and inventory turnover, as the means to replenish working capital and to pay off both short and long term debt encumbrance, the management assured itself a worsening debt position by increasing its dependency on borrowed funds.

Erosion of the asset base from Rs 49.9 million to Rs 28.4 million during this brief operating history has been matched by a steady progress upward of short and long term claims against the company. By 1985, the equity holders had lost their investment despite new infusions of capital.

The deteriorating situation of company finances finally led the NIDC, in late February 1987, to issue a demand for full debt repayment by April 3, in order to preserve its claim upon the remaining assets of the company. The two commercial banks which had advanced working capital funds, currently at 17.5% annual interest rates, also claim as security against their current exposure, certain plant, inventory stock and chemicals, which are sealed against use and opened only against payment. For the two banks, this debt now amounts to RS 7.2 million. NIDC claims Rs 25.7 million.

Sundry trade creditors are owed as much as Rs 5.7 million, and some of the original construction contractors and the Industrial District are owed another Rs 1.2 million since the time of plant start up. It may be seen that claims upon the company exceed its total assets, and losses to trade creditors, who are unsecured, are a foregone conclusion. The Directors of HLIL have made no response to the demand by NIDC, nor have they yet convened a meeting to discuss any response.

## INCOME STATEMENTS - HLIL

(Rs 000)

Fiscal Years	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u> (7 Month)
Sales	739	1018	7210	7793	7423	2658
Other Income	37	30	131	109	177	12
<u>Total Revenue</u>	<u>776</u>	<u>1048</u>	<u>7341</u>	<u>7902</u>	<u>7600</u>	<u>2670</u>
<b>Cost of Goods Manufactured</b>						
<b>Direct Materials</b>						
Inventory, beginning	0	4225	6160	4001	3987	4171
Purchases, Chem.	1553	980	1136	1947	1880	399
Purchases, Hides	1998	1102	1110	2281	2494	478
Available Year-end	3551	6307	8406	8229	8361	5948
Inventory, ending	4225	6160	4001	3987	4171	3181
<u>Direct Materials Used</u>	<u>(674)*</u>	<u>147</u>	<u>4405</u>	<u>4242</u>	<u>4190</u>	<u>1867</u>
<b>Direct Labor</b>	<u>346</u>	<u>449</u>	<u>354</u>	<u>465</u>	<u>437</u>	<u>219</u>
<b>Factory Overhead</b>	<u>(1637)**</u>					
Indirect Labor	85	64	327	352	439	205
Supplies	82	57	16	51	49	21
Heat.Light.Power	461	432	324	562	684	284
Depreciation	1329	2473	1749	1589	1446	768
Rents	61	53	56	196	219	112
Repair, Maintenance	43	129	129	141	227	70
Insurance	136	147	159	125	120	19
Transportation	0	128	141	116	101	36
<u>Factory Overhead</u>	<u>2197</u>	<u>3483</u>	<u>2901</u>	<u>3132</u>	<u>3285</u>	<u>1515</u>
<u>Cost of Goods Sold</u>	<u>232</u>	<u>4079</u>	<u>7660</u>	<u>7839</u>	<u>7912</u>	<u>3601</u>
<u>Gross Margin</u>	<u>600</u>	<u>(3108)</u>	<u>( 548)</u>	<u>( 7)</u>	<u>( 312)</u>	<u>( 931)</u>
<b>Selling, General, Admin. Expense</b>						
Commissions, Discounts	447	90	172	402	308	109
Salaries, Dir. Fees	356	456	309	387	389	163
General	363	212	211	102	123	109
Medical Services	51	102	116	86	92	45
<u>General Admin.</u>	<u>1217</u>	<u>860</u>	<u>808</u>	<u>977</u>	<u>912</u>	<u>426</u>
<b>Financial</b>						
Interest	1412	2747	3088	3152	2410	1775
Bank Charges	22	26	33	225	5	8
<u>Financial Costs</u>	<u>1434</u>	<u>2773</u>	<u>3121</u>	<u>3377</u>	<u>2415</u>	<u>1783</u>
<u>Total Operating Cost</u>	<u>2883</u>	<u>7712</u>	<u>11589</u>	<u>12193</u>	<u>11239</u>	<u>5810</u>
<u>Profit or (Loss)</u>	<u>(2107)</u>	<u>(6664)</u>	<u>(4248)</u>	<u>(4291)</u>	<u>(3639)</u>	<u>(3140)</u>

Fiscal Years correspond to ending period of July 15 each year.  
Nepali Fiscal Years which correspond are:

2038/39    2039/40    2040/41    2041/42    2042/43    2043/44

\*Inventory valued at market rather than at cost produces negative use.

\*\*Special credit taken: capitalization of pre-operating expenses.

## BALANCE SHEETS - HLIL

(Rs 000)						
Fiscal Years	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u> (7 Months)
<b>Current Assets</b>						
Cash Available	1159	13	450	129	83	72
Prepaid Expense	204	184	163	252	235	246
Letters of Credit	661	1121	2390	1244	1243	1243
Receivables	8876	1900	0	0	56	1
Parts, Spares	3991	3258	2416	2240	2018	2268
Merchandise Inventory	<u>4225</u>	<u>6160</u>	<u>4001</u>	<u>3987</u>	<u>4171</u>	<u>2987</u>
<b>Total Current Assets</b>	<u>19116</u>	<u>12636</u>	<u>9420</u>	<u>7852</u>	<u>7806</u>	<u>6815</u>
<b>Fixed Assets</b>						
Plant, Equipment	30109	29958	26421	24676	23087	21641
(Less Depreciation)	(1528)	(3984)	(1749)	(1589)	(1446)	(768)
Net Plant, Equipmt	28581	25974	24672	23087	21641	20874
RHCDC Investment *	<u>258</u>	<u>258</u>	<u>708</u>	<u>708</u>	<u>708</u>	<u>708</u>
<b>Total Fixed Assets</b>	<u>28839</u>	<u>26232</u>	<u>25380</u>	<u>23795</u>	<u>22349</u>	<u>21582</u>
<b>Total Assets</b>	<u>47955</u>	<u>38868</u>	<u>34800</u>	<u>31647</u>	<u>30155</u>	<u>28397</u>
<b>Current Liabilities</b>						
Accounts Payable						
Sundry Creditors	1319	2333	1510	2984	3678	4018
Provision for Expend.	2471	3237	3177	2778	2778	2778
Other	167	946	892	994	986	968
Notes Payable						
Bank overdraft	0	700	700	700	780	783
Bank Import Loan	0	0	331	56	56	56
Interest	1639	2642	3481	3415	5825	7196
Directors' Loan	400	400	900	1400	1400	1400
Commercial Banks	<u>5833</u>	<u>6840</u>	<u>5813</u>	<u>5427</u>	<u>6024</u>	<u>5961</u>
<b>Total Curr. Liabil.</b>	<u>11829</u>	<u>17098</u>	<u>16804</u>	<u>17754</u>	<u>21527</u>	<u>23160</u>
<b>Fixed Liabilities</b>						
CNMIEC Credit **	5869	4911	3748	2687	2687	2687
NIDC Loan Guar.	0	0	1163	2225	2225	2225
NIDC/Fixed Assets	<u>8668</u>	<u>11553</u>	<u>11553</u>	<u>11553</u>	<u>11553</u>	<u>11553</u>
<b>Total Fixed Liabil.</b>	<u>14537</u>	<u>16464</u>	<u>16464</u>	<u>16465</u>	<u>16465</u>	<u>16465</u>
<b>Total Liabilities</b>	<u>26366</u>	<u>26322</u>	<u>33268</u>	<u>34219</u>	<u>37992</u>	<u>39625</u>
<b>Surplus and Net Worth</b>						
Capital Paid In	13641	14096	15000	15000	15000	15000
Accumul. Loss	0	(2107)	(8771)	(13019)	(17310)	(20949)
Loss for Year	(2107)	(6664)	(4248)	(4291)	(3639)	(3140)
Surplus/Deficit	<u>10055</u>	<u>7221</u>	<u>(449)</u>	<u>(262)</u>	<u>(1888)</u>	<u>(2139)</u>
<b>Total Net Worth</b>	<u>21589</u>	<u>12546</u>	<u>1532</u>	<u>(2572)</u>	<u>(7837)</u>	<u>(11228)</u>
<b>Total Liabilities and Net Worth</b>	<u>47955</u>	<u>38868</u>	<u>34800</u>	<u>31647</u>	<u>30155</u>	<u>28397</u>

\* Raw Hide Collection and Development Corp.

\*\* China National Machinery Import and Export Corp.

### 2.3 Evaluation of Company Problems

In a study carried out between March 17 and July 5, 1978, a UNIDO leather expert<sup>1</sup> found "a compelling need for outside assistance to the whole industry." The dominant user of cattle and buffalo hides, the Bansbari Leather & Shoe Factory (BLSF), established in 1965, along with six other tanning companies producing wet blue goatskins, local cobblers, and rural traditional tanners using vegetable tanning processes, were the subject of his findings that: 1) the total collection of hides and skins fell short of available supplies, 2) production had not proceeded far beyond the wet blue stage, 3) existing productivity was very low, and 4) out dated and inefficient processes were combined with lack of managerial and technical skill.

Many of these comments would still apply to HLIL today. The existing predicament of the company has resulted from many causes. Some financial performance indicators are shown below which identify the main problems. Foremost among these are daily hide usage.

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Daily hide input	168	139	74	126	91
As % "Rated" daily cap.	34	28	15	25	18

Low daily production volumes meant under-utilised plant and equipment. Low volume inputs resulted in high unit costs of production. Exact costs cannot be known, as high inventories were carried as Rs values and not in square feet of output. No records were maintained of machine hours and labor hours utilisation.

Other daily performance indicators reveal that sales were well below the needed level to generate the cash and working capital to provide for further hide and chemical purchases, or to meet the full amount of short term liabilities.

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
(Average Daily)					
1) Sales/Inventory ratio %	18.4	17.0	183.0	198.0	182.0
2) Inventory/Loss ratio %	95.6*	92.4	94.2	92.9	114.6
3) Inventory & Sales (total goods produced) % to Current Liabilities	42.3	42.2	67.5	67.0	54.7

\*Before capitalized expenditures.

<sup>1</sup> Assistance to the leather industry: Nepal, Bo Lunden, 10 August 1978, SI/Nep/78/801.

1) The Sales/Inventory ratio measures the proportion of annual output sold to that remaining unsold and carried as inventory. The carrying of high inventories is especially marked in the first two years, when sales were less than 20% of ending inventories. A new manager, arriving in 1984, managed to accelerate sales of inventory, increasing total sales from 138,118 sq ft in 1982 and 156,816 sq ft in 1983 to the level of 1,057,007 in 1984. Sales revenues (omitting other income) rose from Rs 739,000 and 1,018,000 to Rs 7,210,000 in 1984.

Had the company been able to produce at only half the rated level of hides daily capacity i.e., 250 hides per day input, and to sell produced goods promptly (as shown in scenarios ahead), HLIL would have earned a profit of Rs 4.7 million in 1984, rather than sustaining a loss of Rs 4.2 million.

2) The relative importance of a continuing and aggressive sales effort is demonstrated by the Inventory/Loss ratio above. The amount of inventory carried is about equal to the loss for each year. Sale of the inventory would provide a near break even. However, at these low levels of output (hides daily), and with no strong sales effort, consecutive financial losses were unavoidable.

3) A further implication of these weaknesses is shown by the ratio of Total Value of Goods Produced to Current Liabilities. If everything produced had indeed been sold, the sales would not have generated enough funds to pay off due obligations. That is, Total Goods Produced amounted to only 42 percent of Current Liabilities in the first two years, and never rose above 67.5 percent during the five-year period. Production was geared at too low a level. This was because daily hide inputs were much below plant capacity; without higher production levels there could be no way to meet the existing liabilities. As a consequence, dependency increased for short term credit. From 1982 to 1986, current liabilities increased from Rs 11.8 million to Rs 21.5 million. The progression of indebtedness is reflected in the following ratios.

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
(Average Daily) %					
Net Working Capital	24290	(14873)	(24613)	(33007)	(45735)
Fixed Assets/Net Worth	134	209	1656	(Negative Base)	

Net Working Capital (the surplus of Current Assets over Current Liabilities) became negative in the second year of operation. The combined total of Cash, Receivables, Inventory, was less than currently payable obligations. To meet these obligations, plant utilization must increase, to produce more sales revenue, enhancing Cash, Receivables, and other Quick (cash) assets. As noted above, conversion of Inventory to Sales by itself would not achieve this, because the level of inventories carried, while relatively high, were not absolutely high enough to have furnished a sales level sufficient to meet all current obligations, along with existing sales.

Failing to produce sufficient revenues to provide a gross margin, the company had recourse to depreciation charges to pay Selling, General and Administrative Expenses. Little remained thereafter for interest and bank charges. The losses which followed sharply reduced net worth. In the start-up year of 1982, HLIL had already violated a general rule that for a manufacturing firm Fixed Assets should not be allowed to exceed 100% of Net Worth.

It was the commonly shared belief in Nepal that the company was overcapitalised. The substance for this belief lies mainly with the poor debt performance of HLIL, and the company's seeming inability to increase sales. The underlying reason for such poor performance, however, was the under utilisation of the plant and equipment, as described above. Other measures of company performance show continuous liquidity problems, in part traceable to slack inventory turnover. The return on investment, measured by either return on assets or return on sales, reflects the failure of management to perceive the basic causes for company losses, and to take corrective action.

(Annual Ratios)	1982	1983	1984	1985	1986
<b>Liquidity</b>					
Quick Assets: Current assets - Inventories/Current Liabilities.	1.26	0.38	0.32	0.22	0.17
Inventory Turnover: Cost of Goods Sold/Average Inventory	0.60	0.66	1.91	1.96	1.90
<b>Return on Investment</b>					
Turnover: Sales/Total Assets	0.016	0.026	0.211	0.249	0.252
Profit Rate: Net Income (Loss)/Sales	(2.71)	(6.36)	(0.58)	(0.54)	(0.48)
<b>Leverage</b>					
Debt Equity: Long-term Debt/Equity	0.67	1.31	10.75	(Negative net worth)	

The company is shown to have become rapidly illiquid by carrying excess inventories and achieving too low a volume of output and sales. Such inventories reduced Quick Assets well below the level of 50% of current liabilities after the first year. The failure to manage the company's total assets in order to obtain a reasonable return on investment is directly traceable to the low sales volume: only 1.6% in 1982 of the value of total assets, and only marginally improved thereafter. The profit rate therefore reflects annual losses as multiples of the sales volumes in the first two years (these were the years of minimal sales, which improved in volume in later years). The Debt-Equity ratio was not originally highly leveraged, but as a result of consecutive losses, mounted rapidly in later years as sales failed to keep pace with even minimal output levels, and net worth became finally negative.

A management oriented to controlling sales and inventory with a view to maximising profit, would have obtained greater output, pursued a sales programme to greatly increase sales turnover, and produced a self generating volume of working capital sufficient to repay short term advances and to eliminate further credit dependency as rapidly as possible after start up.

### Chapter 3: Market and Plant Capacity

#### 3.1 Marketing

HLIL had its own special problems when considering the various aspects of marketing. They, like BLSF, had to take the Buffalo and Cow hides delivered to them by RHCDC and make from them what they could. They did not have years of experience with the local raw material as did BLSF, and more importantly they, unlike BLSF, did not have a shoe factory attached where otherwise unsaleable material could be sent for profitable disposal.

In this position there were only two ways in which they could move. One was to try to make goods from the raw material supplied to the standard being asked by their buyer (Gerbhaut), and the other was to try and find other buyers who would be interested in the goods they were able to produce from the raw material being delivered by their supplier.

Inspection of the sales records shows which direction was initially taken. Unfortunately there was no consideration of disposal of the remaining production, which would have required using the second marketing option available, i.e., to find a buyer for that part of the production which was not acceptable to Gerbhaut. This situation was allowed to continue for 2 years and more before any action was taken to dispose of a steadily increasing stock of material unacceptable to Gerbhaut.

It would appear that the future situation may be very different to that of the past. According to RHCDC it is now possible to purchase the specific types of raw material required by the buyers and therefore one of the major problem areas of the past will be removed. However, RHCDC has not yet been called on to deliver regular quantities of the required types of raw material to HLIL on an ongoing basis. This will be essential if HLIL is to re-establish itself as a steady producer in the market, and as one which can deliver regular quantities of the correct material of an acceptable standard and quality.

#### 3.2 Company Sales Records

In the past 6 fiscal years the HLIL markets for leather products have included sales to the domestic market and to markets in Germany and India. Annual sales by HLIL during its operation have been distributed as follows:

Fiscal Year	Total Sales		Local Sales		Foreign Sales	
	Sq. Ft.	Rs 000	Sq. Ft.	Rs 000	Sq. Ft.	Rs 000
1982	138118	738.9	3118	34.5	135000	704.3
1983	156816	1017.9	36206	420.2	120610	597.7
1984	1057007	7210.4	226029	2052.3	830978	5158.2
1985	913767	7792.8	381638	3610.6	532130	4182.2
1986	634107	7154.9	319959	4087.4	314148	3067.5
1987 (7mo.)*	311753	3671.9	87170	1239.4	224583	2432.5

\* Fiscal years begin July 16 of year preceding calendar date shown.

These sales records show a rise in sales in 1984, after a slow start, and a good performance in foreign markets from the beginning—in proportion to total sales. The composition of sales, as wet blue, crust, finished and other, are shown in Appendix tables, along with the foreign sales breakdowns.

The guaranteed purchase by Gerbhaut of 75% of output appears also to have been modified by unanticipated company problems in meeting standards. In the first two years, all foreign sales were to Gerbhaut, but total sales of all kinds never approached 75% of output (ending inventories were 5.4 times the value of sales in 1982 and 5.9 times their value in 1983). This departure from expected marketability of sales goods contributed importantly to the early year losses. It may also have led to seeking exports to India in the years following.

The changing composition of these markets is illustrated below.

	Percent Distribution of Local and Foreign Sales (Rs Value)				Average Price/Sq. Ft. (Rs) (Omits Kg weights and values)		
	Local	Foreign	Gerbhaut	India	Local	Gerbhaut	India
<u>1982</u>	4.7	95.3	95.3	0	10.19	5.22	—
<u>1983</u>	41.3	58.7	58.7	0	10.87	4.95	—
<u>1984</u>	28.5	71.5	40.3	31.2	8.02	6.29	6.10
<u>1985</u>	46.3	53.7	21.1	32.6	9.06	7.38	8.20
<u>1986</u>	57.1	42.9	0	42.9	11.87	--	9.76
<u>1987</u>	33.8	66.2	27.2	39.0	13.45	9.98	11.51

Different mixes of sales items to the different customers, in different years, in part accounts for the variations both in sales volume and in the unit prices paid on average. Details of the kinds of leather product sold, and gross price paid for each, may be found in the Appendix tables. As these prices also are ex-factory, it seems apparent that price concessions may have been offered on foreign sales, accordingly as cif prices rise with distance of shipment. The relationship between Local-India-Gerbhaut average prices reinforces this view: at no time did Gerbhaut buy the lower value wet blue, even though both Local and Indian sales consisted of enough wet blues to lower average prices paid. Notwithstanding this fact, average prices paid by Local and Indian buyers exceed prices paid by Germany.

In 1984 and 1985 Local sales of wet blue accounted for 6 percent and 9 percent of total sales. These sales could only have been made to the Bansbari Leather and Shoe Corp. Local sales thereafter became negligible (only 26 sq. ft.), with India accounting for all wet blue sales in substantial amounts.

The sales record above raises questions about management motivation. In the first two years of operation it is said that a general recession afflicted the leather industry. Yet, given the price disparity between foreign sales and local sales in that period, and the minimal marketing effort of HLIL, it is clear that an effort to expand local sales would have earned two Rupees for every one Rupee earned in foreign sales. While foreign sales



were important to repaying the foreign debt guaranteed by NIDC, it was not the only debt faced by the company. Unexplained also, are the reasons for Local sales of wet blue to a rival company, when further processing could result in improved earnings by sale to different local outlets. The absence of any sales to Gerbhaut in 1986, and declining volumes since 1984 in sales to Germany, may reflect only the ambiguities which have arisen since the time of the first loan agreement and the ability of management to meet specified standards of output.

While quality variations exist in significant degree in both supply and in the production processes applied at HLIL, and require that separate grades be marked for different kinds of sales items, the extreme variations noted above in both volume, value, and distribution of sales, cannot be readily explained.

### 3.3 Nepal's Leather Trade

The total size of market for the output of Nepal's leather producers has been variously estimated in the past. The local market was reported to consist of demands mainly for footwear (uppers, sole, and leatherboard and linings), and was served by both domestic tanneries and Indian imports (mainly) of finished footwear along with footwear components. In the report issued by UNIDO in August 1978<sup>1</sup> and from records kept by the Nepal Trade Promotion Center, the volume of production and imports of shoes were given as follows:

<u>Pairs of Shoes</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u> (9mo.)
Domestic Production	65757	69983	83269	83494	70044	58189	54855	43361
Imports	--	--	--	255000	267000	359000	337000	---
				337494	337044	418189	391855	
Nepal Producers as %				24	21	14	14	

Further information on domestic production for the more recent period could not be obtained. But external trade data showed that Nepal has entered into export of shoes while continuing to import.

<u>Pairs of Shoes</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Exports of Nepal	7862	NA	80	14200
Imports (India)	---	NA	21948	386265
Imports (Other)	Quantities not given; Values shown only.			

The value of shoe imports from countries other than India are two to three times the value of Indian exports to Nepal. However, in recently amplified trade accounts, some shoes

which are made of plastic and imitation leathers may appear in import categories. Singapore and Hong Kong newly export to Nepal.

Other local demands for domestic leather are by cobblers, who were said to produce 75,000 pairs of shoes annually. An unstated quantity of sandals are also produced, and are as commonly worn. In addition to footwear, some local demands exist for leathers for knife sheaths, straps, wallets, bags, and cases. Bansbari Factory is understood to have a contract to provide the Nepal military with leather boots, and is designated to receive through NIDC earmarked IDA credits for expansion of its leather and shoe operations. With approval of the IDA credit, expansion of Bansbari shoe production is expected to go from 80,000 to 180,000 pairs annually.

Estimates of the total local demand for leather show components in the regional Kathmandu market area, by a buyer and the Hetauda management, range from 3,000 - 4,000 square feet per day. Hetauda production of finished leathers, on the other hand, was only 1039 square feet per day in the FY 1986 period of maximum finished leather production; 97 percent of this output was in fact sold locally. The proposed expansion of Bansbari Leather and Shoe production to 180,000 pairs annually mainly relates to start-up of a canvas shoe facility. If this output is put in terms of equivalent finished leather, and is assumed to diminish the remaining demands for leather shoes, canvas shoe output would be on the order of 1500 sq. ft. per day on a 300 work-day per year basis (at 2.5 sq. ft. per pair of men's, women's, and children's combined, or 450,000 sq. ft. annually). This output represents about 43 percent of demand at full plant operation, whereas Hetauda's 1039 sq. ft. per day output maximum was almost 30 percent, sold through distributors to cobblers in the Kathmandu region. It is likely that a wider market region may be served by the canvas shoe factory, as would be expected for fully fabricated goods, thus lessening its impact upon Kathmandu regional markets.

Because of inroads into the total market being made by canvas, sandals, and imitation materials, by imports and future local production, comparative demands for leather footwear must remain uncertain. The World Bank Staff Appraisal Report of Nov. 12, 1984, which set forth the expected financial arrangements for the IDA credit to Bansbari, estimated aggregate shoe demands for Nepal in the following fashion:

<u>Annual Usage</u> (pairs)	Leather footwear	Rubber sandals	Canvas shoes	Fashion sandals
<u>Domestic Supply</u>				
Tanneries	94,620	250,000		
Regional/village	<u>141,054</u>	<u>--</u>		
	235,974	250,000		
<u>Imports</u>				
India	241,000	60,373	66,784	78,039
Others	<u>--</u>	<u>77,821</u>	<u>270,170</u>	<u>9,466</u>
<u>Total</u>	476,974	388,194	336,957	99,505
<u>Aggregate:</u>				
(1,290,630)	37%	30%	26%	7%

According to these counts, recent shoe demands were only 37 percent for leather footwear, of which only 18.3 percent was supplied domestically, or about 49.5 percent of leather demands. This demand is equivalent to 3974 sq. ft. per day, at 2.5 sq. ft. per pair over 300 working days, largely confirming the upper limit of presently estimated local demands for the Kathmandu market area. While the World Bank estimate is for total demands, it would be expected that the greatly different climatic conditions between southern, middle and northern Nepal suggest greater use of leather in the middle and northern areas, for most seasons of the year, and more use of rubber and canvas in the southern (Terai) region. Other market considerations which affect choice, and cannot be forecasted with certainty, are relative price, durability, intended use, the strength of the present vogue for canvas shoes, and relative income distribution throughout both urban areas and different regions of Nepal.

Moreover, export markets for Hetauda's products exist, whatever the limitations of local markets may be, and historically have accounted for 49 to 98 percent of HLIL production. Because exports fulfill two of the early premises on which the company was founded (improved foreign exchange earnings and reduced levels of shoe imports), future forecasts of the operation of this plant are based almost wholly upon export of product.

### 3.4 Exports and Imports

Nepal prohibits by law the export of unprocessed hides and skins. The most recent complete annual figures for export and import of hides and skins as wet-blue, crust, and chrome full-finished are for the year 1985.

	<u>Hide Exports</u>		<u>Hide Imports</u>	
	Pieces	Value (Rs 000)	Pieces	Value (Rs 000)
Wet Blue	326174	26007	3854	21 (India)
Crust	20821	2642	(Not reported by type or by volume)	
Full-finished	45638	6037		
<u>Total</u>	<u>608267</u>	<u>34685</u>	<u>NA</u>	<u>19458</u>
	<u>Skin Exports</u>		<u>Skin Imports</u>	
	Pieces	Value (Rs 000)	Pieces	Value (Rs 000)
Wet Blue	8805907	427623	5653	277 (India)
Crust	8300	183	(Not reported by type or by volume)	
Full-finished	518501	18455		
<u>Total</u>	<u>9332708</u>	<u>446261</u>	<u>NA</u>	<u>NA</u>
<u>Combined:</u>	<u>9940975</u>	<u>480947</u>		
Hides as % of Total:	6.1	7.2		

Source: Trade Promotion Center

While import accounts are not recorded in a way similar to exports (and trade with India is left entirely out of accounts of foreign trade published by the national Trade Promotion Center), export accounts above include trade with India and all other countries, and show that most leather trade is composed of goatskins. "Pieces" exported by Hetauda in 1985 were 17,540 to Germany and 13,227 to India, or 30,767 (equal to 5 percent of the total), valued at Rs 4,182,253, or about 12 percent of total hide export values. Some pieces are sold as sides, or about one-half the hide dimension, so that exact correspondence of Hetauda sales by volume with export sales by volume is not certain.

Moreover, some doubt attaches to the total number of "hides" reported as exports: the number of pieces exported exceeds the combined capacities of both HLIL and Bansbari (BLSF). No other hide tannery exists in the country. Neither HLIL nor BLSF operate at full capacity. At full capacity, combined output, all for export, would be less than 350,000 pieces annually, or about 57 percent of reported exports. This large discrepancy of export figures with production capacity makes evaluation of HLIL potential in export markets very inexact. If hide exports were in fact at the more likely level of 200,000 pieces, HLIL would have accounted for slightly over 15 percent. Inasmuch as this was achieved at 25 percent of capacity (126 hides daily), HLIL's full capacity output at 500 hides daily indicates a potential for export of 150,000 hides annually, or 75 percent of likely existing annual export levels.

However, Nepal's trade with India in hides, skins, leather goods and other products does yield important measures of bilateral trade, and of Hetauda's contribution to that trade. Of first importance is the overall national trade deficit on current account, both with India and with all other trading partners. In the recent period, trade deficits for Nepal have been the subject of government concern. These accounts are shown below.

<u>Total Trade Balance</u>	Imports	Exports	Deficit
	(Rs 000)		
Nepal fiscal Year			
2039/40			
or 1982/83	3,564,086	289,692	
+ India	2,499,595	843,314	
	<u>6,085,976</u>	<u>1,144,606</u>	4,941,370
2040/41			
or 1983/84	3,388,080	483,738	
+ India	3,058,031	1,160,668	
	<u>6,493,671</u>	<u>1,684,747</u>	4,808,924
2041/42			
or 1984/85	3,981,363	1,118,978	
+ India	4,035,155	1,612,457	
	<u>8,047,035</u>	<u>2,760,017</u>	5,287,018

As shown above, Imports of Nepal have increased by 32 percent during this three year period. But imports from India have increased by 61 percent. Exports have risen at a

more rapid rate overall, increasing by 141 percent, but exports are still only 34 percent of the value of imports, although improved from their 1983 level of about 19 percent. Imports from India have increased by 91 percent.

Nepal Customs officers estimate that the deficit in trade with countries other than India is more than compensated by remittances by Nepali soldiers in foreign service, and by earnings from tourism, in the invisible accounts. The trade imbalance with India has no similar cost offset, and expanded exports in the goods account are much desired. The re-start of Hetauda can be expected to aid in correcting this imbalance of trade. A review of Nepal-India trade in hides and related items will show the relative contribution of HLIL during a period of slack production, and for which sales to India did not dominate total HLIL sales.

(Volumes)	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Nepal Exports to India</u>				
Buff and Cow hides	30955	*	261272	300857
Pairs of shoes	7862	*	80	14200
Live Buffalo	9625	15215	18152	14074
<u>HLIL hides to India</u>	**	16901	13227	15718
<u>Nepal Imports from India</u>				
Buff and Cow hides	19160	*	3854	1944
Pairs of shoes	NA	*	21948	386265
Live Buffalo	56441	173083	78802	71706

\* Accounts for 1984 could not be located by officials.

\*\* HLIL exported 11038 pieces to Germany only in 1983.

These accounts show some favorable characteristics of hide exports to India: exports exceed imports of buff and cow hides, and live buffalo imports from India replenish animal stock on balance, while India enjoys a surplus in fabricated leather products (shoes) but is buying Nepali shoe exports not previously seen in trade figures of prior years.

While exports of hides appear to be overstated in this data also, HLIL exports to India, originating out of sub-optimum production and sales levels, accounted for the following proportions of reported exports:

(Export Volumes)	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
HLIL as percent	--	--	5.1	5.2

If sales to Germany in 1983 had instead been sold to India, the percentage contribution would have been 35.6. The apparent rise in buff and cow hide exports to India generally reflects the high volume use of leather goods by India, and reexport by India of a large volume of leather goods, in various finishes and for different markets, of high, low, and medium grades.

Expressed as value of trade with India, HLIL exports to India are seen to be an important element in foreign exchange balances. If value figures are overstated, HLIL's contribution is then greater than shown.

(Trade Values) (Rs 000)	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Nepal Exports to India</u>				
Buff & Cow hides	1393	5644	14370	19605
HLIL hides	--	2254	2541	3067
HLIL as %	-	40	18	16
<u>Nepal Imports from India</u>				
Buff & Cow hides	958	720	212	112

An idea of the potential of HLIL to correct the imbalance of trade with India can be obtained by reference to historic sales levels by HLIL, even though total sales annually were well below effective capacity.

(Rs 000)	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Total value of HLIL sales	1018	7210	7793	7155
As % Total Nepal Exports to India of Buff and Cow hides				
(%)	73	128	54	36

It is clear from trade accounts that HLIL could have made a major contribution to export trade in volume and value, if a motivated sales effort had been in force. Because of Nepal's limited capability for exports, much importance was placed on the establishment of HLIL as a new and effective factor in improving the trade balance. The major benefit of trade with India results from Indian demands for wet-blue and crust as well as finished leathers -- which preserves for Nepali producers some sales of finished in the local market (competing with imports), while permitting export of semi-finished (a less costly-and-complicated product) not commonly demanded by other markets.

### 3.5 Production Machinery

A list of HLIL machinery and equipment, shown below, indicates the kind of installed tanning machinery in place at the plant. Some German and Korean machines are

indicated; the rest are the original contracted lot from China. In this section, some characteristics of their operation are noted. A later chapter will describe functional problems associated with design, level of maintenance, and plant layout of the machinery.

### Existing Machinery

Hide Fleshing machine 2700 mm  
 Skin Fleshing machine 1500 mm  
 Skin Unhairing machine 1200 mm  
 Splitting machine 1800mm  
 Splitting machine 2700 mm  
 Shaving machine 1500 mm  
 Shaving machine 1500 mm  
 Shaving machine 450 mm  
 Shaving machine 1800 mm Korean  
 Sammying machine 3000 mm German  
 Vacuum drying machine 2 table 3500x1800 mm  
 Setting/sammying machine 2200 mm German  
 Toggling machine 36 frame 3000 mmx 1800 mm German  
 Vibration staker 1500 mm  
 Slocomb staker Korean  
 Drum setting out machine 600mmx1500 mm  
 Buffing machine 1800 mm German  
 Air duster 1800 mm German  
 Buffing machine 600mm  
 Buffing machine 600mm  
 Hydraulic press 1370mmx900mm  
 Auto spraying machine 1500mmx25m  
 Electronic measuring machine 1800mm  
 Sole rolling machine 2700mmx20mm

### Drums

Lime drums	3 each	2.5mx3.0m
	4 each	2.5mx2.5m
Tan drums	1 each	2.5mx3.0m
(Chrome)	4 each	2.5mx2.5m
(Vegtan)	1 each	2.5mx2.5m
(Retan)	1 each	2.5mx1.8m
(Milling)	2 each	2.5mx1.8m

The stated design capacity of the plant was set at 500 pieces per 8 hour day (either 200 Buffalo and 300 Cow/Oxen OR 100 Buffalo, 250 Cow and Oxen and 500 Sheep and Goat), but this capacity was never installed completely. This was likely due to lack of capital at the time.

Beamhouse capacity was set at a total of 13000 kg in 7 drums: 4 of 2.5mx2.5m, each loading 1600 kg, and 3 of 2.5mx3.0m, each loading 2200 kg. These load sizes are well below the accepted level for drums of these dimensions (2400 kg and 2800 kg respectively), due mainly to high gearing which gives minimum drum speeds of 6 rpm. No explanation was available for this speed having been installed.

A similar situation exists in the tanyard, where there are 4 drums of 2.5mx2.5m and 1 drum of 2.5mx3.0m. These carry 1600 kg and 2400 kg of pelt weight respectively. This allows a daily average input to tanning of 4400 kg (4800 kg and 4000 kg). In order to make maximum use of the liming capacity a short term pickle must be used as the salt weight to pelt weight ratio is of the order of 1:1.6. This variation is probably due to insufficient soaking (rehydration).

The Beam/Tan mechanical equipment is adequate to cope with present installed drum capacity; however, neither splitting machine is in satisfactory condition. One is

sealed and cannot be run but is reported to have some defects, while the other is in running condition but has several major problems affecting accurate operation.

Within the production area to crust there are some problems with drying only; shaving, dye drums and setting out are fully adequate. The vacuum dryer has limitations due to design and to lack of regular maintenance. Unfortunately, this machine is also sealed by the electricity authority and could not be run. Questioning of the staff of Hetauda Leather Industries Limited (HLIL), and inspection of an identical machine at Bansbari Leather and Shoe Factory (BLSF), was sufficient to make the judgement as to its capacity and usefulness. Some added difficulties may be experienced with further drying in the monsoon season.

Staking capacity is fully capable of processing the design maximum. Toggling capacity is close to its limit at the present production maximum. But no information regarding operating temperatures was available, so it is possible that higher throughputs may be obtained once the machine is working and necessary adjustments can be made.

Buffing and dust removal capacity is well above production requirement and both machines are in good order. In the finishing section there are only three machines; an hydraulic press, a spraying machine and an electronic measuring machine. The hydraulic press has limitations to its 8 hour output due to its operating speed. The spraying machine is of the automatic rotary head type with 6 guns. HLIL staff advise that drying temperatures above 80 deg.C are unobtainable. This fact, combined with the limitations on feed because of the narrow conveyor, may limit the 8 hour output of this unit.

Measuring is by conveyorised electronic system and output is only limited by operator ability.

Further equipment consists of a drum setting-out machine for vegetable tanned leather, a sole leather rolling machine, a Slocomb type staking machine and 2 small buffing machines. These machines are all capable of acceptable output levels and only major expansion of production of specific leather types involving their use would cause capacity problems.

### 3.6 Support Equipment and Services

Currently all factory effluent and storm water drains through the same system within the factory compound, and then through the outlet pipe from the effluent system of Hetauda Textiles Limited.<sup>5</sup> There is no treatment apart from 4 concrete settling pits which are used to slow liquid flow, and settle solids out. These have become completely filled with settled solids and any further production would have effluent flowing out over the ground, as has been the case in recent times, judging by the condition of the ground below the settling pits.

The factory is adequately serviced with water from the Hetauda Industrial District (HID) and has in addition a large storage tank of some 100,000 litres capacity to act as a backup in case of stoppage of water supply. The HID also supplies electricity to HLIL, and a supply of 500+ KW is connected.



HLIL also has a generator of 300+ KW capacity, presently not installed, but with provision for it by way of building foundation and columns and needing only walls and roof to complete. This unit should be made operational as soon as possible as it incorporates an auto start system and would be invaluable in the event of a power failure during operation of machinery or while wet processing. It is also possible that this unit may generate power at a cheaper rate than that charged by the HID and therefore would contribute to more economical operation of the tannery.

Steam is supplied from a coal-fired moving grate boiler of 4MT capacity per hour. Distribution is via a comprehensive insulated pipeline system. Coal is sourced from India.

## Chapter 4: Materials and Inputs

### 4.1 Raw Materials

#### 4.1.1 Hides

The available raw materials for HLIL are the hides of buffalo slaughtered for their meat, the hides of cow/oxen which have died (termed "fallen") and the skins of goat and sheep also slaughtered for their meat.

Officially, all raw hides and skins are under the monopoly control of the Raw Hide Collection and Development Corporation (RHCDC) which holds the only Licence to collect and trade commercially in raw animal skins in the Kingdom. In fact RHCDC collects no goat or sheep skins at this stage, dealing only in buffalo and cow/ox.

A number of other parties are engaging in the raw hide trade, which may at present be affecting the total intake of RHCDC. However, the planned upgrading of RHCDC with assistance of a World Bank Loan will in all probability enable a more vigorous collection programme to be pursued, with a consequent increase in numbers collected.

At its inception, RHCDC had only two shareholders (BLSF and HLIL) which were its only customers. As the two owners obtained hides and skins in ratio to their equity, their principal interest was to receive sufficient volume at the lowest price. An opposing interest as equity holders, was the financial viability of RHCDC. Accordingly, prices paid for hides and skins were raised periodically. The overall situation has now changed and RHCDC has 4 or 5 shareholders, and even more customers, and the equity/pricing aspects have disappeared. Consequently, it is possible for HLIL to be more selective of the type of material required, and therefore more able to tailor the buying to market or customer demand.

In the revitalisation programme buffalo hides only are suggested as the raw material for HLIL production. This area has the greatest capacity for hide improvement in take-off, flay, and curing, as buffalo hides are taken from freshly killed carcasses.

There are several problems inherent in using skins of animals which are kept for a variety of reasons and not just for meat production. Skins of apparently good quality can be from animals which have been used for work purposes, with the attendant damage associated with pulling a plow or cart. Other animals may come from areas where insect damage is heavy, and these defects can be combined with those caused by work. However, any of these problems present less difficulties in leather making than those generated by

regularly buying a range of cow/oxen hides from fallen animals. It is therefore considered prudent to concentrate on buffalo only in the revitalisation programme.

Company purchases of hides and skins, like the volume of sales of product, are quoted in pieces and square feet. An historic record of HLIL hide and skin usage is shown below.

#### Hide and Skin Purchases by HLIL

	Buffalo	Cow	Goat/Sheep	Total	Rs 000 Cost	Rs Unit Cost
1982						
Pieces	24155	25938	302	50395	1998	39.65
Square feet	531410	440946	1510	973866		2.05
1983						
Pieces	17871	4534	19191	41594	1102	26.49
Square feet	393162	77078	95955	566195		1.94
1984						
Pieces	16076	4857	1186	22115	1110	50.19
Square feet	353672	82501	5930	442103		2.51
1985						
Pieces	24536	13205	---	37741	2281	60.44
Square feet	539792	224485	---	764277		2.98
1986						
Pieces	19140	8108	---	27248	2494	91.53
Square feet	421080	137836	---	558916		4.46
1987 (7 months)						
Pieces	4927	934	---	5861	478	81.57
Square feet	108394	15878	---	124272		3.85

Lower purchase costs in the first 2 years reflect initial market prices of RHDCD. Such prices include costs of preservative, salt, labour, transport and storage, prior to arrival at the buyer's plant, as well as a 7.5% profit markup.

The changing composition of HLIL purchases shows the abandonment of goat and sheep and concentration on buffalo and cow. By this action, it became one of the two hide leather producers in the country, along with BLSF.

Higher piece costs and unit costs in the last 3 years also show the transition to higher priced buffalo and cow hides. It should be noted that purchases relate to total input volumes and values, before processing into pieces and square feet of semi-finished and finished goods, which yield in greater volume. A further divergence of potential sales volume from input volume arises from company practice of recording sales with precise measurement proper to customs and buyer acceptance, while all purchases are recorded as averages:

**Average area per hide/skin:**

Buffalo	22 sq ft
Cow	17 sq ft
Goat/sheep	5 sq ft

#### **4.1.2 Chemicals**

Nepal has a limited availability of chemicals suitable for the leather industry which necessitates a considerable volume of imports from India and third countries.

Only Lime, Sulphuric Acid and Ammonium Sulphate can be purchased from local sources, with all other chemicals required for production to wet blue being available from India.

For further processing to crust and finished it is also possible to obtain all requirements from India, but some of these items are manufactured elsewhere and imported in bulk to supply the Indian tanning industry. Not all Indian-made chemicals will be acceptable for production of leather for sale into certain foreign markets, and it may be necessary to purchase chemicals directly from third countries in some cases.

Cost is also a main consideration. While close proximity to Indian suppliers suggests that a lower level of stock need be held, in practical terms this is not the case, as deliveries from India tend to be unreliable, and it will often be found that larger inventories are needed for Indian supplies than for third country supplies.

There is the further anomaly that some chemicals from India are more highly priced, on a delivered-into-store basis, than the same chemical from a third country. This will necessitate a thorough investigation of all chemical requirements and a careful evaluation of the whole system of sourcing, pricing, delivery schedules and stock holdings for the full range of materials.

Consideration must also be given to supplier quality standards and customer servicing. Major benefits accrue from dealing with suppliers which have ongoing R&D programmes and provide regular call schedules by technicians who are proven trouble shooters and able to demonstrate product applications.

#### **4.1.3 Factory Consumables Supplies**

Tanneries have a wide range of materials and goods which are continually consumed in the course of leather manufacture. There are also a considerable number of pieces of support equipment necessary for the successful operation of a tannery.

Most machinery makers have substantial supplies of spare parts. But any sensible tanner will always keep a range of those spare parts which are known to wear or be prone to malfunction. Similarly, most machinery manufacturers have their preferred supplier of support equipment. Such items as fleshing and shaving blades, splitting knives, sammying and setting sleeves, grindstones etc. are produced by many companies, sometimes to the specification of a machine maker, but more generally to their own specification, with the manufacturer fitting the item into his machine design.

Experience shows that bulk purchase of consumable items in a single shipment quite often is the most economical option. For quality of item, and consequent quality of work in production, it is often better to pay a little more for the consumables and have better production results, less wear of the machine, and therefore less down time. In the long run it is the tannery which benefits most from this policy. Use of inferior goods for an initial saving does not always result in savings in the long term.

The above approach is also recommended in the purchase of support items such as leather gauges, Ph meters, physical testing equipment and the like. timing of purchase affects the selection of some items. The only sensible approach is to make purchases from Indian sources or to plan sufficiently far ahead that bulk quantities of such things as oils and greases for lubrication, valves, packings, hardware, etc., can be combined with a shipment of other essential items from third countries. Providing attendant economies of shipping and handling, spread over all purchases in the consignment.

### Chapter 5: Location and Site

The Hetauda Industrial District is established about 5 km from the centre of the city of Hetauda on the Tribhuvan Rajpath, the main road link between Nepal and India.

Presumably the selection of this site was in line with the programme of His Majesty's Government (HMG) in spreading economic development throughout the country. The choice of site is a particularly favourable one in that it is roughly in the centre of the main hide supply regions, and also well placed for receipt of imported goods from Calcutta and from India, and shipment of goods to India and to Calcutta for export.

It seems apparent that the effluent generating capacity of HLIL was considered when the site was being chosen. There are a number of other enterprises in the HID which also generate effluent, indicating that this was a factor in the choice of location.

The factory compound is well planned and the layout very functional. It is built on 4+ hectares and has good security and good access to all areas. In fact a little too much effort and funding may have been put into the infrastructure. A much more professional management would be indicated for such a plant, to employ it to its full potential.

The main building of 5400 square metres is well planned; the Beamhouse is across the back, with separate Tanning, Dyeing, Finishing, and Maintenance departments connected at right angles. Across the front and downstairs is the Finished Goods store, Spare Parts store, Laboratory/Sample area and Womens and Mens ablution/toilet blocks. Above is the Boardroom/Chairman's Office and a number of Administrative offices and a staff toilet. Above the Boardroom/Chairman's Office is an apartment originally for the use of the Chairman who assumed the role of General Manager at the time of commencement of commercial production in January 1982.

Immediately behind the main building is the Raw Hide store (of inadequate proportions for the design production), and behind that the Leather Board factory which runs parallel to the Beamhouse.

Besides the buildings mentioned above there are several cottages occupied by selected workers, the boiler house, electricity sub station, a chemical store, a house originally for the factory manager and his family, and the guard house at the main gate. The whole is enclosed by a substantial stone wall topped with barbed wire.

It is considered essential that a warehouse be combined with the liaison office in Kathmandu in the future, to maximize domestic sales. All previous domestic and Indian sales have been on an ex factory basis. Export sales would continue ex factory as before.

## Chapter 6: Equipment and Machinery Problems

### 6.1 Equipment Design Limitations

Much of the equipment supplied by the China National Machinery Import and Export Corp. has been copied almost directly from machines purchased by China from various European manufacturers during the 1960's. Other items appear to be closely derived from European machines of much earlier years.

The large Fleshing machine has several design faults: 1) limitations of the moveable jaws holding the pneumatic tube; 2) problems of adjustment of the steel grip rollers with the rubber feedout roller; 3) the unnecessary complexity of the drive system for the compressor, grinder, feed rollers and clutch, and 4) the poor design for controlling the positioning of the bed in the open/close positions.

Strangely, the Fleshing machine supplied for small hides and skins, which is of very similar design, has a much more sensible system with independent motor drives for grinder and clutch and feed rollers, but with the same cumbersome and inefficient adjustment for steel and rubber feed rollers.

All drum gearbox drives were supplied with 2 speeds, 6 and 12 rpm. These are suitable for tanning and dyeing/retanning processes but completely unsuitable for liming. The doors on all drums are much too small for the load size, even the small loads currently being put in these drums. All drums are installed too close to the floor, which necessitates unloading by hand instead of being able to dump directly to mobile bins. All drums are equipped with hollow axles for water and chemical feed, but with a hole size suitable only for a pipe of 30mm diam. This is completely unacceptable when the installation allows for so many drums which will take an excessive time to fill.

The original Sammying machine was of the vertical press type, costing approximately US\$11,000, but completely unusable. It has been replaced by a proper machine from Germany which cost a further US\$35000.

The Vacuum Dryer is a copy of the TTH unit of the early 1960's, incorporating all the faults of that unit, but none of the universally recognized improvements made to Vacuum Dryers by the late 1970's, such as stainless steel mesh instead of felt in the head, and a greater number of extraction hole for vapour.

There may also be some difficulties with the vibration staker, which could not be tested in operation due to lack of hydraulic oil.

There are some limitations with toggling due to pirating of the frame wheels for other purposes in the factory. This has reduced the capacity of the unit by 20%. Recovery of these wheels will return the unit to full capacity.

The major problem in the remaining equipment is the Automatic Spraying machine. This machine is a direct copy of the BH&G machine and incorporates all the design and manufacturing faults of the original. The drying tunnel cannot operate above 30 deg.C. The unit is only equipped with 6 guns and has a very narrow conveyor which will necessitate all leather being fed in line with no "staggered" feed possible.

## 6.2. Maintenance Problems

Most of the equipment in the factory is in need of competent maintenance. It is obvious that no formal training or direction in maintaining any of the machines has been given to any of the maintenance staff (yet all draw salaries in the category of "highly skilled"). It is difficult to describe the amount of small items of work which will have to be done to almost every machine in order to bring them all up to an acceptable operating standard.

There are two lime drums of 2.5m x 3.0m which will need immediate replacement of deteriorated woodwork to enable liming capacity to return to its installed maximum.

The critical machines, such as the splitters and shaving machines, all show evidence of crisis maintenance and have components disconnected in several places to simply avoid further repair effort. The machines are used in the condition they stand until something else on the machine fails or a quality complaint forces adjustments to be made.

The spraying machine is inoperable on automatic setting and also, appears to have problems when run in manual mode. Much work will be needed to determine if the ultra sonic system can be used in any form.

Certain items of ancillary equipment will also need attention in order to facilitate smooth uninterrupted operations. The boiler will need an overhaul as it has only been fired intermittently during the last year. It needs relining of the firebox, and its considerable amount of support equipment, for water, coal, draught and ash movements, will also need servicing. The electricity sub-station also needs to be checked as it is elaborate equipment with many components which need testing.

Some work will be needed on the compressor installation, which has neither water nor oil filtering of the air, and needs to have delivery lines re-engineered to allow for proper drainage and air feed.

The dust collection unit for the buffing/dusting is totally inadequate and needs to be completely redesigned.

The most visible example of lack of maintenance, or interest and concern, is the water reticulation system. More than 90% of all water valves in the entire factory are leaking and costing the company money continuously.

It will be necessary to separate storm water from factory effluent drainage as the considerable amount of runoff during the monsoon season will adversely affect any treatment system. This step should be taken immediately in order to minimize the cost of treatment in future, regardless of any programme of recycling of chemicals which might be introduced.

Also, a considerable number of machines have temporary electrical wiring and most of the engineering equipment does not even have plugs on the wires. The bare wires are pushed into electrical outlets as required and dropped on the floor when not in use. This will need early correction.

### **6.3 Layout/Workflow**

Some of the equipment is sensibly located in relation to the work flow and the necessary associated services. However, alterations can be made to improve flow patterns and to erase bottlenecks in the daily movements of work from machine to machine or process to process. In this regard the major problem is centred on the flow of work after chrome tanning. Relocating of the sammying machine, wet blue storage, blue splitting operations, shaving, setting out, vacuum drying and further processing is advisable. Depending on the type and volume of production chosen, equipment can be relocated as each machine is overhauled and prepared for operation.

It is advisable to correct faults in the work flow before production in any section begins as later changes to operations cannot be undertaken without disrupting deliveries to buyers.

## **Chapter 7: Manpower and Management**

### **7.1 Operator Skills and Training**

As far as can be ascertained, there has been no formal training programme for any operators in any area of the HLIL operation. From discussions with senior staff it would appear that the Chinese installation team gave only sketchy instructions regarding maintenance of equipment, and no instruction or direction in regard to operation of any machine. In fact some of their advice is the cause of such a high workforce being employed, as they advocated two maintenance men for each machine and two operators for a number of machines where the norm is only 1 operator and 2 will only get in each other's way.

One of the basic essentials of any tannery is to have the reputation for a quality standard, and to be able to deliver consistently to that standard. In order to achieve this goal management must instill into every worker the desire to accept a quality commitment and develop a pride in being able to maintain that commitment. Having this attitude among the workforce is an essential component of any manager's peace of mind and it is in the hands of management only to succeed or fail in this important area.

Added to problems of an untrained workforce, a low plant operating level caused by faltering sales has produced a slack attendance record and a disinterested labour force.

There was no strong supervisory effort to instill a concept of efficient performance, and as a result, the labour force has developed a mode of behaviour characterised by long periods of idleness. These behaviour patterns resulted as much from an insecure management, as from a workforce uncertain about their responsibilities.

Labour legislation, written to protect employment, seriously restricts management's control of employment levels at any time. Cutbacks of labour even in times of low demand or plant closure are in practical terms almost impossible. For HLIL, inability to retrench is reinforced by its position as a showpiece of participation in industrial development by HMG/Private Sector/Foreign Interests.

The level of the present labour force is also a product of recommendations by the Chinese, which has produced an employment unsustainable even under conditions of all out production. The cost of this labour force is not the issue: excess numbers of workers, under-utilized, unoccupied and directionless, provide continuous distraction to each other. In order to correct this, it may be necessary to dismiss the entire workforce during the current plant shutdown. Then a re-employment programme can be formulated which will allow reduced numbers and selection of able workers.

It will be necessary to establish a training programme for those present staff/workers who may be re-employed and to develop an orientation/training schedule for all newly recruited staff and workers in the future.

## 7.2 Management

Inadequate management has been the original and continuing problem of HLIL. The company has not had the benefit of professional management in any form since its inception and this has been the most significant factor in its performance. Moreover, the Directors, shareholders and financiers of the project made no effort to recruit a professional tannery manager at any time during HLIL's operating history.

The future of HLIL may wholly depend upon obtaining the services of a competent and experienced tannery manager. He must demonstrate an ability to operate in the remote situation of Hetauda, and be able to cope with the varied responsibilities and problems which exist in that environment. He must also provide to the staff considerable guidance and assistance in order to turn HLIL around and erase the enormous deficit it now carries.

If a revitalization programme is adopted, probably the most difficult task will be to find a manager of suitable experience, integrity and ability, whose family/dependent status is also compatible with the location. This position will be costly to fill. The remuneration which must be offered may attract some with inappropriate experience, so that careful screening of prior work experience is essential.



## Chapter 8: Revitalization Programme

### 8.1 Overview

The proposed revitalization programme is presented in two parts: 1) a technical preface dealing with maintenance and upgrade of machinery which may be required prior to and during early start-up operations, and 2) Working Capital requirements to re-start production. It is believed that present machinery and equipment requires some repair, renovations and modifications, but that new investment in additions to plant and equipment are unnecessary. Simply by obtaining the specified advance of Working Capital, certain alternative production schedules are outlined which are capable of profitable operation.

Production schedules are shown as alternatives. The HLIL tannery is technically able to produce three main product lines (wet blue, crust, and finished leathers). These may be produced with focus upon one line only (wet blue alone, etc.) or in various combinations. For this reason, as many as ten alternatives are outlined. Each of these is a real and viable production schedule. Each is shown to be profitable, and able to repay within the first year the Working Capital advance. Each is capable thereafter of self-generation of surplus funds within the first full year of operation, to provide cash flows able to meet the further costs of purchase of hides, chemicals, and operating funds to replace the need for further advances of Working Capital.

Each production schedule will require a different level of Working Capital. Detailed calculations are presented to show the basis for the level of demand by each alternative.

### 8.2 Some First Steps

Careful consideration has been given to the means by which the HLIL enterprise may be restarted on a footing which will ensure profitable operations.

Making the factory operate profitably in itself is not a difficult task. However, preparation for this requires certain essential changes to the structure and method of operations in order to guarantee smooth and harmonious production.

First it will be necessary to carry out a "pre start" maintenance programme. For each machine, a programme of repair or upgrade is to be carried out with the least amount of expenditure. In several cases money will be spent to modify machines which should be replaced, but which can then continue to be used until HLIL is in a position to make a replacement purchase with its own funds.

It will be necessary to cannibalise certain machines in order to keep others operating. This is particularly the case for the whole hide flesher and the two Chinese shaving machines. There is no alternative to expenditure in the case of the Limeyard drums where immediate repairs are needed. Overall, it will be necessary to spend to bring the whole plant up to acceptable operating standard and several alternatives have been considered which minimize expenditures and at the same time give optimum production and sales possibilities.

The expense of separation of the drainage and the waste efficient system cannot be avoided.

Similarly, funds will be needed for provision of temperature controlled water and hot water storage for processing.

Most of this work is to be carried out prior to the start of production, so that there will be no interruptions once hide input commences. Several other areas will require expense which is unavoidable, but this will depend on which production alternative is chosen.

In the area of employment a major problem currently exists, as there are many more staff and workers than the operation can carry. Naturally the employment level will vary with the production option, but in each case only the absolute minimum requirement of personnel has been considered. Personnel reduction may or may not pose certain difficulties, as it remains to be seen what action is taken by the company as a result of the demand presented by NIDC, the principal creditor.

An overall expenditure programme is presented below which will put the minimum pressure on supply of funds and at the same time provide the optimum results for any production alternative.

## **8.2 Equipment Maintenance.**

A restart of production without maintenance is possible BUT IS NOT ADVISED.

It is considered neither economical nor prudent to begin production without being sure that the machinery and equipment will operate correctly and continuously without breakdown. To do this will need a minimum of 2 lakh Rupees (200,00 Rupees approx US\$10,000), and upwards of 10 lakh Rupees (1,000,000 Rupees approx. US\$50,000). The actual amount to be spent can only be estimated as it was not possible to dismantle each machine during the survey mission to calculate costs. Further it was not possible to check each machine against the spare parts stock to see which items are being held and which items will need to be purchased.

An expert tannery engineer working with competent and willing mechanics may well carry out the programme for much less cost than expected, but there is no guarantee of this.

Once the maintenance programme is completed it will be time to start production. This should initially be to wet blue production only to allow for operator training and streamlining of procedures. It will also allow operations to run without the need for large amounts of working capital all at once.

At the same time as production is proceeding, the maintenance team can plan and carry out further maintenance to other machines so that the production can be slowly extended to crusted and finally, finished leather.

## **8.3 Upgrade of Existing Machines and Systems**

Some machines are of acceptable manufacturing design and will be usable for many years to come. However, some components of these machines are not able to perform to the level of the rest of the machine or to later developments which are adaptable to individual machines of a type.

For example, since the development of the fleshing machine currently installed at HLIL, an electro clutch has been introduced which removes all intermediate gearing, and speeds up the opening and closing functions (both of which contribute to faster production from the same basic machine). This unit is known as the Demag clutch and is already installed on the sammying machine presently in use at HLIL.

Similarly, the toggling unit has no stretching device to give greater tension than that imposed purely from the strength of the individual worker. It would be advantageous to add this function to toggling at some time.

A considerable improvement could be made in the buffing by combining the buffing and air dusting machines into one unit by means of a conveyor belt. This would serve several functions at the one time. It would firstly, and most importantly, ensure that the leather was free of dust for each pass through the buffing process. Secondly, it would ensure that the maximum amount of dust was collected by the system and not shaken off the leather onto the floor to cause a nuisance to the finishing department. Thirdly, it would enable much greater production levels to be attained with half the number of workers and finally it would allow for the buffing machine to be able to cover all the required capacity without the need for further plant purchase.

In the event that sole leather was to be produced, an electro brake of similar design to the Demag clutch system should be fitted to the sole roller to eliminate the complex, costly, and cumbersome belt-driven system now installed. This will give a smooth, fast and trouble-free operation which will also be far less costly to maintain in the future.

The introduction of recycling of chemicals should be of the highest priority. Both sulphide and chrome liquors can be reused by means of systems developed by Leather Industries Research Australia (LIRA) some years ago. Both systems are well proven and very simple to install and to operate. They have the effect of immediately reducing the total volume of effluent and also of completely eliminating sulphide from the daily disposal programmes and almost completely eliminating chrome. At the same time further use can be made of various other process water in the factory to reduce water cost and to reduce effluent treatment. Sulphide liquors may need to be changed about once a month in the monsoon season and probably at longer intervals during the winter. Chrome liquors need never be replaced; however, it is possible that a buildup of residual liquor may need to be thrown out occasionally. Wide use has been made of the LIRA systems in Australia and New Zealand as well as other countries, and significant economies in chemical cost have resulted. There are also major savings in effluent treatment equipment and operating costs.

Another area of economy which should be examined is that of hot water generation. For all wet processes a maximum temperature of 70 deg. C is more than sufficient. With the increasing use and popularity of solar panels in Nepal this area should be the subject of an early study. If an operating option producing wet blue only is chosen then the highest temperature required is 40 deg. C. This definitely does not need the use of such a large boiler as is currently installed and it may be beneficial to consider a small "package" boiler of the oilfired type which is cheap to run and does not require so much labour or maintenance.

#### **8.4 New Equipment Which May Be Required Short to Medium Term**

Purchase of new equipment will directly relate to the volume of production and the availability of spare parts for Chinese machines. It will be possible to keep wet blue production running up to a maximum input of 300 Buffalo per day unsplit, without major plant replacement. At the outset there is no alternative to this as both splitting machines need extensive work and in any event it will take time for the workforce to become fully competent at their respective tasks.

In order to increase production beyond this level, the most important item of expense will be the purchase of all ironwork and mechanical components for 2 new liming drums. They should be of at least 4m x 4m in size to allow for substantial increases in production and at the same time give reliability and standard results in the liming process. The present lime drums should be transferred to the tanyard to enlarge the tanning capacity to its maximum with the current drum configuration in the tanyard.

The most necessary and expensive purchase, if crust leather is to be made in any volume, will undoubtedly be a new vacuum dryer. It will not be possible to accept any significant orders for supply of crust with a spread delivery and be sure that it will be produced on time, or even at all, without replacement of the currently installed vacuum dryer.

Installation of the latest model vacuum dryer will guarantee standardization of production and output, year round. It will be necessary to install, at the same time, a chiller unit to cope with the higher water temperatures of the monsoon season, as is done in other countries of the region.

Beyond vacuum drying, the main bottleneck would appear to be in the after drying, before staking and toggling.<sup>(4)</sup> Hang drying may be tried, or, a drying unit not yet unpacked from the original purchase may prove still adaptable to complete the after drying process.

The remaining obstacle to full production of finished leathers is the automatic spraying machine. It may be possible to make this machine work with only painstaking adjustments. However, it is much more likely that the electronics (at least) will have to be replaced in order to produce quality spray finishing.

If this is the case then it would be much more in the interests of HLIL to invest in a roller coater in order to extend production and add the flexibility which roller coating can provide to the finishing processes.

In the event that a decision is taken to produce whole hide crust for the upholstery trade, then it would be necessary to invest in a wide measuring machine in order to accurately measure whole hide crust and eventually finished goods.

#### **8.5 Revitalization Alternatives**

The production potential of the HLIL plant offers a wide range of outputs, both in volume and in variety. The tannery is presently geared to low output levels which have averaged about 120 hides daily input. As seen from financial accounts, an inactive sales

program at this level of activity produces poor results. A base input volume of about 100 hides daily could produce marginal results with an effective sales effort, but the payback period for the advance of working capital would be unacceptably long. Cash generation thereafter would also be sluggish. For this reason a base (first) alternative is the starting production of 200 hides of buffalo per day, to wet blue only, as the lowest output level, and the simplest. Following this, consecutively larger production schedules will be introduced, for comparison. These will incorporate further processing, to crust, and to finished.

Forecasts therefore evaluate the working capital requirements for different levels of output, to measure the startup costs.

These alternatives are outlined below:

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
<u>Hides daily</u>	<u>200</u>	<u>250</u>	<u>300</u>	<u>350</u>	<u>400</u>	<u>500</u>	<u>500</u>	<u>200</u>	<u>300</u>	<u>200</u>
Wet blue	200	250	300	250	300	300	300	-	-	-
Crust	-	-	-	100	100	200	100	200	300	-
Finished	-	-	-	-	-	-	100	-	-	200

Working Capital Requirements: (Rs)

1334015	1941528	2847886	4309012	4581920
1637771	2541843	3774272	3740407	5854977

Working Capital requirements derive from existing factory costs, and are based on the present 6-day work week. The table below shows that the first seven alternatives require a two week advance (12 days), except for chemical stock, which is bought in bulk for a longer period of 37 days. It should be noted in the table below (under tech. salary) that the technician is paid 75% by Gerbhaut and 25% by HLIL except in the case of scenario 7 when the payment is 50% each.

Cost Basis for Working Capital

<u>Alternative</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
<u>Days Cost Item</u>	<u>Rupees:</u>						
6 Hide advance	156000	195000	234000	273000	312000	390000	390000
6 Raw hide stock	156000	195000	234000	273000	312000	390000	390000
12 Work in progress	312000	390000	468000	546000	624000	780000	780000
37 Chemical stock	444000	555000	666000	984200	1095200	1524400	1916600
12 G.M. salary	52800	52800	52800	52800	52800	52800	52800
12 Admin salary	8124	8124	8124	8844	8844	8844	8568
12 Indirect/Maint.	4349	4349	4349	4992	5808	41088	41088
12 Sales salary	1440	1440	1440	5244	5244	5244	9732
12 Direct salaries	6275	6275	7332	15876	16596	22500	25764
12 Tech. salary	----	----	----	3300	3300	3300	7800
12 Chemical usage	144000	180000	216000	319200	355200	494400	621600
12 Water usage	467	583	700	847	964	1196	1230
12 Coal/electricity	20560	21200	21840	26540	27930	32500	35830
12 Other admin	21000	21000	21000	21000	21000	21000	21000
12 Other factory	7000	7000	7000	7000	7000	7000	7000
Total wkg capital	1334015	1637771	1941524	2541843	2847386	3774272	4309012

Unit Costs and Prices

A weekly production cost for each alternative is obtained. The unit costs of production are broken out as Rs/foot of Hide costs, Rs/foot production costs and total costs. The sales price/foot may be compared with these costs, and the margin on sales is also shown. It can be seen that the expected sales price (current quoted price) for wet blue is Rs 10.50/foot, for crust Rs 14.20/foot, and for finished Rs 19.50/foot. The tannery yield, or production volume of saleable footage for each type of product is shown below these unit prices. Total sales values derive from these figures.

The weekly margin over weekly production costs gives the effective return on the Working Capital advance. The margin x 52 weeks produces the Full Year surplus. The surplus in the first year, following repayment of the Working Capital advance is this same amount reduced by the amount of working capital plus 17.5 percent annual interest rate (the analysis assumes weekly repayments to the lender, including interest, promptly following upon weekly sales of all production).

Chapter 9 will describe how this payback period compares among different alternatives, and will show that calculations of rate of return depend upon amount borrowed and amount of surplus generated, as well as upon length of the repayment period.

Unit Costs and Prices, Margin and Surplus

Alternative	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
<u>Weekly Prodn Cost</u>	<u>133008</u>	<u>151386</u>	<u>169764</u>	<u>232822</u>	<u>252343</u>	<u>344936</u>	<u>416206</u>
Rs/ft hide cost w/b	4.68	4.68	4.68	4.68	4.68	4.68	4.68
Rs/ft prodn cost w/b	4.00	3.64	3.40	3.24	3.13	2.88	2.88
Rs/ft total cost w/b	8.68	8.32	8.08	7.92	7.81	7.56	7.56
Rs/ft sale price w/b	10.50	10.50	10.50	10.50	10.50	10.50	10.50
Rs/ft margin on w/b	1.82	2.18	2.42	2.58	2.69	2.94	2.94
Rs/ft hide cost crust				5.53	5.53	5.53	5.53
Rs/ft Prodn cost crust				6.37	6.26	6.27	6.27
Rs/ft sale price crust				14.20	14.20	14.20	14.20
Rs/ft margin on crust				2.30	2.41	2.40	2.40
Rs/ft hide cost finished							5.53
Rs/ft prodn cost finished							11.32
Rs/ft sale price finished							19.50
Rs/ft margin on finished							2.65
Sq ft saleable w/b	33300	41625	49950	41625	49950	49950	49950
Sq ft saleable crust				14100	14100	28200	14100
Sq ft saleable finished							14100
<u>Rs/6 day wkly margin</u>	<u>60606</u>	<u>90742</u>	<u>120879</u>	<u>139822</u>	<u>154360</u>	<u>214533</u>	<u>218058</u>
1st yr. surplus	1696968	2903744	3989007	4334482	4785160	6865056	6541740
Full yr surplus	3151512	4718610	6285708	7270770	8026720	11155716	11339016

The final three alternatives (8, 9, and 10) will produce through the wet blue stage into crust or finished leathers. No wet blue will be offered for sale. In this, they are unlike the previous seven alternatives. A different configuration of costs with an extended number of days' requirement for Working Capital results as production times are more extended before sales can develop. While hide advances remain the same as before, a 32 day Working Capital is required. As before, the foreign technician is paid 75 percent by Gerbhaut and 25 percent by HLIL, except for Alternative 10; in this case he is paid 50 percent by each.

Cost Basis for Working Capital

<u>Alternative</u>		<u>8</u>		<u>9</u>		<u>10</u>
<u>Cost Item</u>	<u>Days</u>	<u>Rupees</u>				
Hide advance	6	156000	6	23400	6	156000
Raw hide stock	6	156000	6	234000	6	156000
Work in progress	12	312000	12	468000	12	312000
Chemical stock	37	858400	37	1287600	37	1642800
Finished goods	18	1111887	12	1078920	25	2118713
G.M. salary	32	140800	26	114400	25	110000
Admin salaries	32	21664	26	17602	25	16925
Indirect/mtce sal	32	13312	26	87256	25	10400
Sales salaries	32	13984	26	12506	25	20275
Direct salaries	32	52448	26	44902	25	49975
Tech salary	32	8800	26	7150	25	13750
Chemical usage	32	742400	26	904800	25	1110000
Water usage	32	1564	26	1907	25	1256
Coal/electricity	32	76480	26	73710	25	78550
Other admin	32	56000	26	45500	25	43750
Other factory	32	18667	26	15167	25	14583
Total wkg capital		3740407		4581920		5854977

Unit costs of hide purchase do not change among the alternatives. However, it may be seen that unit production costs tend to decline as output of any product increases. Total costs per foot therefore also decrease. The margin on sale price, over cost, is enhanced. Margins on crust and finished leathers are greater for alternatives 8, 9, and 10 than for previous output levels of these same products because volume is greater than previously. This can be seen in the increased saleable footage of crust and finished.

Despite this, the weekly total margin for these alternatives is not as great as for alternatives 6 and 7. This is because weekly production costs are a higher proportion to the weekly margin. The first-year surplus, or the residual remaining after payback of the working capital advance, is correspondingly reduced, and the full-year self-generating surpluses thereafter are also less than obtained from alternatives 6 and 7.



Unit Costs and Prices, Margin and Surplus

<u>Alternative</u>	<u>8</u>	<u>9</u>	<u>10</u>
<u>Weekly prodn cost</u>	214898	305746	352671
Rs/ft hide cost crust	4.68	4.68	
Rs/ft prodn cost crust	6.45	6.12	
Rs/ft total cost crust	11.13	10.80	
Rs/ft sale price crust	14.20	14.20	
Rs/ft margin on crust	3.07	3.40	
Rs/ft hide cost finished			4.68
Rs/ft prodn cost finished			10.59
Rs/ft total cost finished			15.27
Rs/ft sale price finished			19.50
Rs/ft margin on finished			4.23
Sq ft saleable crust	33300	49950	
Sq ft saleable finished			33300
<u>Weekly total margin</u>	<u>102231</u>	<u>169830</u>	<u>140859</u>
1st yr surplus*	1329003	3906090	1126872
Full yr surplus	5316012	8831160	7042950

\* This figure is after the repayment of "Total working capital" and interest thereon. Interest is calculated at an annual rate of 17.5% with repayments assumed to be on a weekly basis as are sales.

### 8.6 Calculation Basis for Working Capital Requirements

#### Hides

The basis for the calculation of costs, input weights and saleable areas has been taken from figures provided by the Gerbhaut technician at HLIL.

The total hide purchases for the Nepalese years 042/043 (85/86) were analyzed as to size, grade, saleability and cost/benefit.

Only the 4 largest sizes and all 4 grades have been used in any calculations as it is considered uneconomical to include the bottom 2 sizes.

#### Buying prices

The prices used for calculations are those advised by RHCDC as of 6/3/87 and which will be current for the time being. (RHCDC does not consider any higher price will be needed for some time.)

Although the average obtained from the above calculations was Rs 119 per piece, an overall price of Rs 130 has been used.

### Selling areas

The areas available for sale in the different process configurations were based on sales made to Indian customers during the same 042/043 period.

The areas for wet blue sales have been discounted by 10% to allow for the fact that at that time some sales were also being made in crust and finished goods. It is not envisaged that this practice will be followed in the shorter term of a restart, so the average may reduce. In fact the calculations do not support this view but the allowance has been made anyway.

In respect of the areas for crust and finished sales a similar stance has been taken. While wet blue sales are being made at the same time, an area of basis has been established to allow for the smaller hides to be processed to crust and finished and the larger to wet blue.

042/043 wet blue sales averaged 30.5 sq. ft. per hide.  
calculated area for feasibility 27.75 sq. ft. per hide.

042/043 crust and finished sales averaged 25.5 sq. ft.  
calculated area for feasibility 23.5 sq. ft.

When only crust or crust and finished sales are to be made, an average of 27.75 sq. ft. has been taken. This is about 15% below the realisable selling area, as crust and finished leather will definitely give greater area from the same hide than wet blue.

### Selling prices

#### Wet blue

Wet blue prices are taken at slightly less than the current prices being obtained from India (the keenest buyers): Rs 10.5 per sq. ft. has been used against recent sales at Rs 10.9 per sq. ft.

#### Crust prices

Crust prices are based on the last sales made to Gerbhaut, and also from discussions with Mr. W. Bungert of Gerbhaut. The price used is Dm 1.20 per sq. ft. ex factory (equiv. to Rs 14.2 at exchange of 1:11.83). At present a price of approximately Dm 1.30 per sq. ft. is obtainable.

#### Finished prices

Finished prices are based on the last offers from Gerbhaut of Dm 1.62 per sq. ft. and at present they are offering Dm 1.65 per sq. ft. There is no allowance made for local sales of finished leather where the prices are even higher.

### Chemical costs

For the calculation of input quantities and chemical percentages the average weights of wet salted hides purchased, and the pelt weights deriving from them during 042/043, were used.

From raw to wet blue a chemical cost of Rs 60 per hide has been calculated using current chemical purchase prices.

From wet blue to crust a chemical cost of Rs 56 has been calculated on the same basis as above.

From crust to finished a chemical cost of Rs 106 per hide has been calculated on the same basis as above.

From raw to finished a total cost of Rs 222 per hide.

Water usage has been calculated on a basis of 175 litres per hide to wet blue, a further 45 litres to crust and a further 50 litres to finished. The price of water is Rs 1.10 per 1000 litres. No account of recycling or reuse has been taken.

Coal usage is calculated on a base of 500 kg per day to allow for raising a head of steam whatever the input. For production of crust a further 80 kg per 100 hides per day is calculated and for finished a further 40 kg per 100 hides per day is required. Currently HLIL is paying RS 1500 per tonne delivered for coal supplies. This figure may be reduced when a contract for long term supply can be negotiated.

Electricity costs are based on a monthly fixed charge related to connected demand. Beyond this is the usage cost which is directly related to production volume. The usage basis is Rs 430 per 200 wet blue per day and increasing by Rs 110 for each 50 pieces extra. Crust leather costs an extra Rs 213 per 100 hides per day and finished costs also a further Rs 213 per 100 hides per day.

## Chapter 9: Financial and Economic Evaluation of Alternatives

### 9.1 Working Capital Repayment

The financial requirements for a re-start program of HLIL production have been shown to vary for each alternative. Each of the ten alternatives presumes a management-and-lender decision to produce a particular volume of output. That decision cannot be known in advance; it still rests with HLIL and its lenders to decide if they want to close down operations, or to start up again. If the decision is to re-start, the ten alternatives show the complete range of likely options. This chapter will show the results which follow from the choice to produce at any of these different levels.

The financial results will be evaluated first. Related economic effects of each alternative will be described later. Together, the financial and economic evaluations should offer a reasoned and objective basis for plant operation.

The payback of initial Working Capital is of first concern to borrower and creditor alike. The following table shows the time required (in the first year) for each alternative to repay the advance.

<u>Alternative</u>	<u>Output:</u> <u>Wet Blue</u>	<u>Crust</u>	<u>Finish</u>	<u>Working</u> <u>Cap.</u> <u>(Rs)</u>	<u>Weeks</u> <u>Payback</u>	<u>Simple Rate</u> <u>of Return</u> <u>(%)</u>
1	200	--	--	1334015	24	217
2	250	--	--	1637771	20	261
3	300	--	--	1941528	19	274
4	250	100	--	2541843	21	248
5	300	100	--	2847886	21	248
6	300	200	--	3774272	20	261
7	300	100	100	4309012	22	237
8	--	200	--	3740407	39	134
9	--	300	--	4581920	29	180
10	--	--	200	5854977	44	118

The quickest payback periods are shown by alternatives 2, 3, and 6; each requires 20 weeks or less to repay working capital. Alternative 3 is preferred, for its repayment in 19 weeks, and for demonstrating the highest Simple Rate of Return. This rate is calculated based on the number of weeks/52.143 weeks per year to obtain percent of year consumed in repayment. The amount borrowed divided by this percent shows the weekly repayment level; this level divided by the total advance gives the Simple Rate of Return.

## 9.2 Retirement of Outstanding Liabilities

The HLIL tannery was presented in late February with a demand by its major creditor, NIDC, for full repayment of debt by April 3. The amount of outstanding debt of the company is summarized below:

<u>Total Liabilities Payable (Rs)</u>	<u>41,304,320</u>	<u>100%</u>
NIDC	25,722,130	62.28
Rastriya Banijya Bank	4,259,445	10.31
Nepal Bank	2,949,719	7.14
Directors/Gerbhaut	1,389,829	3.37
Trade creditors	5,713,622	13.83
Others	1,269,575	3.07

It was shown in Chapter 8 that, following payback of initial Working Capital, a surplus remained which was generated by company production levels. This surplus was shown as an annual amount, varying according to the alternative production level which was chosen. If these surpluses are used entirely for retirement of existing debt, such debt can be retired on a monthly payment basis. The surpluses are generated monthly following renewal of working capital needed to purchase hides and chemicals, and to meet operating costs. That is, they are net, after satisfying cash needs of the company. Moreover, no advantage obtains from use of these funds in a different way: existing interest paid by banks on corporate funds yields only 12.5 percent annually. Some debt of the company is now at 17.5 percent, and in some cases, interest is being charged upon interest.

From such surpluses it is possible to restore the company, now in default to its creditors, to a "going concern" basis, free of debt. The composition of this debt furnishes a basis for payments to all creditors, in proportion to percent of total, to assure equal treatment to all creditors. Such repayments are calculated simply by multiplying the percentage distribution by the amount of annual surplus. Payments would be made monthly.

The debt retirement period will vary for each alternative, because the annual surplus is different in each case. This is shown below.

#### Repayment of Total Liabilities Outstanding

<u>Alternative</u>	<u>Annual Surplus</u> (Rs)	<u>Payback in Years</u>	<u>Net Present Value</u> (Rs)	<u>Internal Rate of Return</u> %
1	3151512	13.08	18,476,337	236
2	4718610	8.75	22,642,601	288
3	6285708	6.58	25,177,627	324
4	7270770	5.67	25,795,530	286
5	8026720	5.17	26,438,208	281
6	11155716	3.67	27,548,627	294
7	11339016	3.67	27,527,482	261
8	5316012	7.75	22,342,321	171
9	8831160	4.67	25,075,564	182
10	7042950	5.83	22,265,233	120

The payback period for full retirement of debt shows that alternative 6 and 7 offer the most rapid repayment. These alternatives also produce the highest Net Present Value. This value is found by discounting the annual flow of repayments (out of surplus) by the 12.5 percent interest rate paid commercially on time deposits for corporate funds. The sum of these values is subtracted from the initial Working Capital advance in the first year of the re-start program to obtain the Net present value.

It may be noted, however, that alternative 3 produces the highest Internal Rate of Return. This rate is not predetermined, but is "found" as the rate which compares the flow of surplus funds with the outlay of Working Capital and produces a 1:1 ratio which defines exact return on advanced capital over a specified time period (given by the payback period).

This seeming contradiction is resolved by an incremental analysis. Is alternative 6 — with the highest Net Present Value—a better choice than alternative 3—with the highest Internal Rate of Return? Total outlays and total returns can be reduced to marginal costs and marginal revenues for each alternative. Comparison of the two alternatives shows the following:

<u>Alternative</u>	<u>Marginal Cost</u>	<u>Marginal Revenue</u>
#3 (300 wet blue)	1,941,528 (total)	25,177,627 (total)
#6 (300 wb/200 cr)	1,832,744 (increase)	2,371,000 (increase)
Percentage change:	+94%	+9.4%

That is, the extra cost of number 6 is 94 percent greater than the cost of number 3. But the extra revenue generated is only 9.4 percent above the total return of number 3. Preference may be given to number 3, for several reasons: 1) initial working capital outlay is only 51.4 percent that of alternative 6, and produces 91.4 percent of the Net Present Value of alternative 6; 2) the surplus funds available for repayment of debt are 3.24 times the advance, which compares with 2.95 times the advance for alternative 6. Number 6 would be favored, however, if the desire is to quickly retire debt, as the sheer volume of surplus annually (Rs 11,155,716) repays debt in only 3.67 years, compared to alternative 3, which can repay in 6.58 years with an annual surplus of considerably less (Rs 6,285,708).

It is therefore clear that creditors might favor number 6, stockholders may favor number 3, and that such a choice depends upon perception of self-interest as well as upon production of products for a specific market.

### 9.3 Restored Value of Stockholders Equity

By the time debt is fully retired, the depreciated values of plant and equipment will represent the value of stockholders equity in the company. For each alternative, a different number of years is required to pay off total liabilities; the depreciated value of net plant and equipment in the year in which debt is fully repaid remains as a capital asset. This would now be free of debt.

The amount of capital which remains depends upon the rapidity of debt retirement. The stockholders at present have totally lost their investment, which by 1985 was represented by Rs 15 million in paid-in equity capital. A restoration of any part of that capital would measure the relative gain by investors which may result from the choice of any production alternative.

Value of Stockholders Equity in Year of Debt Retirement

<u>Alternative</u>	<u>Years to Repay</u>	<u>Paid In Capital (Rs 000)</u>	<u>Net Plant &amp; Equipment (Rs 000)</u>	<u>Surplus or Deficit (Rs 000)</u>
1	13.08	15,000	10,491	(4509)
2	8.75	15,000	12,246	(2754)
3	6.58	15,000	13,694	(1306)
4	5.67	15,000	14,370	( 630)
5	5.17	15,000	14,764	( 236)
6	3.67	15,000	16,077	1077
7	3.67	15,000	16,077	1077
8	7.75	15,000	12,921	(2079)
9	4.67	15,000	14,319	( 681)
10	5.83	15,000	14,307	( 693)

In two cases (alternatives 6 and 7), rapid debt repayments due to high monthly surpluses available for repayment result in a recapture of total paid-in capital plus a surplus above the initial Rs 15 million. In all other cases, a more extended debt repayment schedule results in some loss of equity. The loss range is from Rs 236,000 for alternative 5 to Rs 4,509,000 for alternative 1 — or a decline below paid-in capital of about 2 percent and 30 percent. All alternatives represent a vast improvement over the total loss of equity which now exists. It can now be seen that a recovery of investment is possible, despite the present claims by creditors, in the amount of Rs 41.3 million, against the present net fixed assets of Rs 21.5 million in plant and equipment.

The above calculations of remaining values for plant and equipment were made at the depreciation rates used by the company, through the total years of repayment, to obtain net depreciated values.

These results show that a re-start program for HLIL, under any alternative, produces a turn-around situation of major importance to the investors. In the very process of honoring the company's total obligations, and discharging all debt, the equity-holders regain not only control of their company, free and clear, but restore their initial investment — with maximum loss of capital amounting to only 30 percent, if alternative 1 is chosen for start-up. The present level of debt appears to overwhelm the capital base: total current and fixed assets combined are only Rs 28.4 million against claims of Rs 41.3 million. If the demand for payment results in a panic sale of assets to repay creditors, plant and equipment must be sold off at reduced prices which will not fully satisfy the debt, and will foreclose a bright potential.

#### 9.4 Economic Results of Alternative Schedules

Each alternative produces different levels of employment, payroll, foreign exchange costs consumed in production, and foreign exchange earnings from potential foreign sales.

Some production schedules which are preferred for their financial results do not produce the best economic results. An efficient plant manager working toward financial returns will not take the same view toward maximum payroll and maximum employment as a government planner concerned with optimizing employment and income distribution. Therefore, a preferred alternative may finally depend upon the compromises which may be reached by the parties to the negotiation for plant start-up: the National Industrial Development Corporation, stockholders, commercial bank lenders willing to advance the Working Capital, and collective creditors.

#### Employment and Payroll

<u>Alternative</u>	<u>Total Employed</u>	<u>Foreign Employed</u>	<u>Total Payroll (Rs 000)</u>	<u>Local Payroll (Rs)</u>	<u>Average per Local Employee (US \$) equiv.</u>
1	34	1	1825	505	695
2	34	1	1825	505	695
3	36	1	1851	531	690
4	55K	1K	2276	791	666
5	58K	1K	2315	830	662
6	71K	2K	3344	977	644
7	79½	2½	3644	1122	656
8	61K	1K	2353	868	658
9	65K	2K	3275	908	655
10	71K	1K	2649	999	649

Employment levels may range from a minimum of 34 to a maximum of 79.5 (the .5 or .25 in each case being represented by allocated foreign staff, paid by Gerbhaut and by HLIL in fractional shares). Payroll will also range, with employment, from Rs 1.8 million to Rs 3.6 million, including foreign staff costs paid by HLIL. The local payroll is reported in US \$ equivalent, for comparison with the stated average per capita income of US\$ 140 equivalent, and as a total amount annually in Rupees. The average payroll per x local employee amounts to \$667, or \$166.75 for the employee and three dependents -- about 20 percent more than the stated per capital income.

The average payroll per local employee shows variations, and a tendency to decline as more extended processing occurs, because of different machine configurations which require less skills (and skilled pay), even though employment rises for relatively unskilled machine and plant attendants. The contribution of payroll to foreign staff by Gerbhaut is consistent with that investor's prior role, and related to quality control over foreign exports.

Comparison of payroll and employment shows that alternative 7 leads in all other alternatives in maximizing labor benefits. This production schedule requires more labor, the highest payroll, and the largest foreign staff. Alternative 7 produces all three lines of product: 300 wet blue, 100 crust, and 100 finished hides daily.

A major concern of government in the founding of HLIL was the potential of the company to contribute to reduced imports of leather by serving the domestic market, and to further improve the trade balance by exports of its products. The costs of such activity



involves also the expenditure of foreign exchange, on foreign staff and chemicals. The levels of these costs, under each production schedule, are shown below.

Foreign Exchange Costs of Production (Rs 000)

<u>Altern.</u>	<u>Staff</u>	<u>Chemicals</u> (Total)	<u>Wet Blue</u>	<u>Crust</u>	<u>Finished</u>
1	1320	4500	3180		
2	1320	5295	3975		
3	1320	6090	4770		
4	1485	8730	5565	1680	
5	1485	9525	6360	1680	
6	2367	13677	7950	3360	
7	2532	15342	7950	1680	3180
8	1485	8025	--	6540	
9	2367	12177	--	9810	
10	1650	14550	--	--	12,900

The foreign exchange costs of production are greatest for production schedule 7, which produces the three lines of product, and which offers the highest employment and payroll levels. But the final effects of such expenditures must be measured against the Forex earnings achieved among these alternatives.

Foreign Exchange Sales Values (Rs 000)

<u>Altern.</u>	<u>Sales</u> <u>Value</u> (Total)	<u>Wet</u> <u>Blue</u>	<u>Crust</u>	<u>Fin-</u> <u>ished</u>	<u>Net</u> <u>Forex</u>	<u>Local</u> <u>Sales</u> (25%)	<u>Net Forex</u> <u>after Local</u>	<u>Earnings</u> <u>Cost</u> (Ratio)
						*		**
1	17483	17483			12983			2.88
2	21853	21853			16558			3.13
3	26224	26224			20134			3.31
4	33138	22727	10411		24408			2.80
5	36635	26224	10411		27110			2.85
6	47046	26224	10411		33369			2.44
7	50383	26224	10411	13748	35041	795	34246	2.28
8	24529	--	24589		16564			2.06
9	36883	--	36883		24706			2.03
10	32468	--	--	32468	17918	3225	14693	1.23

\* Sale of finished leather to domestic market.

\*\* Ratio of Net Forex earnings to Forex costs.

In this comparison, production schedule 7 outperforms all alternatives. It yields the maximum sales value in foreign exchange earnings potential, at Rs 50.3 million annually, and after foreign exchange costs, retains the highest Net Forex Earnings at Rs 35.0 million. Along with alternative 10, this schedule produces finished leather which can be sold on the domestic market. If 25 percent of finished output goes to the local market, in both cases, the sales value in Rupees is shown, and the net foreign exchange earnings remaining to the export markets.

The net ratio of Forex earnings to Forex costs is less for alternative 7 than for other schedules. Alternative 3 is again of interest, with a ratio of 3.31, compared to only 2.28 for alternative 7. This is because alternative 3 produces Rs 20 million annually against expenditure of only Rs 6 million, while case 7 produces Rs 35 million on expenditure of Rs 15 million. That is, case 7 yields a lesser rate of return. But the practical choice between them would favor alternative 7, as such costs are generated out of sales (are not a government resource allocated to production), and alternative 7 also produces Rs 15 million more in net Forex earnings annually than does alternative 3.

### 9.5 Conclusion: The Choice Between Alternatives

In summary, if company operations are viewed in the light of national expectations for specific economic benefits, alternative 7 would be a preferred choice among different production schedules.

Alternative 7 is also shown in the financial analysis to rank high among production schedules which provide a rapid payback of outstanding obligations. It produces the second highest Net Present Value (behind alternative 6), and therefore is able to restore the value of stockholders equity to a surplus value above original paid-in capital (along with alternative 6). The Internal Rate of Return for alternative 7 is not as great as for 3 or 6, and its payback of Working Capital takes longer (22 weeks) because of complicated time staging of its sales of product. But these appear to be minimal shortcomings. If combined financial and economic interests are to be optimized, alternative 7 would rank as follows among the alternatives:

#### Comparative Ranking of Alternatives

<u>Ranks:</u>	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Payback on Working Capital:	3	6	2	4 and 5
Net Present Value:	6	7	5	4
Internal Rate Return:	3	6	2	4
Most Rapid Debt Retirement:	6 and 7	9	5	4
Restored Equity:	6 and 7	5	4	9
Total Employment:	7	6	10	9
Total Payroll:	7	6	9	10
Local Payroll:	7	10	6	9
Forex Earnings:	7	6	9	4
Local Sales:	7	10	-	-

From this comparative ranking it is possible to select production schedule 7 as a first choice, and schedule 6 as a second choice. It is hoped that this comparative evaluation demonstrates the operating possibilities of the HLIL tannery, with appropriate management of Working Capital and the use of existing equipment.

The alternative production schedules have been presented as mutually exclusive alternatives. The purpose has been to demonstrate the results of any targetted output programme, and to compare these results as to financial and economic outcome. In fact, however, a recommended program at start might be to begin with 200 wet blue, to test-run machinery and gain experience among labor crews, followed by extension of product lines and increased input volumes, as the organization of production increased its efficiency.

The final value of these comparative production schedules is to show that good results can be obtained even with the least of these alternatives, if the company desires to gear its operations to the level of industry norms, and to manage its existing assets in an effective manner.

## ANNUAL SALES RECORD: FY 1982 - 1987

## Hetauda Leather Industries Ltd.

	<u>Total Sales</u>		<u>Local Sales</u>		<u>Foreign Sales</u>	
	Sq. Ft.	Rupees	Sq. Ft.	Rupees	Sq. Ft.	Rupees
<b>FY 1982</b>						
Wet Blue	<u>138118</u>	<u>738876</u>	<u>3118</u>	<u>34544</u>	<u>135000</u>	<u>704332</u>
Crust	<u>30376</u>	<u>83645</u>			<u>30376</u>	<u>84635</u>
Finished	<u>107382</u>	<u>652459</u>	<u>3118</u>	<u>31772</u>	<u>104264</u>	<u>620687</u>
Other *		<u>2772</u>		<u>2772</u>		
<b>FY 1983</b>	<u>156816</u>	<u>1017915</u>	<u>36206</u>	<u>420212</u>	<u>120610</u>	<u>597703</u>
Wet Blue						
Crust						
Finished	<u>156816</u>	<u>991209</u>	<u>36206</u>	<u>393506</u>	<u>120610</u>	<u>597703</u>
Other		<u>26706</u>		<u>26706</u>		
<b>FY 1984</b>	<u>1057007</u>	<u>7210440</u>	<u>226029</u>	<u>2052276</u>	<u>830978</u>	<u>5158164</u>
Wet Blue	<u>363881</u>	<u>2136928</u>	<u>65282</u>	<u>432038</u>	<u>298599</u>	<u>1704890</u>
Crust	<u>547801</u>	<u>3473863</u>	<u>86716</u>	<u>541157</u>	<u>461085</u>	<u>2932706</u>
Finished	<u>145325</u>	<u>1359752</u>	<u>74030</u>	<u>839184</u>	<u>71295</u>	<u>520568</u>
Other		<u>39897</u>		<u>39897</u>		
<b>FY 1985</b>	<u>913767</u>	<u>7792818</u>	<u>381638</u>	<u>3610565</u>	<u>532130</u>	<u>4182253</u>
Wet Blue	<u>304413</u>	<u>2302509</u>	<u>91939</u>	<u>719822</u>	<u>212474</u>	<u>1582687</u>
Crust	<u>351446</u>	<u>2643768</u>	<u>69467</u>	<u>470618</u>	<u>281979</u>	<u>2173150</u>
Finished	<u>257908</u>	<u>2696532</u>	<u>220232</u>	<u>2270116</u>	<u>37677</u>	<u>426416</u>
Other		<u>150009</u>		<u>150009</u>		
<b>FY 1986</b>	<u>634107</u>	<u>7154908</u>	<u>319959</u>	<u>4087382</u>	<u>314148</u>	<u>3067526</u>
Wet Blue	<u>2123363</u>	<u>1767396</u>	<u>14</u>	<u>187</u>	<u>213349</u>	<u>1767209</u>
Crust	<u>109046</u>	<u>1082386</u>	<u>16609</u>	<u>124765</u>	<u>92438</u>	<u>957621</u>
Finished	<u>311698</u>	<u>3775184</u>	<u>303336</u>	<u>3673338</u>	<u>8362</u>	<u>101846</u>
Other		<u>529942</u>		<u>289092</u>		<u>240850</u>
<b>FY 1987 **</b>	<u>311753</u>	<u>3671923</u>	<u>87170</u>	<u>1239366</u>	<u>224583</u>	<u>2432557</u>
Wet Blue	<u>72779</u>	<u>724088</u>	<u>12</u>	<u>109</u>	<u>72767</u>	<u>723979</u>
Crust	<u>139875</u>	<u>1429763</u>	<u>4643</u>	<u>34609</u>	<u>135232</u>	<u>1395154</u>
Finished	<u>99099</u>	<u>1338668</u>	<u>-82515</u>	<u>1138208</u>	<u>16584</u>	<u>200460</u>
Other		<u>179404</u>		<u>66440</u>		<u>112964</u>

\* Other includes insole, or leatherboard, and furtanned skins

\*\* Partial year: July 16 through March 15, 1987 (7 months)

FOREIGN SALES TO GERMANY (GERBHAUT) BY HLIL: FY 1982-1987

	<u>Pieces</u>	<u>Sq. Feet</u>	<u>Rs/Sq. Ft.</u>	<u>Rs Value</u>
FY 1982	16129	135000	5.22	704332
FY 1983	11038	120610	4.95	597703
FY 1984	35106	461434	6.39	2904421
FY 1985	17540	222329	7.38	1641485
FY 1986	0	0	0	0
FY 1987	8812	99930	9.98	997729

FOREIGN SALES TO INDIA BY HLIL: FY 1982 - 1987

<u>FY 1984</u>	<u>16901</u>	<u>369545</u>	<u>6.10</u>	<u>2253743</u>
Wet Blue	11275	298599	5.71	1704890
Crust	2328	30742	7.63	234723
Finished	3298	40204	7.81	314130
<u>FY 1985</u>	<u>13227</u>	<u>309801</u>	<u>8.20</u>	<u>2540768</u>
Wet Blue	6977	212474	7.45	1582687
Crust	4665	72713	9.25	672559
Finished	1585	24614	11.60	285522
<u>FY 1986</u>	<u>15718</u>	<u>314148</u>	<u>9.76</u>	<u>3067526</u>
Wet Blue	7117	213349	8.28	1767209
Crust	7537	92437	10.36	957621
Finished	720	8362	12.18	101846
Other	350	Kg	-	240850
<u>FY 1987</u>	<u>7540</u>	<u>124603</u>	<u>11.52</u>	<u>1434828</u>
Wet Blue	2515	72767	9.95	723979
Crust	2824	35252	11.27	397425
Finished	2201	16584	12.09	200460
Other		Kg	-	112964