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Leather Tannery Project

Pre-feasibility Study Report

September, 2014

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Data Page

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Abstract:

The USAID Pakistan Firms project aims to assist the Khyber Pakhtunkhwa Board of Investment and Trade (KPBOIT) in promoting investment and trade in the province. In an effort to achieve this aim, preliminary feasibility studies have been conducted in order to highlight the investment opportunities available for international and domestic investors. The focus of these preliminary feasibility studies has been kept on the high economic growth sectors in KPK.

This report is a part of series of pre-feasibility studies conducted for identified projects. The information used for the preparation of this report has been gathered from various reliable sources including economic and statistical surveys carried out by the government of Pakistan. Competitor's data and industry averages have been used as a basis for the preparation of preliminary financial projections.

This report provides a financial and economic analysis of the opportunities available in the sector and identifies the potential technical strengths and constraints that may be encountered by the investor(s) in undertaking the identified project. It aims to help the reader develop an understanding of the operational aspects of the sector and its growth potential in the country particularly in the Khyber Pakhtunkhwa province. An outline for a business plan has been prepared for the identified project which identifies the operational requirements (equipment, human resource, infrastructure etc.). The analysis is supported by preliminary financial projections for the first ten years of the business.

Acronyms

BEE	Business Enabling Environment
KPBOIT	Khyber Pakhtunkhwa Board of Investment and Trade
KPK	Khyber Pakhtunkhwa
PTA	Pakistan Tanners Association
RFP	Request for Proposal
SOW	Scope of Work
USAID	United States Agency for International Development

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Executive Summary

Introduction

Chemonics International is implementing the USAID Pakistan Firms Project that works to develop a dynamic internationally competitive business sector to accelerate sales, increase exports, investment, job growth and produce higher value added products and services. Within the business enabling component, the project has initiated an assistance program for the Khyber Pakhtunkhwa Board of Investment and Trade (KPBOIT) to help it meet its mandate promoting investment and trade in the province. The KPBOIT was created with a mandate to advocate specific investment friendly reforms and advise the KPK government regarding the provision of adequate infrastructure facilities for making the KPK Province business environment more conducive to international investment.

The Khyber Pakhtunkhwa Board of Investment and Trade (KPBOIT) is considering development of a leather tannery project with total annual capacity of 2 million sft.

The project will be offered to the investor(s) selected through competitive bidding process. Identification of land and obtaining requisite approvals from the provincial government for construction of the proposed facility in the proposed areas will be the responsibility of the investor with facilitation from KPBOIT. Depending on the approvals from provincial government, the investors can be provided land on lease basis, whereas, construction and operations of the project will be managed by the investors. The construction of project would be subject to pre-conditions with respect to design approval, minimum standards to be followed etc. which will be detailed in the project RFPs to be launched at a later stage. However, this pre-feasibility is based on the assumption that the investor will arrange land for the project on its own.

This pre-feasibility has been based on a series of assumptions with respect to design, size, costs, revenues, returns etc. However, these are indicative only and the investors might require to carry out their own feasibility studies.

Results of financial pre-feasibility

The results of this financial pre-feasibility indicate that development of a leather tannery project with total production capacity of 2 million sft per annum, will be a profitable financial investment.

The results of this financial pre-feasibility indicate that the project is capable of generating following results:

- **Equity IRR of 18.54% and**
- **Project IRR of 16.58%**

Following are the key assumptions/considerations for the investors which were used in this pre-feasibility and which form basis of projected returns from the project:

- **Total project outlay is estimated at PKR 190million (including PKR 15 million for working capital requirements),** financed through 40% equity and 60% debt. **Total equity contribution will be required at PKR 76 million.**
- The cost of equity has been assumed at 18%, whereas, cost of debt is estimated at KIBOR + 3% (13.5% total).
- The project is expected to be constructed in a time period of one year.

- Cost estimates are based on cost structures in comparable projects in the country.

1. Project Background and Rationale

1.1 Introduction

Leather Industry is ranked among Pakistan's top export earners, contributing significantly to the national exchequer. International demand for Pakistan's leather products, low investment as compared to other sectors, easy availability of quality hides and skins, high quality craftsmanship, and cheap availability of skilled labour are some of the encouraging factors that provide a potent opportunity for a new entrant to venture into leather industry business.

The Khyber Pakhtunkhwa Board of Investment and Trade (KPBOIT) has conceived an idea to develop a leather tannery project in the province. Land for the project is being identified and will be offered for investment to facilitate investors willing to avail this feasible opportunity.

This study has been prepared to determine the financial feasibility of setting up and operating leather tannery project.

1.2 Introduction to KPBOIT

Khyber Pakhtunkhwa Board of Investment and Trade (KPBOIT) is established for the promotion of trade and investment activities in Khyber Pakhtunkhwa (KPK). Government of Khyber Pakhtunkhwa is committed to bring economic prosperity in the Province through industrial and trade development and delegated this role to KP-BOIT.

KP-BOIT has accepted this challenging task towards achievement of its mission under the leadership of a dynamic Board Members comprising of eminent people of public and private sectors.

High motivation and commitment is there to achieve the vision to flourish the investment and trade in Khyber Pakhtunkhwa making it most favorite investment destination for investors.

Our land is blessed with abundance of natural resources of Oil & Gas, Hydel Power Generation, Tourist Destinations, Mines and Minerals along with Agriculture. The Province is located at an outstanding geographical location.

KPBOIT is striving for exploiting the tremendous potential of the Province into reality and is focused on meeting its important objective of facilitating local and foreign investors desirous of benefiting from this huge potential of the KPK. Our aim is creating an attractive business environment through proactive policy advocacy both at the Provincial and Federal level. Another important role of awareness among investors is to the tremendous opportunities available for investment in KPK and therefore facilitating them for undertaking such investment as a joint venture partners.

We also act as a focal point of contact for both foreign and domestic investors providing information and assistance in coordination with other Government Departments and Agencies.

KPBOIT's objectives are:

- To flourish and revive the investment climate of Khyber Pakhtunkhwa and to make it a lucrative investment friendly destination.
- To provide one window operation facility to investors by proactively engaging with all stakeholders to ensure successful investments.
- To act as a bridge between investors and all related government and semi Government Departments/Organizations.
- Advise the Provincial Government to create environment for investment through advocacy of specific investment friendly and comprehensive Public Private Partnership policies.

1.3 Overview of sector

Leather goods industry of Pakistan enjoys active demand in the world as well as domestic markets. Besides being a potential source of foreign exchange earnings, it also provides an important means of diversification within leather industry by allowing conversion of domestically produced leather into higher value added leather goods.

At the time of independence, there were only a few tanneries producing sole leather at a small scale. In the early days of independence, some tanneries were established in Karachi. In 1950's some were established in Lahore and adjoining areas. The industry has flourished rapidly since then. During 1950s well-equipped tanneries were set up at Karachi and Lahore, while during 60s and 70s more units were established at Hyderabad, Kasur, Sialkot, Multan, Sahiwal and Gujranwala. Starting with the production of pickled and vegetable tanned hides and skins, the tanneries, today are producing not only wet blue and crust but also fully finished leather. As per the data available from Pakistan Tanners Association (PTA), there are about 800 tanneries in the country, out of which 213 members currently registered with PTA from all over the country are actively engaged in manufacturing and fully geared-up towards promoting export of quality finished leather and leather products on modern pattern as per international demand.

Pakistan produces very fine quality leather, which is recognized worldwide, and a good quantity of Finished Leather is sold locally to the Manufacturers of Leather Garments, Upholstery, Footwear, Gloves and other Leather Goods to enable them to meet their production requirements. PTA's leather producers have also started exporting fine quality furniture leather (upholstery) to the international market. During the last five years, Pakistan's leather exports have shown steady growth. Leather exports from Pakistan have increased from PKR 23.4 billion in 2008-09 to PKR 48.5 billion in 2012-13 (source: Pakistan Bureau of Statistics). The table below provides year wise exports of leather from Pakistan:

Table 1: Leather Exports

Year	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Leather Export (PKR millions)	23,393	28,698	39,744	39,841	48,456	50,485

source: Pakistan Bureau of Statistics

With the award of GSP plus status to Pakistan, exports of leather have further potential for growth. In order to boost leather export, PTA intends to hold maximum number of International Fairs with the Government approval to get ample export orders. As per the PTA estimates, the leather industry in Pakistan is targeting exports of about US\$ 5 billion.

Pakistani tanners have ample potential to move ahead but in order to further develop the leather industry the Government has been requested to provide some due incentives and concessions to PTA's member exporters to ensure playing field.

The key raw material for leather tannery i.e. animal hide is abundantly available as the country is enriched with large livestock population. Livestock production is an integral part of the economy of Pakistan. More than 6.5 million families consisting of 35 million people are involved in livestock farming. In rural Pakistan, it complements agriculture income by converting crop residues, agriculture by-products and wastes into milk, meat, wool, hair etc. Livestock population in Pakistan is mainly comprised of Cow, Buffalo, Sheep, Goat, Camel and Poultry. Around 47% of the rural households in Pakistan own livestock and 11% of their income come from livestock (source: Economic Survey of Pakistan 2013-14). According to Pakistan economic survey, the Livestock sector contributes 55.9 percent in the agriculture exhibited a growth of 2.9 percent in 2013-14, based on Livestock Census 2006, and 11.8 percent to the national GDP during 2013-2014 compared to 11.9 percent during the corresponding period last year. Gross value addition of livestock has increased from PKR 756.3 billion (2012-13) to PKR 776.5 billion (2013-14), showing an increase of 2.7 percent as compared to last year (data source: Economic Survey of Pakistan 2013-14).

The country has a very large number of livestock population presenting ample potential for leather tannery projects. As per the data published by Ministry of National Food Security and Research, the estimated livestock population in Pakistan includes 39.7 million cattle, 34.6 million buffalos, 29.1 million sheep and 66.6 million goats at the end of year 2013-14.

1.4 Tannery process

The most common chemicals used for tanning is a combination of chrome salts (chrome tanning) and readily usable vegetable extracts (vegetable tanning). In Pakistan, the most widely produced leather is shoe leather, which is chrome tanned. In most cases raw hides produced at slaughterhouses are preserved by pickling and drying for transport to tanneries and further treatment. In the very few cases that hides are instantly tanned there is no need for preservation. During the tanning process at least ± 300 kg chemicals (lime, salt etc.) is added per ton of hides.

Pre-tanning (Beam house operations)

Soaking:

The preserved raw hides regain their normal water contents. Dirt, manure, blood, preservatives (sodium chloride, bactericides) etc. are removed.

Fleshing and trimming:

Extraneous tissue is removed. Un-hairing is done by chemical dissolution of the hair and epidermis with an alkaline medium of sulphide and lime. When after skinning at the slaughterhouse, the hide appears to contain excessive meat, fleshing usually precedes un-hairing and liming.

Bating:

The un-haired, fleshed and alkaline hides are neutralized (de-liming) with acid ammonium salts and treated with enzymes, similar to those found in the digestive system, to remove hair remnants and to degrade proteins. During this process hair

roots and pigments are removed. The hides become somewhat softer by this enzyme treatment.

Pickling:

Pickling increases the acidity of the hide to a pH of 3, enabling chromium tannins to enter the hide. Salts are added to prevent the hide from swelling. For preservation purposes, 0.03 - 2 weight percent of fungicides and bactericides are applied.

Tanning

There are two possible processes:

Chrome tanning:

After pickling, when the pH is low, chromium salts (Cr^{3+}) are added. To fixate the chromium, the pH is slowly increased through addition of a base. The process of chromium tanning is based on the cross-linkage of chromium ions with free carboxyl groups in the collagen. It makes the hide resistant to bacteria and high temperature. Wet blue, i.e. the raw hide after the chrome tanning process, has about 40 percent of dry matter.

Vegetable tanning:

Vegetable tanning is usually accomplished in a series of vats (first the rocker-section vats in which the liquor is agitated and second the lay-away vats without agitation) with increasing concentrations of tanning liquor. Vegetable tannins are polyphenolic compounds of two types: hydrolysable tannins (i.e. chestnut and myrobalan) which are derivatives of pyrogallols and condensed tannins (i.e. hemlock and wattle) which are derivatives from catechol. Vegetable tanning probably results from hydrogen bonding of the tanning phenolic groups to the peptide bonds of the protein chains.

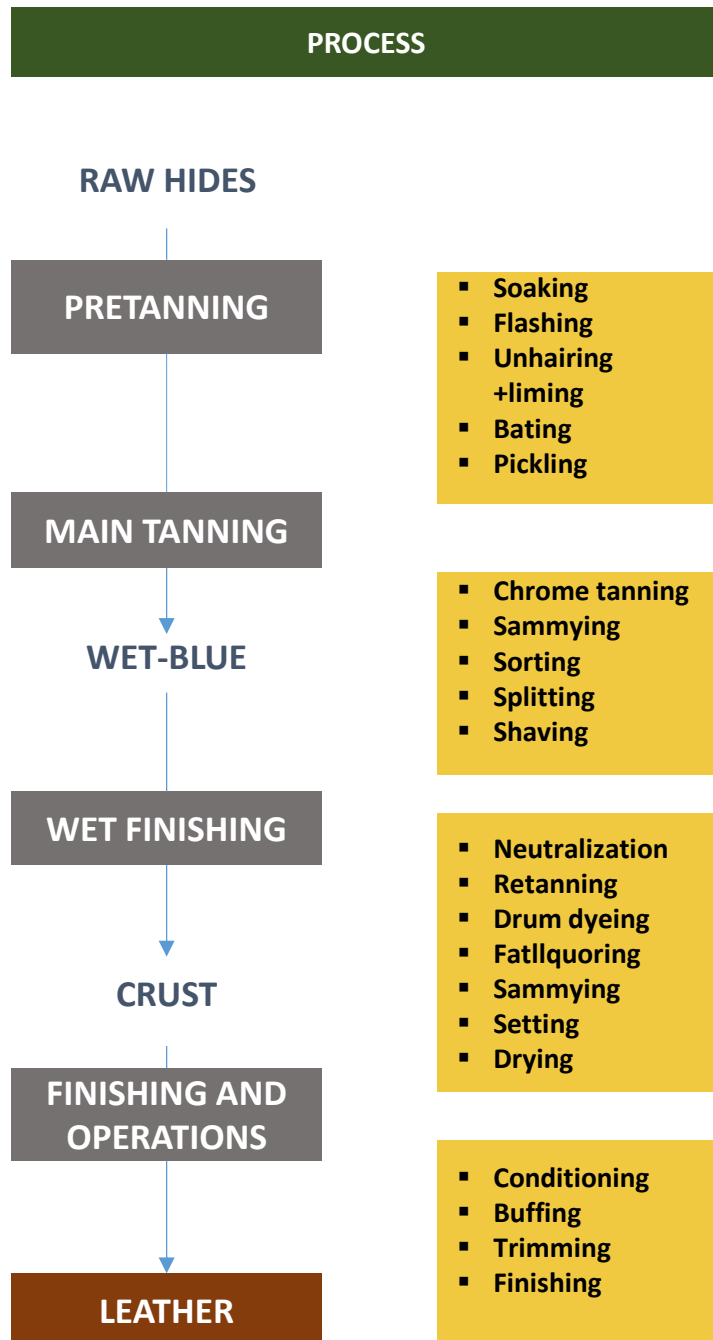
Finishing

Wet blue:

Chromium tanned hides are often re-tanned - during which process the desirable properties of more than one tanning agent are combined - and treated with dye and fat to obtain the proper filling, smoothness and color. Before actual drying is allowed to take place, the surplus water is removed to make the hides suitable for splitting and shaving. Splitting and shaving is done to obtain the desired thickness of the hide. The most common way of drying is vacuum drying. Cooling water used in this process is usually circulated and is not contaminated.

Crust:

The crust that results after re-tanning and drying, is subjected to a number of finishing operations. The purpose of these operations is to make the hide softer and to mask small mistakes. The hide is treated with an organic solvent or water based dye and varnish. The finished end product has between 66 and 85 weight percent of dry matter.



1.5 Conclusion

Based on the availability of raw material and established brand of leather exports from Pakistan, there is considerable potential for investment in leather tannery projects. Investors can benefit from limited competition in the Khyber Pakhtunkhwa province.

1.6 KPBOIT assistance

In accordance with the objectives of the KPBOIT, it will serve as one window facilitation center for the investors with respect to the proposed project. KPBOIT will assist the investors, in relation to the proposed project, through:

- Obtaining requisite approvals from the provincial government for establishing the project;
- Provision of land for the project on lease basis (under consideration and subject to approval from the provincial government);
- Provision of pre-feasibility study for the project;
- Arranging bidding process for selection of investors for the project; and
- Assistance in arranging utilities etc.

2. Financial Pre-feasibility

2.1 Project design assumptions

The financial feasibility is based on the assumption that the total installed production capacity of the leather tannery will be 2 million sft. per annum. The project will require total land area of 3 acres. Key infrastructure for the project will comprise of main plant building, raw material store, semi-finished leather (wet blue) store, finished leather store, chemical store, management building and waste processing facility.

2.2 Project set up costs

The total project outlay has been estimated at PKR 175 million, including PKR 15 million for interest costs during construction phase. In addition to the initial set up costs, working capital injection of around PKR 15 million will be required. For the purpose of this financial pre-feasibility, the debt to equity ratio has been assumed as 60% debt and 40% equity. At these levels, the investors will be required to plough in equity of PKR 76 million. Debt financing of up to PKR 105 million will be required during the construction period. Financing cost has been estimated at KIBOR (currently 10.5%) + 3%.

The table below provides break up of project set up costs:

Table 2: Project Cost

Project Capital Cost	PKR
Land 3 acres @ PKR 1.5 million per acre	4,500,000
Building and related infrastructure	
Management building	14,400,000
Factory	28,800,000
Raw leather & wet blue store	12,000,000
Finished leather store	9,600,000
Chemical store	9,600,000
Machinery and equipment	
De-salting machine (3)	795,000
Pre-soaking & Main Soaking (paddles) - (10)	2,000,000
Washing drums (liming, de-liming, batting, wasing) - (8)	4,800,000
Washing drums (pickling, tanning, wasing) - (10)	7,000,000
Sammying machines (7)	4,200,000
Splitting machine (2)	1,600,000
Wet blue grain processing equipment	2,400,000
Wet blue split processing equipment	1,200,000
Drying machines	3,300,000
Dry milling equipment	2,000,000
Toggling machines	1,200,000
Impregnation (curtain coating) machine	700,000
Base coat (reverse roller) machine	750,000
Top spray (rotary sprayer)	1,700,000
Waste processing facility	35,000,000
Press machine	2,950,000
Furniture, fixtures, office equipment & MIS	5,000,000
Vehicles	4,000,000
Interest during construction	15,379,864
Total Capital Cost	174,874,864

The assumptions used in the development of financial feasibility related to useful lives of the assets are provided in the table below:

Table 3: Assets useful life

Assets useful life (Years)	
Plant and machinery	10
Building	15
Furniture, fixtures & office equipment	10
Vehicles	10

The table below presents financing assumptions used in the financial feasibility:

Table 4: Financing Assumptions

Project financing assumptions	
Equity %	40%
Debt %	60%
Grace period - Years	2
Repayment (excluding grace period)	8
Base interest rate (KIBOR)	10.5%
Spread (%)	3.0%

2.3 Operating revenues and costs

The revenues from the project will be obtained from sale of finished leather. Based on the comparable trends, selling price of finished leather has been estimated at PKR 175 for leather developed from cattle hides and PKR 220 for leather developed from goat/sheep hides. Annual increase of 8% has been applied from year 2 onwards.

The plant is expected to start operations from one year of start of construction. However, capacity utilization has been assumed at 60% in first year of operations, 80% in second year of operations and 90% in third year onwards. Keeping in view the supply of animal hides as well as demand for types of finished leather, the 70% of leather produced will be from cattle hides and rest 30% from goat/sheep hides. A wastage factor of 18% has been applied for the purpose of financial feasibility.

The table below summarizes assumptions used in operations of the plant:

Table 5: Operating Assumptions

Operating assumptions	
Plant capacity (SFT per annum)	2,000,000
Working days per annum	300
Capacity utilization	
Year 1	60%
Year 2	80%
Year 3 and onwards	90%
Product composition	
Cattle hides	70%
Goat & sheep hides	30%
Wastage factor	18%
Average hide size (SFT)	
Cattle hides	22.00
Goat & sheep hides	6.50
Average base cost (PKR/ SFT)	
Cattle hides	90.00
Goat & sheep hides	110.00
Annual escalation in costs %	8%
Direct production cost PKR/ SFT	30
Manager and supervisors	4
Skilled and semi-skilled Labor	26
Manager and vet supervisors - annual salary cost	2,400,000
Farm Labor - annual salary cost	5,616,000
Repair & maintenance (annual cost)	1,000,000
Packing cost - PKR/SFT	5
Utilities costs - PKR/ month	300,000
Insurance cost as % of project costs	1%
Annual escalation in insurance costs %	5%

A lump sum amount of PKR 300,000 per month has been assumed for administrative and general expenditure.

Following assumptions were used for working capital requirements of the project:

Table 6: Working Capital Assumptions

Working capital assumptions	
Raw material (inventory in months)	1.00
Finished product (months)	0.50
Trade debts (days)	30
Trade creditors (days)	60

2.4 Project returns

Based on cash flow projections prepared after taking into consideration project set up costs and operating results, the project is expected to generate IRR of 18.54% for the equity investor.

Project IRR	16.58%
Project NPV @15%	11,284,813
Equity IRR	18.54%
Equity NPV @15%	14,091,507

3. Appendices

Appendix -1 Indicative financial statements

Projected Balance Sheet

FINANCIAL FEASIBILITY
SETTING UP A LEATHER TANNERY
PROJECTED BALANCE SHEET

Amounts in PKR

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Fixed Assets	174,874,864	160,061,047	145,247,229	130,433,412	115,619,594	100,805,777	85,991,959	71,178,142	56,364,324	41,550,507	26,736,689
Current Assets											
Stocks in trade	-	17,328,500	24,953,040	30,317,944	32,743,379	35,362,849	38,191,877	41,247,228	44,547,006	48,110,766	51,959,628
Trade debts	-	15,245,260	21,953,175	26,673,107	28,806,956	31,111,512	33,600,433	36,288,468	39,191,546	42,326,869	45,713,019
Cash & bank balances	15,000,000	3,116,954	7,905,731	22,538,937	39,210,591	58,259,077	79,855,862	104,183,417	131,435,718	185,966,959	243,847,363
	15,000,000	35,690,714	54,811,945	79,529,988	100,760,926	124,733,439	151,648,173	181,719,113	215,174,269	276,404,594	341,520,010
Total Assets	189,874,864	195,751,761	200,059,174	209,963,399	216,380,520	225,539,215	237,640,132	252,897,255	271,538,594	317,955,101	368,256,699
Share Capital & Reserves											
Share capital	75,949,946	75,949,946	75,949,946	75,949,946	75,949,946	75,949,946	75,949,946	75,949,946	75,949,946	75,949,946	75,949,946
Retained earnings	-	(12,314,430)	(9,872,474)	780,453	15,132,661	33,545,163	56,416,456	84,186,665	117,342,188	156,420,873	199,572,816
	75,949,946	63,635,516	66,077,471	76,730,398	91,082,606	109,495,109	132,366,402	160,136,611	193,292,134	232,370,819	275,522,761
Long term debt	105,156,561	95,204,474	83,908,857	71,088,331	56,537,033	40,021,311	21,275,966	-	-	-	-
Current liabilities											
Creditors/ liabilities	-	26,959,685	37,963,244	45,773,169	49,425,514	53,369,572	57,628,655	62,227,941	67,194,619	72,558,054	78,349,957
Tax payable	-	-	813,985	3,550,976	4,784,069	6,137,501	7,623,764	9,256,736	11,051,841	13,026,228	14,383,981
Current portion - LT debt	8,768,358	9,952,086	11,295,618	12,820,526	14,551,297	16,515,722	18,745,345	21,275,966	-	-	-
	8,768,358	36,911,771	50,072,847	62,144,670	68,760,881	76,022,795	83,997,764	92,760,644	78,246,460	85,584,282	92,733,938
Total equity & liabilities	189,874,864	195,751,761	200,059,174	209,963,399	216,380,520	225,539,215	237,640,132	252,897,255	271,538,594	317,955,101	368,256,699

Projected Income Statement

FINANCIAL FEASIBILITY
SETTING UP A LEATHER TANNERY
PROJECTED INCOME STATEMENT

Amounts in PKR

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	185,484,000	267,096,960	324,522,806	350,484,631	378,523,401	408,805,273	441,509,695	476,830,471	514,976,909	556,175,061
Costs										
Cost of raw hides	115,200,000	165,888,000	201,553,920	217,678,234	235,092,492	253,899,892	274,211,883	296,148,834	319,840,740	345,428,000
Direct production cost	29,520,000	42,508,800	51,648,192	55,780,047	60,242,451	65,061,847	70,266,795	75,888,139	81,959,190	88,515,925
Packing cost	4,920,000	7,084,800	8,608,032	9,296,675	10,040,409	10,843,641	11,711,133	12,648,023	13,659,865	14,752,654
Salary costs - management	2,400,000	2,592,000	2,799,360	3,023,309	3,265,174	3,526,387	3,808,498	4,113,178	4,442,233	4,797,611
Salary costs - labor	5,616,000	6,065,280	6,550,502	7,074,543	7,640,506	8,251,746	8,911,886	9,624,837	10,394,824	11,226,410
Repair & maintenance	1,000,000	1,080,000	1,166,400	1,259,712	1,360,489	1,469,328	1,586,874	1,713,824	1,850,930	1,999,005
Utilities cost	3,600,000	3,888,000	4,199,040	4,534,963	4,897,760	5,289,581	5,712,748	6,169,767	6,663,349	7,196,417
Insurance costs	1,748,749	1,836,186	1,927,995	2,024,395	2,125,615	2,231,896	2,343,490	2,460,665	2,583,698	2,712,883
Depreciation	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817
	178,818,566	245,756,884	293,267,259	315,485,695	339,478,713	365,388,136	393,367,125	423,581,085	456,208,646	491,442,722
Margin	6,665,434	21,340,076	31,255,547	34,998,936	39,044,688	43,417,137	48,142,570	53,249,386	58,768,262	64,732,340
Other costs										
Admin & general expenses	3,600,000	3,888,000	4,199,040	4,534,963	4,897,760	5,289,581	5,712,748	6,169,767	6,663,349	7,196,417
Financial costs	15,379,864	14,196,136	12,852,604	11,327,696	9,596,925	7,632,500	5,402,877	2,872,255	-	-
	18,979,864	18,084,136	17,051,644	15,862,659	14,494,685	12,922,081	11,115,625	9,042,023	6,663,349	7,196,417
Profit before tax	(12,314,430)	3,255,941	14,203,903	19,136,277	24,550,003	30,495,057	37,026,946	44,207,363	52,104,914	57,535,923
Tax	-	813,985	3,550,976	4,784,069	6,137,501	7,623,764	9,256,736	11,051,841	13,026,228	14,383,981
Profit after tax	(12,314,430)	2,441,956	10,652,927	14,352,208	18,412,503	22,871,292	27,770,209	33,155,523	39,078,685	43,151,942

Projected cash flows statement

FINANCIAL FEASIBILITY
SETTING UP A LEATHER TANNERY
PROJECTED CASH FLOW STATEMENT

Amounts in PKR

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Profit before taxation	-	(12,314,430)	3,255,941	14,203,903	19,136,277	24,550,003	30,495,057	37,026,946	44,207,363	52,104,914	57,535,923
Adjustment of non-cash items											
Depreciation	-	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817	14,813,817
Financial charges	-	15,379,864	14,196,136	12,852,604	11,327,696	9,596,925	7,632,500	5,402,877	2,872,255	-	-
	-	17,879,251	32,265,894	41,870,325	45,277,790	48,960,746	52,941,374	57,243,640	61,893,436	66,918,731	72,349,741
Working capital changes											
current assets	-	(32,573,760)	(14,332,455)	(10,084,836)	(4,559,284)	(4,924,027)	(5,317,949)	(5,743,385)	(6,202,856)	(6,699,084)	(7,235,011)
current Liabilities	-	26,959,685	11,003,559	7,809,925	3,652,346	3,944,058	4,259,083	4,599,286	4,966,678	5,363,435	5,791,903
	-	(5,614,076)	(3,328,895)	(2,274,911)	(906,939)	(979,969)	(1,058,866)	(1,144,099)	(1,236,177)	(1,335,649)	(1,443,108)
	-	12,265,176	28,936,998	39,595,413	44,370,852	47,980,777	51,882,508	56,099,541	60,657,259	65,583,082	70,906,633
Taxes paid	-	-	-	(813,985)	(3,550,976)	(4,784,069)	(6,137,501)	(7,623,764)	(9,256,736)	(11,051,841)	(13,026,228)
Interest paid	(15,379,864)	(15,379,864)	(14,196,136)	(12,852,604)	(11,327,696)	(9,596,925)	(7,632,500)	(5,402,877)	(2,872,255)	-	-
Cash flow from Operations	(15,379,864)	(3,114,688)	14,740,863	25,928,824	29,492,181	33,599,783	38,112,508	43,072,900	48,528,267	54,531,241	57,880,404
Capital expenditure	(159,495,000)										
Equity	75,949,946										
Debt	113,924,918	(8,768,358)	(9,952,086)	(11,295,618)	(12,820,526)	(14,551,297)	(16,515,722)	(18,745,345)	(21,275,966)	-	-
Total cash generated	15,000,000	(11,883,046)	4,788,777	14,633,206	16,671,654	19,048,485	21,596,785	24,327,555	27,252,301	54,531,241	57,880,404
Opening cash	-	15,000,000	3,116,954	7,905,731	22,538,937	39,210,591	58,259,077	79,855,862	104,183,417	131,435,718	185,966,959
Closing cash	15,000,000	3,116,954	7,905,731	22,538,937	39,210,591	58,259,077	79,855,862	104,183,417	131,435,718	185,966,959	243,847,363

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