10.7.5 Projected Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Operating Revenues	**648,420,136**	**778,104,163**	**919,135,543**	**1,018,708,560**	**1,069,643,988**	**1,123,126,187**	**1,179,282,497**	**1,238,246,622**	**1,300,158,953**	**1,365,166,900**
Direct Costs										
Kinnow	147,000,000	184,800,000	228,690,000	265,534,500	292,087,950	321,296,745	353,426,420	388,769,061	427,645,968	470,410,564
Chemicals & Lab	1,846,247	2,271,146	2,752,214	3,134,054	3,384,779	3,655,561	3,948,006	4,263,846	4,604,954	4,973,350
Resin	666,000	666,000	666,000	666,000	666,000	978,572	978,572	978,572	978,572	978,572
Packing material	40,375,364	49,834,735	60,549,204	69,026,092	74,548,179	80,512,034	86,952,996	93,909,236	101,421,975	109,535,733
Direct Electricity	19,542,704	23,980,201	29,002,625	32,998,999	35,638,919	38,490,032	41,569,235	44,894,773	48,486,355	52,365,264
Furnace Oil	24,147,200	29,804,544	36,212,521	41,282,274	44,584,856	48,151,644	52,003,776	56,164,078	60,657,204	65,509,780
Payroll Production	42,495,000	45,894,600	49,566,168	53,531,461	57,813,978	62,439,097	67,434,224	72,828,962	78,655,279	84,947,702
Maintenance	3,782,517	4,755,164	5,835,883	6,673,441	7,186,782	7,700,124	8,213,465	8,726,807	9,240,149	9,753,490
Total Direct Cost	**279,855,032**	**342,006,391**	**413,274,615**	**472,846,821**	**515,911,443**	**563,223,809**	**614,526,694**	**670,535,337**	**731,690,456**	**798,474,456**
Gross Profit	**368,565,104**	**436,097,772**	**505,860,928**	**545,861,739**	**553,732,545**	**559,902,378**	**564,755,802**	**567,711,285**	**568,468,496**	**566,692,444**
Operating Costs										
Payroll Admin	18,360,000	19,828,800	21,415,104	23,128,312	24,978,577	26,976,863	29,135,013	31,465,814	33,983,079	36,701,725
Fixed Electricity	8,040,000	8,683,200	9,377,856	10,128,084	10,938,331	11,813,398	12,758,470	13,779,147	14,881,479	16,071,997
Depreciation	61,293,857	61,293,857	61,293,857	61,293,857	61,293,857	58,475,857	58,475,857	58,475,857	58,475,857	58,475,857
Amortization	8,995,000	8,995,000	8,995,000	8,995,000	8,995,000	-	-	-	-	-
Marketing Cost	4,960,000	5,608,800	3,324,930	2,926,154	3,123,149	2,090,871	2,292,045	2,512,941	2,755,511	3,021,902
Office maintenance	2,388,300	2,664,420	2,884,174	3,122,167	3,379,927	3,659,106	3,961,497	4,289,046	4,643,862	5,028,233
Licensing/Regulatory Fee	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506	1,276,282	1,340,096	1,407,100	1,477,455	1,551,328
Audit fee	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259	1,914,422	2,010,143	2,110,651	2,216,183	2,326,992
Legal/Professional Fee	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506	1,276,282	1,340,096	1,407,100	1,477,455	1,551,328
Insurance	5,604,596	5,024,036	4,443,477	3,862,917	3,282,357	2,701,798	2,161,438	1,621,079	1,080,719	540,360
Vehicle fuel & maintenance	1,395,000	1,464,750	1,537,988	1,614,887	1,695,631	1,780,413	1,869,433	1,962,905	2,061,050	2,164,103
Miscellaneous expenses	100,000	105,000	110,250	115,763	121,551	127,628	134,010	140,710	147,746	155,133
Total Operating Costs	**114,636,752**	**117,342,863**	**117,241,384**	**119,238,828**	**122,062,652**	**112,092,919**	**115,478,097**	**119,172,350**	**123,200,396**	**127,588,957**
Earnings before interest and taxes	**253,928,352**	**318,754,910**	**388,619,544**	**426,622,911**	**431,669,893**	**447,809,460**	**449,277,705**	**448,538,935**	**445,268,100**	**439,103,487**
Interest	-	-	-	-	-	-	-	-	-	-
Earnings before taxes	**253,928,352**	**318,754,910**	**388,619,544**	**426,622,911**	**431,669,893**	**447,809,460**	**449,277,705**	**448,538,935**	**445,268,100**	**439,103,487**
Tax	88,874,923	111,564,218	136,016,840	149,318,019	151,084,463	156,733,311	157,247,197	156,988,627	155,843,835	153,686,220
Net Income	**165,053,429**	**207,190,691**	**252,602,704**	**277,304,892**	**280,585,430**	**291,076,149**	**292,030,509**	**291,550,308**	**289,424,265**	**285,417,266**
Balance brought forward	-	82,526,715	144,858,703	198,730,703	238,017,798	259,301,614	275,188,881	283,609,695	287,580,001	288,502,133
Total profit available for appropriation	165,053,429	289,717,406	397,461,407	476,035,595	518,603,228	550,377,763	567,219,390	575,160,003	577,004,266	573,919,399
Dividend	82,526,715	144,858,703	198,730,703	238,017,798	259,301,614	275,188,881	283,609,695	287,580,001	288,502,133	286,959,700
Balance carried forward	**82,526,715**	**144,858,703**	**198,730,703**	**238,017,798**	**259,301,614**	**275,188,881**	**283,609,695**	**287,580,001**	**288,502,133**	**286,959,700**

10.7.6 Projected Balance Sheet

ASSETS											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Current Assets											
Cash	10,000,000	274,283,189	382,943,796	480,684,050	572,282,106	656,371,428	722,989,051	781,923,237	836,196,590	887,220,005	907,867,175
Raw material	181,504,389										
Advance Processing Charges	56,556,398										
Prepaid Insurance	5,604,596	5,024,036	4,443,477	3,862,917	3,282,357	2,701,798	2,161,438	1,621,079	1,080,719	540,360	-
Accounts Receivables		162,105,034	194,526,041	229,783,886	254,677,140	267,410,997	280,781,547	294,820,624	309,561,655	325,039,738	341,291,725
Spare Parts inventory	5,403,596	5,673,775	5,957,464	6,255,337	6,568,104	6,896,509	7,241,335	7,603,402	7,983,572	8,382,750	8,801,888
Total Current Assets	**259,068,979**	**447,086,034**	**587,870,778**	**720,586,190**	**836,809,707**	**933,380,732**	**1,013,173,371**	**1,085,968,342**	**1,154,822,537**	**1,221,182,853**	**1,257,960,788**
Fixed Assets											
Land	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000
Building & Civil Works	82,850,000	78,707,500	74,565,000	70,422,500	66,280,000	62,137,500	57,995,000	53,852,500	49,710,000	45,567,500	41,425,000
Processing Machinery	417,217,533	375,495,779	333,774,026	292,052,273	250,330,520	208,608,766	166,887,013	125,165,260	83,443,507	41,721,753	-
Utility Machinery	66,500,000	59,850,000	53,200,000	46,550,000	39,900,000	33,250,000	26,600,000	19,950,000	13,300,000	6,650,000	-
Freezing rooms Machinery	56,642,033	50,977,829	45,313,626	39,649,423	33,985,220	28,321,016	22,656,813	16,992,610	11,328,407	5,664,203	-
Laboratory Equipment	2,974,000	2,676,600	2,379,200	2,081,800	1,784,400	1,487,000	1,189,600	892,200	594,800	297,400	-
Office Equipment & Furniture	7,390,000	5,912,000	4,434,000	2,956,000	1,478,000	-	-	-	-	-	-
Vehicles	6,700,000	5,360,000	4,020,000	2,680,000	1,340,000	-	-	-	-	-	-
Net Fixed Assets	**688,273,565**	**626,979,709**	**565,685,852**	**504,391,996**	**443,098,139**	**381,804,283**	**323,328,426**	**264,852,570**	**206,376,713**	**147,900,857**	**89,425,000**
Other Assets											
Pre-operating Expenses	44,975,000	35,980,000	26,985,000	17,990,000	8,995,000	-	-	-	-	-	-
Contingencies											
Total Other Assets	**44,975,000**	**35,980,000**	**26,985,000**	**17,990,000**	**8,995,000**	-	-	-	-	-	-
TOTAL ASSETS	**992,317,544**	**1,110,045,743**	**1,180,541,630**	**1,242,968,185**	**1,288,902,846**	**1,315,185,014**	**1,336,501,797**	**1,350,820,911**	**1,361,199,250**	**1,369,083,710**	**1,347,385,788**

LIABILITIES											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Current Liabilities											
Accounts Payables		35,201,485	43,365,383	51,919,938	58,567,505	63,565,857	68,995,372	74,893,673	81,301,705	88,264,033	68,108,545
Short term loan											
Other Current Liabilities											
Total Current Liabilities	**-**	**35,201,485**	**43,365,383**	**51,919,938**	**58,567,505**	**63,565,857**	**68,995,372**	**74,893,673**	**81,301,705**	**88,264,033**	**68,108,545**
Long Term Liabilities											
Lease payable											
Long term debt	-	-	-	-	-	-	-	-	-	-	-
Long term debt	-	-	-	-	-	-	-	-	-	-	-
Equity											
Paid up Capital	992,317,544	992,317,544	992,317,544	992,317,544	992,317,544	992,317,544	992,317,544	992,317,544	992,317,544	992,317,544	992,317,544
Retained Earnings		82,526,715	144,858,703	198,730,703	238,017,798	259,301,614	275,188,881	283,609,695	287,580,001	288,502,133	286,959,700
Total Equity	**992,317,544**	**1,074,844,258**	**1,137,176,247**	**1,191,048,247**	**1,230,335,341**	**1,251,619,158**	**1,267,506,425**	**1,275,927,239**	**1,279,897,545**	**1,280,819,677**	**1,279,277,243**
TOTAL LIABILITIES	**992,317,544**	**1,110,045,743**	**1,180,541,630**	**1,242,968,185**	**1,288,902,846**	**1,315,185,014**	**1,336,501,797**	**1,350,820,911**	**1,361,199,250**	**1,369,083,710**	**1,347,385,788**

10.7.7 Projected Cash Flow Statement

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Operating Activities											
Net Income		**165,053,429**	**207,190,691**	**252,602,704**	**277,304,892**	**280,585,430**	**291,076,149**	**292,030,509**	**291,550,308**	**289,424,265**	**285,417,266**
Depreciation		61,293,857	61,293,857	61,293,857	61,293,857	61,293,857	58,475,857	58,475,857	58,475,857	58,475,857	58,475,857
Amortization		8,995,000	8,995,000	8,995,000	8,995,000	8,995,000	-	-	-	-	-
Change in raw material inventories	(181,504,389)	181,504,389	-	-	-	-	-	-	-	-	-
Change in advance processing charges	(56,556,398)	56,556,398									
Change in spares inventory	(5,403,596)	(270,180)	(283,689)	(297,873)	(312,767)	(328,405)	(344,825)	(362,067)	(380,170)	(399,179)	(419,138)
Change in advance insurance premium	(5,604,596)	580,560	580,560	580,560	580,560	580,560	540,360	540,360	540,360	540,360	540,360
Change in Accounts Receivables		(162,105,034)	(32,421,007)	(35,257,845)	(24,893,254)	(12,733,857)	(13,370,550)	(14,039,077)	(14,741,031)	(15,478,083)	(16,251,987)
Change in Accounts Payables		35,201,485	8,163,898	8,554,555	6,647,567	4,998,352	5,429,515	5,898,301	6,408,032	6,962,328	(20,155,489)
Cash from operations	**(249,068,979)**	**346,809,903**	**253,519,310**	**296,470,957**	**329,615,854**	**343,390,936**	**341,806,505**	**342,543,881**	**341,853,354**	**339,525,548**	**307,606,869**
Financing Activities											
Short term debt principle repayment											
Long term debt principle repayment		-	-	-	-	-	-	-	-	-	-
Addition to short term debt											
Additions to long term debt	-										
Issuance of shares	992,317,544										
Net cash from financing activities	**992,317,544**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Investing Activities											
Capital Expenditure	(733,248,565)										
Cash from investing activities	**(733,248,565)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Net Cash	**10,000,000**	**346,809,903**	**253,519,310**	**296,470,957**	**329,615,854**	**343,390,936**	**341,806,505**	**342,543,881**	**341,853,354**	**339,525,548**	**307,606,869**
Cash balance brought forward	-	10,000,000	274,283,189	382,943,796	480,684,050	572,282,106	656,371,428	722,989,051	781,923,237	836,196,590	887,220,005
Cash investment in securities		-	-	-	-	-	-	-	-	-	-
Cash available for appropriation	10,000,000	356,809,903	527,802,499	679,414,753	810,299,903	915,673,042	998,177,932	1,065,532,932	1,123,776,592	1,175,722,138	1,194,826,875
Dividend	-	82,526,715	144,858,703	198,730,703	238,017,798	259,301,614	275,188,881	283,609,695	287,580,001	288,502,133	286,959,700
Cash carried forward	**10,000,000**	**274,283,189**	**382,943,796**	**480,684,050**	**572,282,106**	**656,371,428**	**722,989,051**	**781,923,237**	**836,196,590**	**887,220,005**	**907,867,175**

10.7.8 NPV and IRR Calculations

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Net Cash Flow (Rs)	10,000,000	346,809,903	253,519,310	296,470,957	329,615,854	343,390,936	341,806,505	342,543,881	341,853,354	339,525,548	307,606,869
Total Investor Cash outflow (Rs)	(992,317,544)										
Net Cash flows (Rs)	(992,317,544)	346,809,903	253,519,310	296,470,957	329,615,854	343,390,936	341,806,505	342,543,881	341,853,354	339,525,548	307,606,869
Accumulated Cash flows (Rs)		(645,507,640)	(391,988,330)	(95,517,373)	234,098,480	577,489,416	919,295,921	1,261,839,802	1,603,693,157	1,943,218,705	2,250,825,574
Payback period (years)		1.00	1.00	1.00	0.59	-	-	-	-	-	-
IRR	**29.60%**										
NPV (Rs)	**376,806,417**										
Payback (years)	**3.59**										

10.8 Sensitivity Analysis

Sensitivity of project's viability in terms of NPV and IRR was analyzed with respect to changes in different revenue and cost components. In addition, project's capacity to absorb debt cost was also analyzed. While studying the effect of one variable, all other variables were assumed to be constant.

10.8.1 Project's Sensitivity to Sales Price

Project's financial calculations have been based on FCKJ average sale price of USD 1700. The price may increase or decrease from the assumed value depending upon the global demand-supply dynamics which are beyond the control of the project. Therefore a sensitivity analysis was carried out to know the price level at which the project no longer remains feasible. Drop in NPV and IRR with a drop in FCKJ sales price is shown in Figure 100.

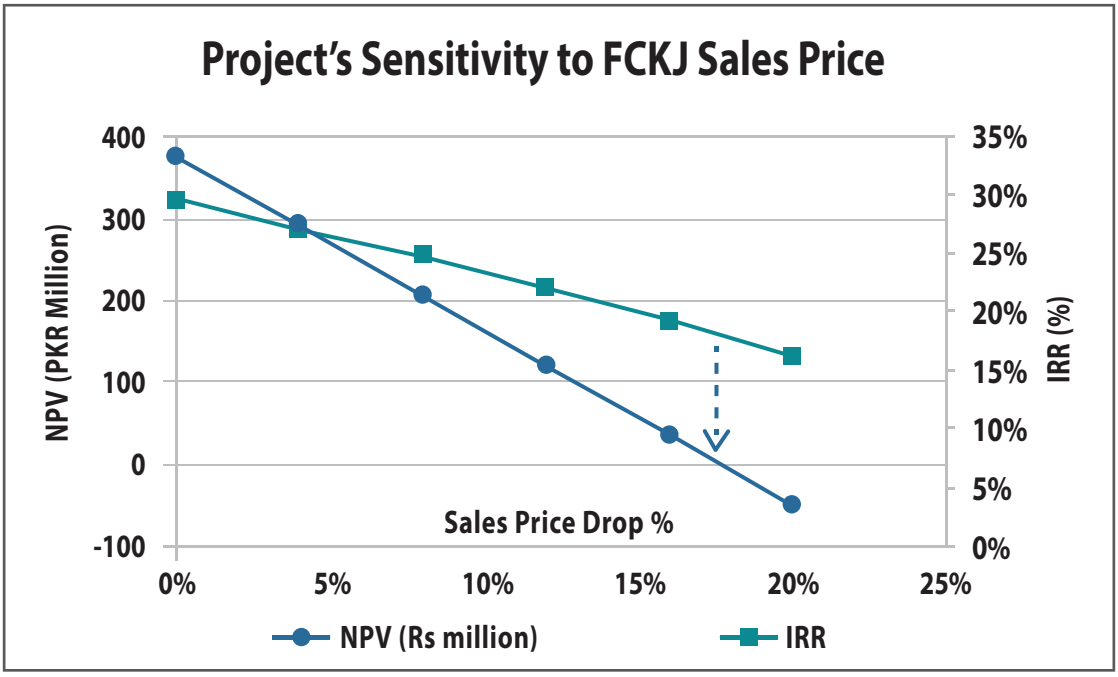

Figure 100 – Project's Sensitivity to FCKJ Sales Price

The project remains in the feasible range as long as the sales price does not drop by around 18% or more from the assumed value of USD 1700 per ton. This means that the project will be financially viable up to FCKJ sale price of approximately USD 1,400 per ton. At the threshold price, the project IRR drops to 18%.

10.8.2 Project's Sensitivity to FCKJ Sale Price Growth

Along with the current price, the project's viability is also linked to annual sale price growth rate. The feasibility calculations have assumed FCKJ sale price to grow at 5% per year. Project's sensitivity to lower growth rate was observed. NPV and IRR decrease by lowering the sale price growth rate. Result is shown in Figure 101 which indicates that the project remains feasible even if the FCKJ sale price growth rate drops to 0% per annum. However, at zero growth rate, the NPV drops to PKR 39 million and IRR to 19.7%.

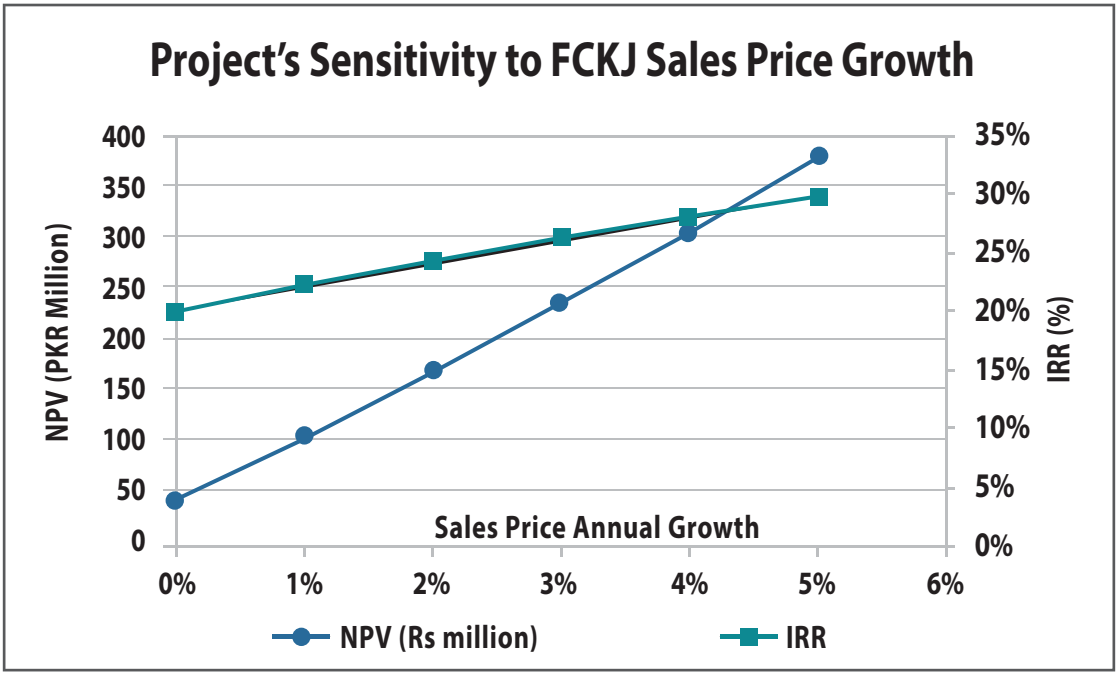

Figure 101 – Project's Sensitivity to FCKJ Sales Price Growth

10.8.3 Project's Sensitivity to Kinnow Price

The project assumes that Kinnow will be available at PKR 150 per maund (PKR 3,750 per ton) Just like FCKJ sale price, Kinnow price is also driven by demand-supply dynamics where the project does not have any control. Therefore a sensitivity analysis was carried out to know the raw material price threshold above which the project does not remain feasible. Project's profitability decreases with increase in raw material prices Drop in NPV and IRR with increase in Kinnow price is shown in Figure 102.

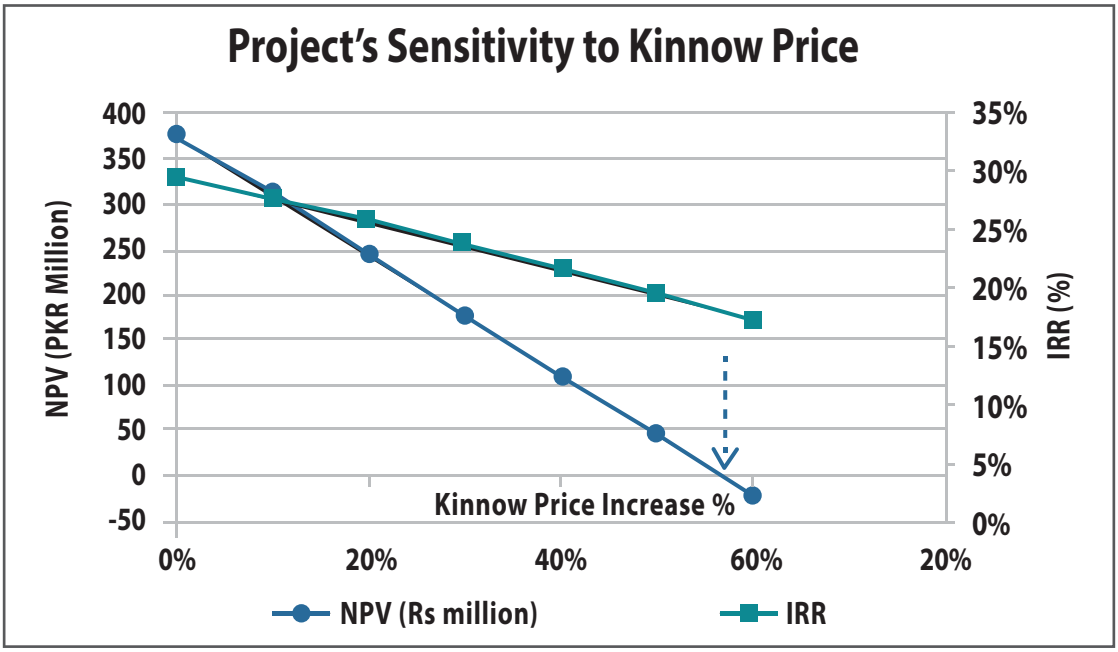

Figure 102 – Project's Sensitivity to Kinnow Price

Project was found to be financially viable up to annual increase of about 57% in Kinnow price when the NPV enters the negative range. This translates into a Kinnow price of PKR 236 per maund or PKR 5,900 per ton. The threshold of 57% increase is quite above the average inflation rate and thus the risk to project's viability due to increase in raw material prices should not be considered high. With 57% increase in Kinnow price, the project IRR drops to 17.9%.

10.8.4 Project's Sensitivity to Kinnow Price Growth

Kinnow price has been assumed to grow at 10% per annum. The actual growth may be above or below this. Higher than expected growth in raw material price may increase the risk for the project and affect its financial viability. Therefore, impact of Kinnow price growth rate on NPV and IRR was observed. The results are shown in Figure 103.

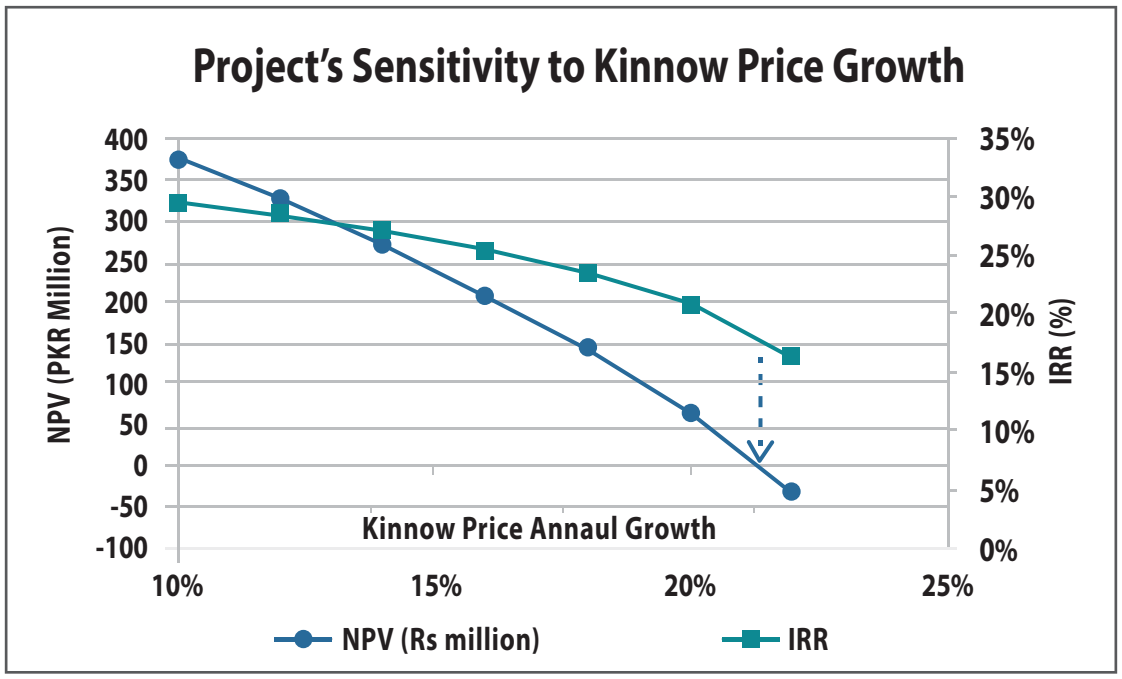

Figure 103 – Project's Sensitivity to Kinnow Price Growth Rate

The graph shows that the project is quite stable against the growth in raw material prices. NPV remains in the positive range for around an annual price growth of 21.5%. IRR at this price growth rate falls to 17.9%.

10.8.5 Project's Sensitivity to FCKJ Yield

FCKJ yield depends upon the quality of the Kinnow used for processing; especially its size, Yield increases with the size of the fruit. The project has assumed an average yield of 8.5% which may actually be lower if fruit of smaller size is used. It was therefore deemed important to study the impact of lower yield on project's financial viability. The results are shown in Figure 104.

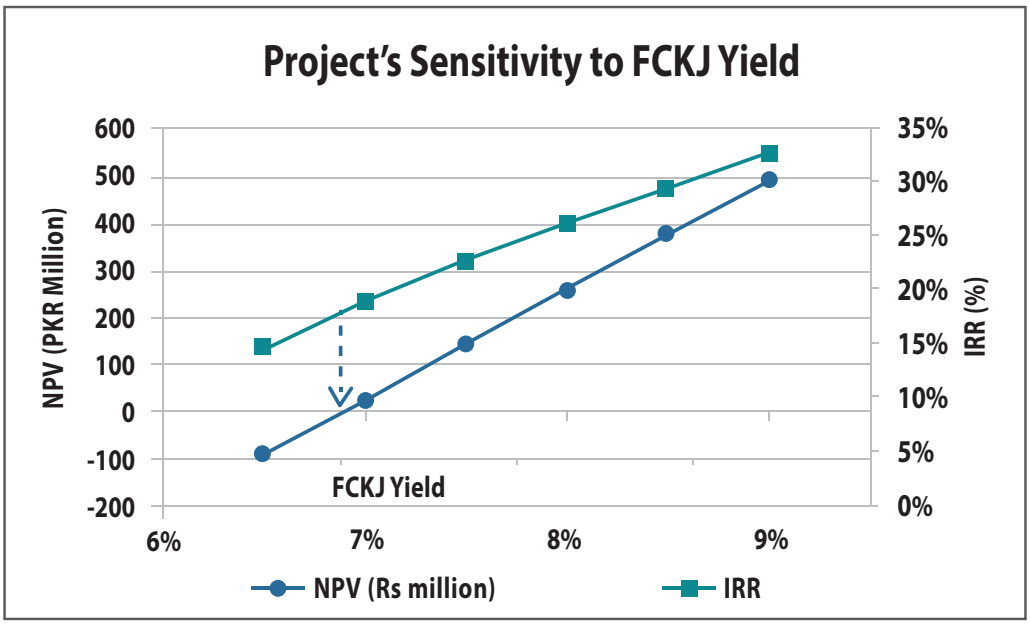

Figure 104 – Project's Sensitivity to FCKJ Yield

The project remains viable up to an FCKJ yield of around 6.9% below which the NPV becomes negative. It shows that it is important to procure fruit of reasonably good size to ensure the profitability of the business. Maintaining the required efficiency of different operations (especially extraction) is also important to ensure that the FCKJ yield remains in the higher range.

10.8.6 Project's Sensitivity to Land Cost

The project uses commercial rate of land in the selected location in Sargodha. Average rate of PKR 6 million per acre has been used. There is the possibility that the investor may have to spend more on land depending upon its availability and specific location. In that context, the impact of land cost on project's viability was analyzed. Figure 105 shows the results.

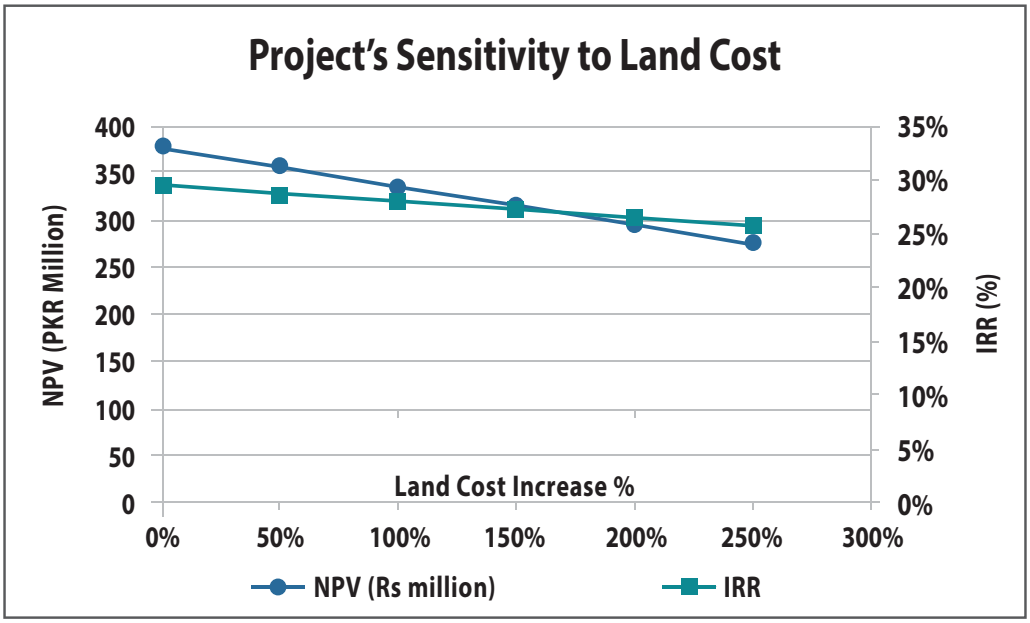

Figure 105 – Project's Sensitivity to Increase in Land Price

The project is seen to be fairly safe with increase in land prices. NPV remains positive even if land is acquired at 2.5 times of the cost that has been used in project's calculations. In this scenario, the IRR falls to 27.2%.

10.8.7 Project's Capacity to Absorb Debt

The project has been assumed to be fully equity-financed. Addition of debt in the project's capital structure directly affects the NPV due to added cost of interest payments and additional cash outflows for principle repayments. Figure 106 shows that the project has a significant capacity to absorb debt. NPV remains positive even when even 60% of the capital cost is financed through debt at 15% p.a. for 10 years. The project becomes unviable at a debt share of about 63%. IRR at 50% debt share falls to 20.5%.

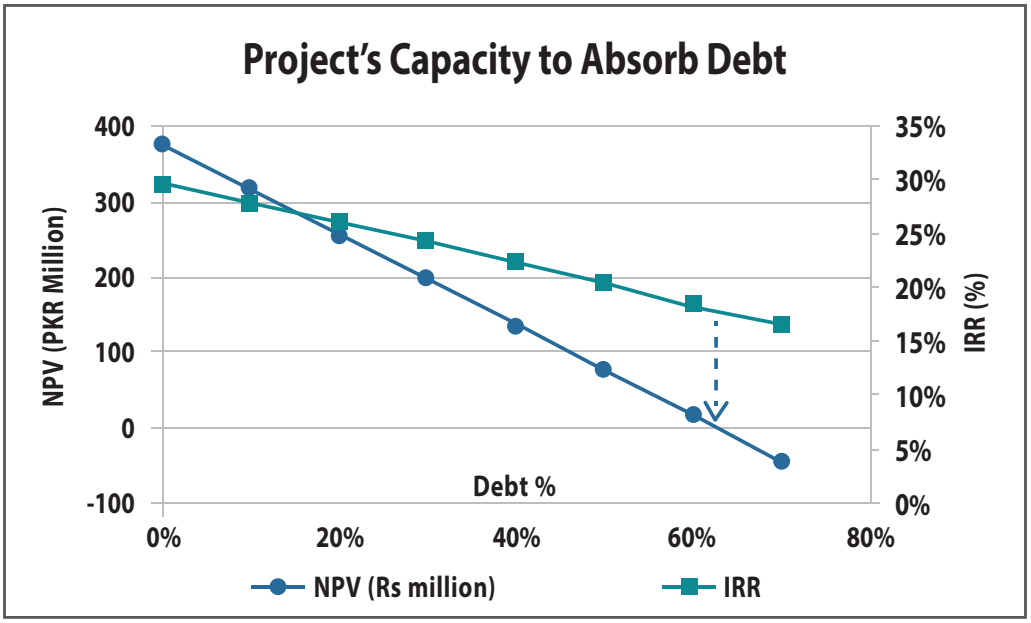

Figure 106 – Project's NPV Capacity to Absorb Debt

Impact of debt on profitability ratio was also analyzed. Net profit margin was found to be falling by about 1.5% with every 10% increase of debt in capital structure. Thus the project has a good capacity to absorb debt cost. Figure 107 shows the results.

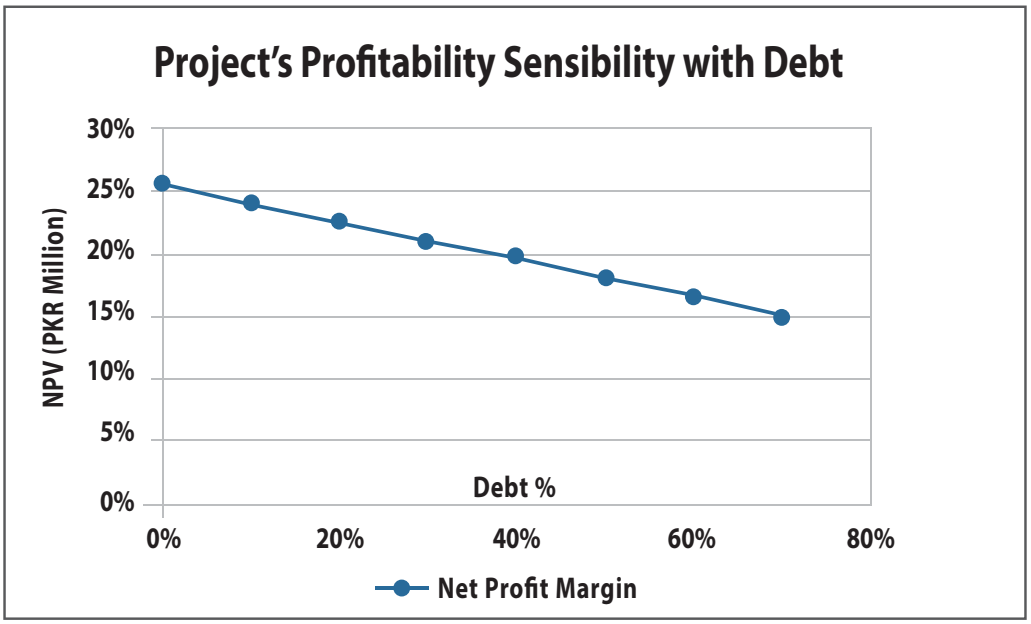

Figure 107 – Project's Profit Margin's Sensitivity to Debt Share

10.9 Scenario Analysis

10.9.1 European Machinery Scenario

The feasibility calculations of the proposed project have been based on the cost of Chinese machinery which is cheaper than the machinery of European and American origins. The investor may opt to use higher quality expensive machinery. The following analysis shows the impact on financial results in case machinery cost is increased. Two scenarios have been studied; the first shows the drop in NPV and IRR with the increase in machinery cost; while keeping all other factors constant. The second scenario assumes that using better machinery will lead to producing a higher quality FCKJ that can be sold at higher price. The calculations identify the sale price to be charged to achieve the same level of profitability as was achieved using Chinese machinery.

10.9.1.1 Case I – Impact on Profitability with Increasing Machinery Cost

European and American FCKJ machinery is around 40-60% more expensive than Chinese machinery. The scenario observes the impact on NPV and IRR by increasing the machinery cost. The impact is shown in Figure 108. Only the cost of the processing machinery has been increased since utility machinery and freezing store machineries are commonly available.

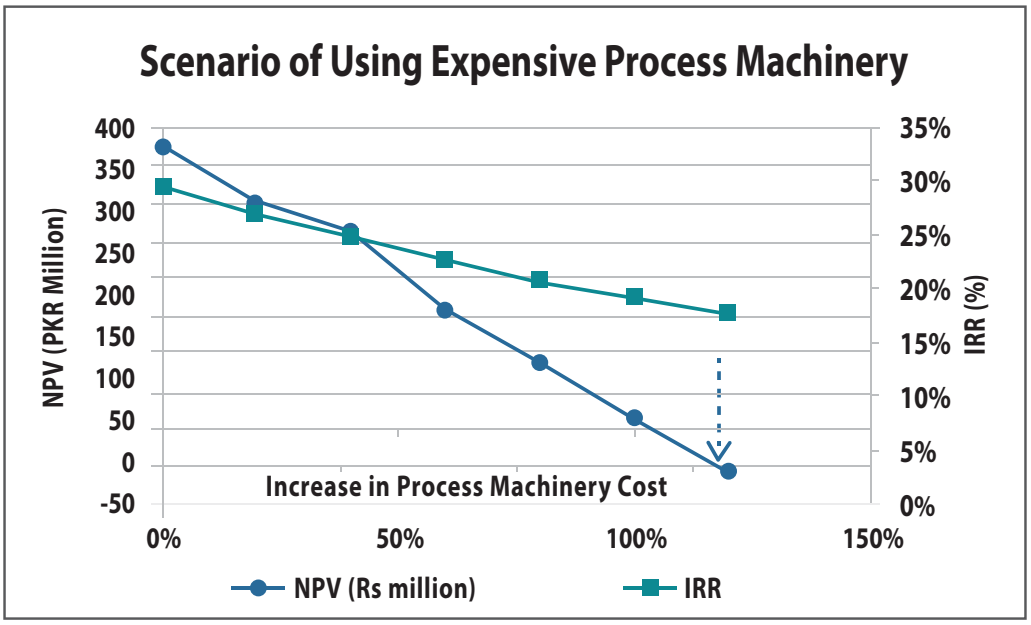

Figure 108 – Impact of Using Expensive Machinery on Project Viability

Using 60% more expensive machinery decreases the NPV to PKR 182 million and IRR to 22.6%. The project remains in the viable range even if a processing machinery of double the cost of Chinese machinery is used. The unviability range starts if the machinery cost is increased by around 116% of the assumed cost.

10.9.1.2 Case II - Increase in FCKJ Sale Price to Achieve the Same Profitability

For achieving the same NPV and IRR with expensive machinery, either the revenues have to be increased or the cost has to be decreased. Since there is no change in cost, increasing revenues is the only option for which the FCKJ sale price can be increased. In the scenario of using 50% expensive machinery, the project IRR decreases to 22.62% from 29.6%; obtained by using Chinese machinery. The analysis shows that for increasing the IRR to the original mark of 29.60%, the FCKJ sale price has to be increased by 12.2% to USD 1,907 per ton. The required price is USD 207 higher than the assumed price.

From the above discussion, it can be inferred that using European or American machinery for FCKJ manufacturing is not a very farfetched option. The project remains financially feasible and same profitability levels can possibly be achieved since the final product is presumed to be of higher quality both in terms of its physical characteristics and market perception of being manufactured on high quality machinery. The product thus obtained should be able to fetch a higher price in the market. Moreover, better quality machinery also leads to increasing the extraction efficiency and the overall FCKJ yield; which has a direct positive correlation with project's profitability.

10.9.2 Peel Oil Exclusion Scenario

One possible scenario while making the investment in FCKJ manufacturing is excluding the peel oil recovery unit from the project. Doing this will reduce the overall project cost and will increase net margin by eliminating the associated depreciation cost. However, by doing this, project revenues will also decrease that will act towards decreasing the net profit margin. The impact was studied and the results are presented in Table 43.

Project Factor	With Peel Oil	Without Peel Oil	% Change
Project Cost	992,317,544	958,135,617	-3.4%
Revenues	648,420,136	641,762,800	-1.0%
NPV	376,806,417	380,754,990	1.0%
IRR	29.60%	30.15%	1.9%
Net Profit Margin	25.50%	25.50%	0.0%

Table 43 – Peel Oil Exclusion Scenario

By excluding peel oil recovery, the project saves the cost of PKR 34 million. Total project cost decreases by 3.4% to PKR 958.1 million. The project loses out on revenues of PKR 6.6 million obtained by selling peel oil. Total revenues decrease was 1%. The net effect on project's financial feasibility numbers was not very high. NPV increased by 1% whereas the IRR increased by 1.9%. There was no change in net profit margin.

Looking at the above calculations, it can be inferred that at the current sale prices, there is no added benefit of adding peel oil in the product line. The decision to include peel oil extraction unit should therefore be made keeping in view the market demand and the price that the product will be able to fetch. This analysis may also be carried out for other byproducts.

ANNEXES

11.1 Annex I – Glossary of Technical Terms

Fruit juice is the unfermented but fermentable liquid obtained from the edible part of sound, appropriately mature and fresh fruit or of the fruit maintained in sound condition by suitable means.

Concentrated fruit juice is the unfermented but fermentable product that has been produced by evaporating a definite amount of water from the liquid obtained from the edible part of sound, appropriately mature and fresh fruit or of fruit maintained in sound condition by suitable means.

Single Strength Juice is the unaltered pure fruit juice either extracted from fruit, or juice reconstituted from a concentrate with the addition of water to reach the defined natural single strength brix level for that specific item.

Acidity means the percent, by weight, of total acidity (calculated as anhydrous citric acid) i.e. 2% acidity of some orange juice sample means that 100 gram of juice contains 2 gram anhydrous citric acid.

Brix is the percentage of total soluble solids by weight in some liquid foods and is generally termed as Brix degree. The Brix (degree brix) scale, which was developed by the sugar industry, relates the sucrose concentration of a pure sucrose solution to its density at 20C. Degree Brix for Kinnow/orange juice not only includes concentration of dissolved sugars but all soluble solids. Dissolved substances other than sugars will influence the result of °Brix measurements. Thus the level of acid, the second most abundant dissolved material, is often measured and a correction of measured brix value made. For single-strength Kinnow juice, the acid correction is very small and the term Brix is commonly used without correction to mean only the sugar content. However, in measuring the °Brix of Kinnow juice concentrate, the acid correction is important due to much higher acid content of the concentrate.

Brix is the Percent soluble solids (w/w)
Corrected Brix is the Percent sugar (w/w)

Brix/Acid ratio or Ratio means the ratio of the degrees Brix of the juice to the grams of anhydrous citric acid per 100 grams of the juice, i.e. Ratio or brix Ratio of a juice sample having 12 degree brix and 0.8 % acidity will be 15 (12/0.8). The Ratio indicates the balance between sugar (sweetness) and acid (sourness) in the juice. As the Kinnow ripens, the acidity decreases while the sugars increase. Therefore the brix acid ratio will also increase as the degree of ripeness increases.

Ratio is Brix/ %(w/w) citric acid

Color is an important quality parameter of the orange/Kinnow juice. It is evaluated by comparing the color of the juice with the USDA Orange Juice Color Standards as points of reference. The USDA colors 1, 2, 3, 4, 5 and 6 represent processed orange/Kinnow juice points of reference corresponding to the color scores 40 points through 32 points, respectively. The six tubes with different standard orange color shades are used as reference.

11.2 Annex II – Locations of Existing FCKJ Manufacturing Units

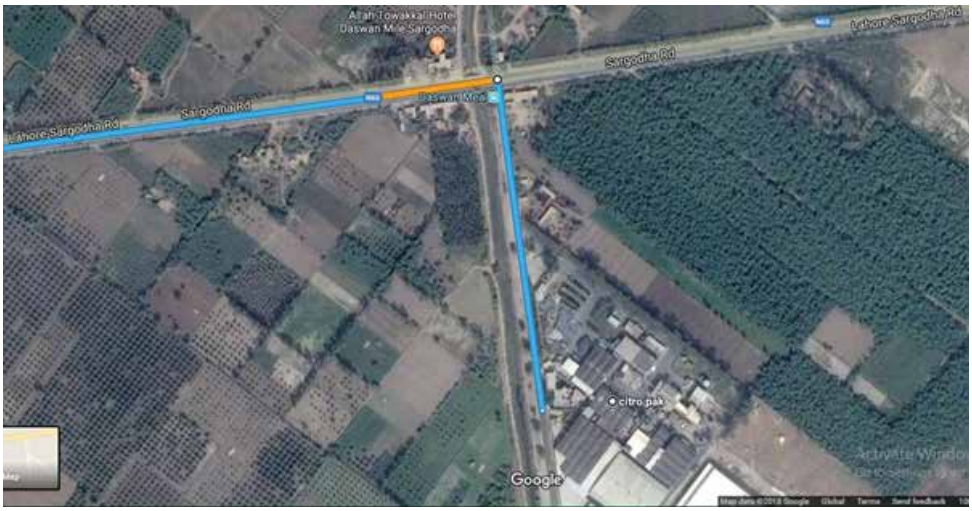

Figure 109 – Satellite Image of CitroPak 1 (previously Cargill)

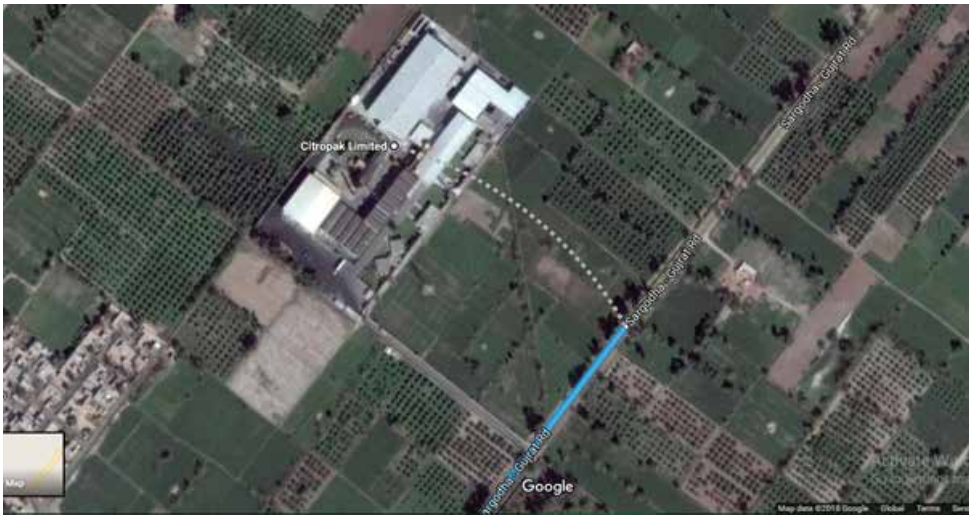

Figure 110 – Satellite Image of CitroPak 2 (previously Sunflo)

Figure 111 – Satellite Image of Shakarganj Foods

11.3 Annex III – Details of Project Cost Calculations

11.3.1 Annex III-A – Machinery Cost Detailed Calculations

11.3.1.1 Process Machinery Details

Sr.No	Name of the Machine	No.	Unit Cost (USD)	Total Cost (USD)	Total Cost (PKR)	Customs Duty	Total Cost	Power (KW)
1	Bubble washing machine	1	18,000	18,000	1,998,000	5%	2,097,900	4.4
2	Roller sorting machine	1	16,500	16,500	1,831,500	5%	1,923,075	2.2
3	One stage brush washing machine	1	24,000	24,000	2,664,000	5%	2,797,200	3
4	Two- stage brush washing machine	1	24,500	24,500	2,719,500	5%	2,855,475	4
5	Paddle elevator	1	20,000	20,000	2,220,000	5%	2,331,000	4
6	Material spreading- machine	1	75,000	75,000	8,325,000	5%	8,741,250	2.2
7	Size grading machine	1	73,000	73,000	8,103,000	5%	8,508,150	6.7
8	Incline feeding machine	1	28,000	28,000	3,108,000	5%	3,263,400	3
9	Return fruit conveyor	1	23,000	23,000	2,553,000	5%	2,680,650	4
10	Juice extraction system	1	1,032,000	1,032,000	114,552,000	5%	120,279,600	180
11	Juice tank 2000 L	1	5,300	5,300	588,300	5%	617,715	-
12	Centrifugal pump	1	2,700	2,700	299,700	5%	314,685	2.2
13	Hydroclone	1	4,200	4,200	466,200	5%	489,510	15
14	Finisher	2	37,000	74,000	8,214,000	5%	8,624,700	22
15	Pulp tank 2000L	1	5,300	5,300	588,300	5%	617,715	1
16	Pulp Washing System	1	247,690	247,690	27,493,590	5%	28,868,270	50
17	Screw pump 5000L/H	1	7,500	7,500	832,500	5%	874,125	2.2
18	Juice tank 2000L	1	5,300	5,300	588,300	5%	617,715	-
19	Centrifugal pump15000 L/H	1	2,700	2,700	299,700	5%	314,685	2.2
20	Disc Separator	1	150,000	150,000	16,650,000	5%	17,482,500	48
21	Juice tank 5000L	1	8,700	8,700	965,700	5%	1,013,985	1
22	Tri-effect (4 stages) falling film evaporator	1	454,000	454,000	50,394,000	5%	52,913,700	80.7
23	Buffer tank 1000 L	1	2,700	2,700	299,700	5%	314,685	-
24	Screw pump 3000 L	1	5,300	5,300	588,300	5%	617,715	2.2
25	Pomace long screw pump	1	28,600	28,600	3,174,600	5%	3,333,330	4
26	Pomace short screw conveyor	1	11,300	11,300	1,254,300	5%	1,317,015	2.2
27	CIP cleaning center system	1	113,000	113,000	12,543,000	5%	13,170,150	4
28	Return pump	1	12,000	12,000	1,332,000	5%	1,398,600	4
29	Plate exchanger 16000 L/H	1	53,000	53,000	5,883,000	5%	6,177,150	11
30	Condensate Recovery/Utilization Unit	1			1,000,000	0%	1,000,000	2
31	De-bittering unit	1	643,620	643,620	71,441,820	5%	75,013,911	109
32	Cold press peel oil recovering unit	1	286,240	286,240	31,772,640	5%	33,361,272	20
33	Batch tank (jacketed) 25000 liter with stirrer	2	21000	42,000	4,662,000	5%	4,895,100	6
34	Electrical control cabinet	1	72,000	72,000	7,992,000	5%	8,391,600	
	Total			**3,571,150**	**397,397,650**		**417,217,533**	**602.2**

11.3.1.2 Utility/Allied Machinery Details

Sr.no	Name of the machine	No.	Unit Price (PKR)	Total Price (PKR)	Power (KW)
1	Air compressor	2	450,000	900,000	30
2	Boiler (10 tons/Hr)	1	15,000,000	15,000,000	30
3	Cooling tower (250 cu. M per hr)	1	3,200,000	3,200,000	37
4	Chiller	1	25,000,000	25,000,000	240
5	Water Reservior and Delivery System	1	1,000,000	1,000,000	7
6	RO Plant	1	700,000	700,000	5
7	Generator (650 KVA)	1	10,500,000	10,500,000	
8	Weigh bridge (100 tons)	1	2,000,000	2,000,000	
9	Fork lifter 2.5 tons (battery operated)	1	4,000,000	4,000,000	
10	Transformer (1500 KVA)	1	3,000,000	3,000,000	
11	Workshop Machinery	1	1,000,000	1,000,000	
12	Fire Fighting Equipment	1	200,000	200,000	
	Total			**66,500,000**	**349**

11.3.1.3 Freezing Room Machinery Details

Sr.no	Name of the Machine	No.	Unit Cost (AED)	Total Cost (AED)	Total Cost (PKR)	Customs Duty/ Sales Tax	Total Cost	Power (KW)
1	Freezing Room (2500 tons storage capacity)	1	1,356,255	1,356,255	40,687,650	5%	42,722,033	417
2	Blast Freezer	1			12,000,000	16%	13,920,000	90
	Total						**56,642,033**	**507**

11.3.2 Annex III-B – Laboratory Consumable Apparatus List

Items description	Unit	Quantity	Cost (PKR)
Microbiological			
Gloves	Box	3	6,000
Mask	No.	50	750
Slides	No.	100	500
Cover slip	Box	1	150
Petri dishes	No.	100	5,000
Test tubes	No.	200	5,000
Durham tubes	No.	100	100
Cover slip	No.	100	300
Inoculation needles	No.	2	500
Media			
Potato dextrose broth	kg	1	4,200
Lactose broth	kg	1	4,000
Agar 1 kg	kg	1	6,000
Nutrient broth kg	kg	1	4,000
Glassware			
Beaker 1000ml	No.	4	600
Beaker 500ml	No.	4	360
Beaker 250ml	No.	4	240
Beaker 100ml	No.	6	210
Conical flask 50ml	No.	12	900
Conical flask 100ml	No.	6	510
Conical flask 250ml	No.	6	570
Cylinder 100ml	No.	6	570
Cylinder 500ml	No.	6	1,950
Cylinder 1000ml	No.	6	3,900
Funnel	No.	6	330
Pipette 1ml	No.	6	450
Pipette 2ml	No.	6	450
Pipette 5ml	No.	12	960
Pipette 10ml	No.	12	1,080
Total			**49,580**

11.3.3 Annex III-C – Pre-Operating Cost Detailed Calculations

Personnel Cost			
Position	Salary (PKR/month)	No.	Total
CEO	350,000	1	350,000
Finance & Accounts Manager	150,000	1	150,000
Accounts Officer	50,000	1	50,000
Procurement Officer	50,000	1	50,000
Security Guard	15,000	8	120,000
Driver	20,000	2	40,000
Office Boy	15,000	2	30,000
Plant Manager	250,000	1	250,000
Admin Officer Plant	100,000	1	100,000
Engineering Manager	150,000	1	150,000
Fitter/Welder	25,000	2	50,000
Total		**21**	**1,340,000**

Per Month Salaries	1,340,000
No. of Months	3
Total Salaries	**4,020,000**

Project's Promotional Cost	No.	Unit Cost (Rs)	Total cost (Rs)
Promotional Brochures	100	3,000	300,000
Visits & Meetings	4	500,000	2,000,000
Website Development	1	100,000	100,000
Total			**2,400,000**

Admin Expenses	(PKR/month)
Travelling	100,000
Office expenses	25,000
Office rent	100,000
Total (Rs/month)	**225,000**
No.of months	3
Total (Rs/month)	**675,000**

Freight on Machinery	
Freight to Karachi port	
No. of machinery containers	12
Freight per container (USD)	5,000
Freight per container (Rs)	555,000
Total Freight to Karachi (Rs)	6,660,000
Inland Freight	
Freight per container (Rs)	150,000
Total inland freight (Rs)	1,800,000
Total Freight (Rs)	**8,460,000**

Consultancy/Registration Cost (Rs)	
Company registration cost	1,000,000
Consultancy for project development	2,000,000
Consultancy for civil works (5% of cost)	405,000
Total consultancy cost	**3,405,000**

Erection and Commissioning	
Imported Machinery	
No. of Chinese technical staff	10
No. of days	50
Total mandays	500
Daily rate (USD)	100
Daily rate (Rs)	11,100
Imported Machinery Erection (Cost)	5,550,000
Local Machinery	
Percent of Machinery	1.0%
Local Machinery cost	66,500,000
Local machinery erection cost (Rs)	665,000
Total Installation & Commissioning	**6,215,000**

Utility Connections	Amount (PKR)
Electricity connection cost	13,000,000
Electrificity transmission line cost	5,000,000
Gas connection cost	-
Water tube well	1,800,000
Total	**19,800,000**

11.3.4 Annex III-D – Working Capital Detailed Calculations

	Annual Fruit Cost (PKR)	Daily Fruit Cost (PKR)	No. of days	Amount (PKR)
Kinnow	**147,000,000**	1,575,000	**93.3**	147,000,000

	Annual Cost (PKR)	Monthly Cost (PKR)	No. of Months	Amount (PKR)
Electricity Bill	26,382,704	7,195,283	3	21,585,848
Furnace Oil Cost	24,147,200	6,585,600	3	19,756,800
Chemicals Cost	1,796,667	490,000	3	1,470,000
Total				**42,812,648**

	Annual Cost (PKR)	Monthly Cost (PKR)	No. of Months	Amount (PKR)
Packing Material	**40,375,364**	**11,011,463**	**3**	**33,034,389**

	Annual Cost (Rs)	Monthly Cost (Rs)	No. of Months	Amount (Rs)
HR Cost	**60,855,000**	**5,071,250**	**3**	**15,213,750**

Spares	**5,403,596**	1%
Upfront Insurance Payment	**5,604,596**	
Cash	**10,000,000**	
Total Working Capital (PKR)	**259,068,979**	

11.4 Annex IV – Details of First Year Operating Revenues and Costs Calculations

11.4.1 Annex IV-A - Revenue Calculations

FCKJ	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Volume produced (ton)	3,332	3,808	4,284	4,522	4,522	4,522	4,522	4,522	4,522	4,522
Selling price (PKR/ton)	188,700	198,135	208,042	218,444	229,366	240,834	252,876	265,520	278,796	292,736
Revenues from FCKJ (PKR)	**628,748,400**	**754,498,080**	**891,250,857**	**987,803,033**	**1,037,193,185**	**1,089,052,844**	**1,143,505,486**	**1,200,680,761**	**1,260,714,799**	**1,323,750,539**

Peel Oil	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Volume produced (ton)	11.8	13.4	15.1	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Selling price (PKR/ton)	566,100	594,405	624,125	655,332	688,098	722,503	758,628	796,560	836,388	878,207
Revenues from Peel Oil (PKR)	**6,657,336**	**7,988,803**	**9,436,774**	**10,459,091**	**10,982,045**	**11,531,148**	**12,107,705**	**12,713,090**	**13,348,745**	**14,016,182**

Kinnow Pulp	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Volume produced (ton)	235.2	268.8	302.4	319.2	319.2	319.2	319.2	319.2	319.2	319.2
Selling price (PKR/ton)	20,000	21,000	22,050	23,153	24,310	25,526	26,802	28,142	29,549	31,027
Revenues from Kinnow Pulp (PKR)	**4,704,000**	**5,644,800**	**6,667,920**	**7,390,278**	**7,759,792**	**8,147,781**	**8,555,171**	**8,982,929**	**9,432,076**	**9,903,679**

Waste Peel & Fiber	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Peel & Waste Volume (Ton)	15,680	17,920	20,160	21,280	21,280	21,280	21,280	21,280	21,280	21,280
Pulp Volume sold as waste (Ton)	941	1,075	1,210	1,277	1,277	1,277	1,277	1,277	1,277	1,277
Total Volume (Ton)	16,621	18,995	21,370	22,557	22,557	22,557	22,557	22,557	22,557	22,557
Selling price (PKR/ton)	500	525	551	579	608	638	670	704	739	776
Revenues from Waste Peel (PKR)	**8,310,400**	**9,972,480**	**11,779,992**	**13,056,158**	**13,708,966**	**14,394,414**	**15,114,135**	**15,869,841**	**16,663,333**	**17,496,500**

Total Revenues (PKR)	648,420,136	778,104,163	919,135,543	1,018,708,560	1,069,643,988	1,123,126,187	1,179,282,497	1,238,246,622	1,300,158,953	1,365,166,900

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
FCKJ										
Kinnow processed (tons)	39,200	44,800	50,400	53,200	53,200	53,200	53,200	53,200	53,200	53,200
Kinnow Cost (PKR/ton)	3,750.0	4,125	4,538	4,991	5,490	6,039	6,643	7,308	8,038	8,842
Total Kinnow Cost (PKR)	**147,000,000**	**184,800,000**	**228,690,000**	**265,534,500**	**292,087,950**	**321,296,745**	**353,426,420**	**388,769,061**	**427,645,968**	**470,410,564**

11.4.3 Annex IV-C-Chemicals & Lab Cost Calculations

Caustic Soda (CIP & Resin Regeneration) Unit consumption (kg/day) 250

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Consumption (kg)	16,333	18,667	21,000	22,167	22,167	22,167	22,167	22,167	22,167	22,167
Unit Cost (Rs/kg)	80	86.4	93.3	100.8	108.8	117.5	126.9	137.1	148.1	159.9
Total Cost of Caustic Soda (Rs)	1,306,667	1,612,800	1,959,552	2,233,889	2,412,600	2,605,608	2,814,057	3,039,182	3,282,316	3,544,902

Nitric Acid (CIP) Unit consumption (kg/week) 150

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Consumption (kg)	1,400	1,600	1,800	1,900	1,900	1,900	1,900	1,900	1,900	1,900
Unit Cost (Rs/kg)	100	108.0	116.6	126.0	136.0	146.9	158.7	171.4	185.1	199.9
Total Cost of Nitric Acid (Rs)	140,000	172,800	209,952	239,345	258,493	279,172	301,506	325,627	351,677	379,811

Laboratory Chemicals cost

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Lab Chemicals cost per season (Rs) @ 100%	500,000	540,000	583,200	629,856	680,244	734,664	793,437	856,912	925,465	999,502
Lab Chemicals cost per season (Rs)	350,000	432,000	524,880	598,363	646,232	697,931	753,765	814,067	879,192	949,527
Total Chemicals Cost (Rs)	**1,796,667**	**2,217,600**	**2,694,384**	**3,071,598**	**3,317,326**	**3,582,712**	**3,869,329**	**4,178,875**	**4,513,185**	**4,874,240**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Lab Apparatus Cost (Rs)	**49,580**	**53,546**	**57,830**	**62,457**	**67,453**	**72,849**	**78,677**	**84,971**	**91,769**	**99,111**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Chemicals & Lab Cost (Rs)	**1,846,247**	**2,271,146**	**2,752,214**	**3,134,054**	**3,384,779**	**3,655,561**	**3,948,006**	**4,263,846**	**4,604,954**	**4,973,350**

11.4.4 Annex IV-D – Furnace Oil Cost Calculations

Furnace oil consumption (kg/day)	6,160
Furnace oil rate (Rs/kg)	60

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Furnace oil consumption (kg)	402,453	459,947	517,440	546,187	546,187	546,187	546,187	546,187	546,187	546,187
Furnace oil rate (Rs/kg)	60	64.8	70.0	75.6	81.6	88.2	95.2	102.8	111.1	119.9
Furnace oil cost (Rs)	**24,147,200**	**29,804,544**	**36,212,521**	**41,282,274**	**44,584,856**	**48,151,644**	**52,003,776**	**56,164,078**	**60,657,204**	**65,509,780**

11.4.5 Annex IV-E-Packaging Cost Calculations

Food Grade Drums

	Drums perton
FCKJ	3.7
Peel Oil	5.0
Kinnow Pulp	3.7

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
FCKJ										
No. of Drums	12,328	14,090	15,851	16,731	16,731	16,731	16,731	16,731	16,731	16,731
Drums Unit Cost	3,000	3,240	3,499	3,779	4,081	4,408	4,761	5,141	5,553	5,997
Drums Cost for FCKJ	**36,985,200**	**45,650,304**	**55,465,119**	**63,230,236**	**68,288,655**	**73,751,747**	**79,651,887**	**86,024,038**	**92,905,961**	**100,338,438**
Peel Oil										
No. of Drums	59	67	76	80	80	80	80	80	80	80
Drums Unit Cost	3,000	3,240	3,499	3,779	4,081	4,408	4,761	5,141	5,553	5,997
Drums Cost for Peel Oil	**176,400**	**217,728**	**264,540**	**301,575**	**325,701**	**351,757**	**379,898**	**410,290**	**443,113**	**478,562**
Kinnow Pulp										
No. of Drums	235	269	302	319	319	319	319	319	319	319
Drums Unit Cost	3,000	3,240	3,499	3,779	4,081	4,408	4,761	5,141	5,553	5,997
Drums Cost for Kinnow Pulp	**705,600**	**870,912**	**1,058,158**	**1,206,300**	**1,302,804**	**1,407,029**	**1,519,591**	**1,641,158**	**1,772,451**	**1,914,247**
Total Drums Cost (Rs)	**37,867,200**	**46,738,944**	**56,787,817**	**64,738,111**	**69,917,160**	**75,510,533**	**81,551,376**	**88,075,486**	**95,121,525**	**102,731,247**

Food Grade Poly Bags

	Polybags per ton
FCKJ	7.4
Peel Oil	10.0
Kinnow Pulp	7.4

Polybags cost (Rs/kg)	350
Bags per kg	3.7
Cost per bag (Rs)	94.6

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
FCKJ										
No. of Polybags	24,657	28,179	31,702	33,463	33,463	33,463	33,463	33,463	33,463	33,463
Polybags Unit Cost	95	102	110	119	129	139	150	162	175	189
Polybags Cost for FCKJ	**2,332,400**	**2,878,848**	**3,497,800**	**3,987,492**	**4,306,492**	**4,651,011**	**5,023,092**	**5,424,939**	**5,858,934**	**6,327,649**
Peel Oil										
No. of Polybags	118	134	151	160	160	160	160	160	160	160
Polybags Unit Cost	94.6	102.2	110.3	119.2	128.7	139.0	150.1	162.1	175.1	189.1
Polybags Cost for Peel Oil	**11,124**	**13,731**	**16,683**	**19,018**	**20,540**	**22,183**	**23,958**	**25,874**	**27,944**	**30,180**
Kinnow Pulp										
No. of Polybags	1,740	1,989	2,238	2,362	2,362	2,362	2,362	2,362	2,362	2,362
Polybags Unit Cost	94.6	102.2	110.3	119.2	128.7	139.0	150.1	162.1	175.1	189.1
Polybags Cost for Kinnow Pulp	**164,640**	**203,213**	**246,904**	**281,470**	**303,988**	**328,307**	**354,571**	**382,937**	**413,572**	**446,658**
Total Polybags Cost (Rs)	**2,508,164**	**3,095,791**	**3,761,387**	**4,287,981**	**4,631,019**	**5,001,501**	**5,401,621**	**5,833,750**	**6,300,450**	**6,804,486**
Total Packing Material Cost	**40,375,364**	**49,834,735**	**60,549,204**	**69,026,092**	**74,548,179**	**80,512,034**	**86,952,996**	**93,909,236**	**101,421,975**	**109,535,733**

11.4.6 Annex IV-F – Electricity Calculations

11.4.6.1 Electricity Tariff

FESCO Tariff - effective June 10, 2015

B - INDUSTRIAL SUPPLY TARIFFS											
					GOVERNMENT SUBSIDY			As on 10-06-2015 Excluding Subsidy (GOP)			
Sr. No.	TARIFF CATEGORY/PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh		FIXED CHARGES Rs/kW/m	VARIABLE CHARGES Rs./kWh		Fix -Ch Rs/KW	V-Ch Rs./Units		Rationalization Surcharge
B1	Up to 25 kW (at 400/230 volts)	-	13			-			13		1.5
B2(a)	exceeding 25-500 kW (at 400 Volts)	400	12.5		-	-		400	12.5		1.5
	Time of Use	-	Peak	Off-Peak	-	Peak	Off-Peak		Peak	Off-Peak	
B1(b)	Up to 25 KW	-	16	10	-	-	-		16	10	Peak 2.00 Off Peak 2.50
B2(b)	exceeding 25-500 kW (at 400 Volts)	400	16	9.6		-	-	400	16	9.6	Peak 2.00 Off Peak 2.69
B3	For All Loads up to 5000 kW (at 11,33 kV)	380	16	9.5		-	-	380	16	9.5	Peak 2.00 Off Peak 2.70
B4	For All Loads (at 66,132 kV & above)	360	16	9.4	-	-	-	360	16	9.4	Peak 2.00 Off Peak 2.70
For B1 consumers there shall be a fixed minimum charge of Rs. 350 per month.											
For B2 consumers there shall be a fixed minimum charge of Rs. 2000 per month.											
For B3 consumers there shall be a fixed minimum charge of Rs. 50,000 per month.											
For B4 consumers there shall be a fixed minimum charge of Rs. 500,000 per month.											

11.4.6.2 *Electricity Bill Calculations*

Fixed charges per month (Rs/kw load)	400									
Variable charges (Rs/kwh)	Peak	Off Peak								
	16	9.5								
Peak hours	4	0.166666667								
Off Peak hours	20	0.833333333								
Total	24									
Weighted average variable charges (Rs/kwh)		10.58								
Plant Load (KVA)	1,500									
Electricity Calculation										
Load Calculation per day	kw	Hours/day	KWH/day	No. of days per year	KWH/year					
Processing Machinery	602	20	12,044	93.3	1,124,107					
Utility Machinery	349	15	5,235	93.3	488,600					
Blast Freezer	90	18	1,620	93.3	151,200					
Freezing Rooms	417	6	2,502	300	750,600					
Total kwh per day	1458		21,401		2,514,507					
Variable Production Electricity Calculation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Variable Cost (Rs/kwh)	10.58	11.43	12.34	13.33	14.40	15.55	16.79	18.14	19.59	21.16
Variable Cost of electricity (Rs)	**18,628,304**	**22,992,649**	**27,936,068**	**31,847,118**	**34,394,888**	**37,146,479**	**40,118,197**	**43,327,653**	**46,793,865**	**50,537,374**
Variable Administrative Electricity Bill										
Fixed Electricity Cost										
	Kw	Hours/day	KWH/day	No. of days per year	KWH per year					
Administrative Load	40	12	480	180	86,400					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Variable Cost (Rs/kwh)	10.58	11.43	12.34	13.33	14.40	15.55	16.79	18.14	19.59	21.16
Variable Cost of electricity (Rs)	**914,400**	**987,552**	**1,066,556**	**1,151,881**	**1,244,031**	**1,343,554**	**1,451,038**	**1,567,121**	**1,692,491**	**1,827,890**
Fixed Charges on the Bill										
	Per month	Per year								
Fixed charges (Rs/kwm)	380	6,840,000								
Total fixed charges	380	6,840,000								
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Fixed cost of Electricity (Rs)	**6,840,000**	**7,387,200**	**7,978,176**	**8,616,430**	**9,305,744**	**10,050,204**	**10,854,220**	**11,722,558**	**12,660,363**	**13,673,192**
Total Electricity Cost of Plant	**26,382,704**	**31,367,401**	**36,980,801**	**41,615,429**	**44,944,663**	**48,540,236**	**52,423,455**	**56,617,331**	**61,146,718**	**66,038,455**
Head Office Electricity Bill										
Bill per month (Rs)	100,000									
Bill per year	1,200,000									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Head Office Electricity Bill (Rs)	**1,200,000**	**1,296,000**	**1,399,680**	**1,511,654**	**1,632,587**	**1,763,194**	**1,904,249**	**2,056,589**	**2,221,116**	**2,398,806**

11.4.7 Annex IV-G – Depreciation & Amortization Calculations

11.4.7.1Depreciation Calculations

		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rate	Opening Balance	Depreciation	Depreciation	Depreciation	Depreciation	Depreciation	Depreciation	Depreciation	Depreciation	Depreciation	Depreciation
Land	0%	48,000,000	-	-	-	-	-	-	-	-	-	-
Building & Civil Works	5%	82,850,000	4,142,500	4,142,500	4,142,500	4,142,500	4,142,500	4,142,500	4,142,500	4,142,500	4,142,500	4,142,500
Processing Machinery	10%	417,217,533	41,721,753	41,721,753	41,721,753	41,721,753	41,721,753	41,721,753	41,721,753	41,721,753	41,721,753	41,721,753
Utility Machinery	10%	66,500,000	6,650,000	6,650,000	6,650,000	6,650,000	6,650,000	6,650,000	6,650,000	6,650,000	6,650,000	6,650,000
Freezing Store Machinery	10%	56,642,033	5,664,203	5,664,203	5,664,203	5,664,203	5,664,203	5,664,203	5,664,203	5,664,203	5,664,203	5,664,203
Laboratory Equipment	10%	2,974,000	297,400	297,400	297,400	297,400	297,400	297,400	297,400	297,400	297,400	297,400
Office Equipment & Furniture	20%	7,390,000	1,478,000	1,478,000	1,478,000	1,478,000	1,478,000	-	-	-	-	-
Vehicles	20%	6,700,000	1,340,000	1,340,000	1,340,000	1,340,000	1,340,000	-	-	-	-	-
Total		**688,273,565**	**61,293,857**	**61,293,857**	**61,293,857**	**61,293,857**	**61,293,857**	**58,475,857**	**58,475,857**	**58,475,857**	**58,475,857**	**58,475,857**

Year End Value

		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Land		48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000	48,000,000
Building & Civil Works		82,850,000	78,707,500	74,565,000	70,422,500	66,280,000	62,137,500	57,995,000	53,852,500	49,710,000	45,567,500	41,425,000
Processing Machinery		417,217,533	375,495,779	333,774,026	292,052,273	250,330,520	208,608,766	166,887,013	125,165,260	83,443,507	41,721,753	-
Utility Machinery		66,500,000	59,850,000	53,200,000	46,550,000	39,900,000	33,250,000	26,600,000	19,950,000	13,300,000	6,650,000	-
Freezing Store Machinery		56,642,033	50,977,829	45,313,626	39,649,423	33,985,220	28,321,016	22,656,813	16,992,610	11,328,407	5,664,203	-
Laboratory Equipment		2,974,000	2,676,600	2,379,200	2,081,800	1,784,400	1,487,000	1,189,600	892,200	594,800	297,400	-
Office Equipment & Furniture		7,390,000	5,912,000	4,434,000	2,956,000	1,478,000	-	-	-	-	-	-
Vehicles		6,700,000	5,360,000	4,020,000	2,680,000	1,340,000	-	-	-	-	-	-
Total		**688,273,565**	**626,979,709**	**565,685,852**	**504,391,996**	**443,098,139**	**381,804,283**	**323,328,426**	**264,852,570**	**206,376,713**	**147,900,857**	**89,425,000**

11.4.7.2 Amortization Calculations

	Rate	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Pre-operating Expenses	20%	44,975,000	8,995,000	8,995,000	8,995,000	8,995,000	8,995,000	-	-	-	-	-
Accumulated Amortization cost			8,995,000	17,990,000	26,985,000	35,980,000	44,975,000	44,975,000	44,975,000	44,975,000	44,975,000	44,975,000
Year end value		44,975,000	35,980,000	26,985,000	17,990,000	8,995,000	-	-	-	-	-	-

11.4.7.3 Insurance Cost Calculations

Book Value

	Rate	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Machinery Book Value		540,359,565	486,323,609	432,287,652	378,251,696	324,215,739	270,179,783	216,143,826	162,107,870	108,071,913	54,035,957	-
Vehicles		6,700,000	5,360,000	4,020,000	2,680,000	1,340,000	-	-	-	-	-	-

Insurance Cost

	Rate	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Equipment & machinery insurance	1%	5,403,596	4,863,236	4,322,877	3,782,517	3,242,157	2,701,798	2,161,438	1,621,079	1,080,719	540,360	-
Office vehicles insurance	3%	201,000	160,800	120,600	80,400	40,200	-	-	-	-	-	-
Total Insurance Cost		**5,604,596**	**5,024,036**	**4,443,477**	**3,862,917**	**3,282,357**	**2,701,798**	**2,161,438**	**1,621,079**	**1,080,719**	**540,360**	**-**

11.5 Annex V- Breakeven Analysis Calculations

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenues (PKR)	648,420,136	778,104,163	919,135,543	1,018,708,560	1,069,643,988	1,123,126,187	1,179,282,497	1,238,246,622	1,300,158,953	1,365,166,900
Direct Costs (PKR)	279,189,032	341,340,391	412,608,615	472,180,821	515,245,443	562,245,236	613,548,122	669,556,764	730,711,884	797,495,884
Gross Profit (PKR)	369,231,104	436,763,772	506,526,928	546,527,739	554,398,545	560,880,951	565,734,375	568,689,857	569,447,069	567,671,017
No. of Units sold (Tons FCKJ)	3,332	3,808	4,284	4,522	4,522	4,522	4,522	4,522	4,522	4,522
Unit Revenue (PKR/Ton FCKJ))	194,604	204,334	214,551	225,278	236,542	248,369	260,788	273,827	287,519	301,894
Unit Variable Cost (PKR/Ton FCKJ)	83,790	89,638	96,314	104,419	113,942	124,336	135,681	148,067	161,590	176,359
Unit Contribution Margin (PKR/Ton FCKJ)	**110,814**	**114,696**	**118,237**	**120,860**	**122,600**	**124,034**	**125,107**	**125,761**	**125,928**	**125,535**
Fixed Costs (PKR)	**114,636,752**	**117,342,863**	**117,241,384**	**119,238,828**	**122,062,652**	**112,092,919**	**115,478,097**	**119,172,350**	**123,200,396**	**127,588,957**
Breakeven Capacity (Tons FCKJ)	1,035	1,023	992	987	996	904	923	948	978	1,016
Breakeven Capacity (Tons Kinnow)	12,171	12,036	11,666	11,607	11,713	10,632	10,859	11,148	11,510	11,957
Breakeven Capacity (Tons Kinnow/Day)	130	129	125	124	125	114	116	119	123	128
Total Available Capacity (Tons Kinnow/Day)	600	600	600	600	600	600	600	600	600	600
Breakeven Capacity %	**21.7%**	**21.5%**	**20.8%**	**20.7%**	**20.9%**	**19.0%**	**19.4%**	**19.9%**	**20.6%**	**21.4%**

11.5 Annex V- Breakeven Analysis Calculations

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenues (PKR)	648,420,136	778,104,163	919,135,543	1,018,708,560	1,069,643,988	1,123,126,187	1,179,282,497	1,238,246,622	1,300,158,953	1,365,166,900
Direct Costs (PKR)	279,189,032	341,340,391	412,608,615	472,180,821	515,245,443	562,245,236	613,548,122	669,556,764	730,711,884	797,495,884
Gross Profit (PKR)	369,231,104	436,763,772	506,526,928	546,527,739	554,398,545	560,880,951	565,734,375	568,689,857	569,447,069	567,671,017
No. of Units sold (Tons FCKJ)	3,332	3,808	4,284	4,522	4,522	4,522	4,522	4,522	4,522	4,522
Unit Revenue (PKR/Ton FCKJ))	194,604	204,334	214,551	225,278	236,542	248,369	260,788	273,827	287,519	301,894
Unit Variable Cost (PKR/Ton FCKJ)	83,790	89,638	96,314	104,419	113,942	124,336	135,681	148,067	161,590	176,359
Unit Contribution Margin (PKR/Ton FCKJ)	**110,814**	**114,696**	**118,237**	**120,860**	**122,600**	**124,034**	**125,107**	**125,761**	**125,928**	**125,535**
Fixed Costs (PKR)	**114,636,752**	**117,342,863**	**117,241,384**	**119,238,828**	**122,062,652**	**112,092,919**	**115,478,097**	**119,172,350**	**123,200,396**	**127,588,957**
Breakeven Capacity (Tons FCKJ)	1,035	1,023	992	987	996	904	923	948	978	1,016
Breakeven Capacity (Tons Kinnow)	12,171	12,036	11,666	11,607	11,713	10,632	10,859	11,148	11,510	11,957
Breakeven Capacity (Tons Kinnow/Day)	130	129	125	124	125	114	116	119	123	128
Total Available Capacity (Tons Kinnow/Day)	600	600	600	600	600	600	600	600	600	600
Breakeven Capacity %	**21.7%**	**21.5%**	**20.8%**	**20.7%**	**20.9%**	**19.0%**	**19.4%**	**19.9%**	**20.6%**	**21.4%**

11.6 Annex VI – Key Assumptions

11.6.1 Conversion Factors

Currencies	
PKR/USD	111
PKR/AED	30
Measures	
Kilogram per ton	1,000
Kilogram per maund	40
Maund per ton	25
sq. per kanal	5,440
sq. per acre	43,520

11.6.2 Revenue Assumptions

Product	Kinnow Price (PKR/maund)	Kinnow Price (PKR/ton)	Selling Price (USD/ton)	Selling Price (PKR/ton)	Yield	% Volumes sold
FCKJ	150	3,750	1,700	188,700	8.0%	100%
Peel Oil		-	5,100	566,100	0.03%	100%
Kinnow Pulp				20,000	3.0%	20%
Waste Peel & Fiber				500	40.0%	100%

11.6.3 Packaging Costs Bases

Product	Drums per ton	Polybags per ton
FCKJ	3.7	7.4
Peel Oil	5.0	10.0
Kinnow Pulp	3.7	7.4
Waste Peel & Fiber		

11.6.4 Cost Assumptions

Packaging drums (PKR/drum)	3,000
Packaging polybags (PKR/kg)	350
Nitric Acid (PKR/kg)	150
Lab Chemicals & Consumables (Season)	500,000
Diesel cost (PKR/liter)	90
Petrol cost (PKR/liter)	88
Furnace oil rate (PKR/kg)	60
Head Office Electricity bill (PKR/month)	100,000
Machine maintenance (% of machine cost)	1%
Consultancy charges (% of building)	5%

11.6.5 Sales Price Growth Rates

FCKJ	5.0%
Peel Oil	5.0%
Kinnow Pulp	5.0%
Waste Peel & Fiber	5.0%

11.6.6 Cost Growth Rates

Fruit cost annual growth rate	10.0%
Electricity cost annual growth rate	8%
Chemicals cost annual growth rate	8%
Lab consumable apparatus annual growth rate	8%
Resin cost annual growth rate	8%
Furnace oil cost annual growth rate	8%
Packing drums annual growth rate	8%
Packing polybags annual growth rate	8%
Fuel & vehicle maintenance cost annual growth rate	5%
Payroll cost annual growth rate	8%
Machine maintenance increase per year	0.10%
Travel cost annual growth rate	8%

11.6.7 Financial Assumptions

Cost of capital (for discounting)	18%
Tax Rate	35%

11.6.8 Marketing Costs

Advertising brochure cost	200
Annual growth rate of brochure cost	5%
Cost per mail letter (Rs)	20
Annual growth rate of mail cost	5%
Cost per foreign marketing trip	500,000
Annual growth rate of travel cost	10%
Cost per seminar	100,000
Annual growth rate of seminar cost	10%
Newspaper advertisement cost (Rs)	200,000
Annual growth rate of advertisement cost	10%
Cost of newspaper supplement	50,000
Annual growth rate in supplement cost	5%
Website development cost	100,000
Website maintenance cost per year	100,000

Annual growth in website maintenance cost	5%
Internet advertisement cost per year	12,000
Annual growth rate of internet advertisement	5%
Cost of trade fair (Rs)	250,000
Growth in trade fair cost	5%

11.6.9 Administrative Costs

Office rent (Rs/month)	100,000
Office rent growth rate	8%
Stationery cost per month	25,000
Stationery cost growth rate	8%
Mail cost per month	10,000
Telephone bill per month	25,000
Telephone bill growth rate	8%
Internet cost per month	20,000
Internet cost growth rate	8%
Refreshment cost per month	25,000
Refreshment cost growth rate	10%
Average travel cost per visit (Rs)	20,000

11.6.10 Legal/Regulatory Costs

Regulatory fee (Rs/annum)	1,000,000
Growth rate of regulatory fee per annum	5%
Audit fee (Rs/annum)	1,500,000
Growth rate of audit fee per annum	5%
Legal/Professional fee (Rs/annum)	1,000,000
Growth rate of legal fee per annum	5%
Insurance rate (machinery)	1%
Insurance rate (vehicles)	3%
Miscellaneous expenses	100,000
Growth rate of miscellaneous expenses	5%

11.6.11 Debt Cost

Interest Rate per annum	15%
Debt Tenure (years)	10