

## Updated Feasibility Study Tables for Al-Bawader

- Summary:**

Summary	
<b>Project Name</b>	Feasibility Study for Establishing an Agricultural Plastic Products Factory
<b>Project Sector</b>	Plastic Manufacturing
<b>Total Investment (USD)</b>	10,085,483
<b>Payback Period in Years (PBP)</b>	4.33
<b>Return on Investment (ROI)</b>	37%
<b>Net Present Value (NPV)</b>	14,287,889
<b>Internal Rate of Return (IRR)</b>	26%

- Assumptions:**

Assumptions	
Project Starting Date	1/6/2021
USD:ILS Rate	3.4
EUR:USD Rate	1.21
Number of working days for the Project	312
Number of working days per month	26
Number of working Hours per shift	8
Project Area (Squared Meters)	5,000
Production Capacity (Kg/Hr.)	900

- Pricing:**

Pricing		
Product Category	Retail Price per KG (ILS)	Retail Price per KG (USD)
Greenhouse cover films	10.5	3.1
Thermal shaders	10.5	3.1
Recycled plastic	2.4	0.7

- **Sales and Demand:**

Market Share Growth (in Donums)				
Year	Number of Donums in Palestine	Growth Rate of Donums in West Bank	Market Share Growth	Demanded Number of Donums in Palestine
1	30,000	-	%50	15,000
2	31,800	%6	%55	17,490
3	33,708	%6	%60	20,225
4	35,730	%6	%65	23,225
5	37,874	%6	%70	26,512
6	40,147	%6	%75	30,110
7	42,556	%6	%75	31,917
8	45,109	%6	%75	33,832
9	47,815	%6	%75	35,862
10	50,684	%6	%75	38,013

Expected Production in Tons				
Year	Greenhouse cover films Production in Tons	Thermal shaders	Total	Utilization (%)
Every Donum needs in Kg	156	36		
1	2,340	540	2,880	%39
2	2,728	630	3,358	%46
3	3,155	728	3,883	%53
4	3,623	836	4,459	%61
5	4,136	954	5,090	%70
6	4,697	1,084	5,781	%79
7	4,979	1,149	6,128	%84
8	5,278	1,218	6,496	%89
9	5,594	1,291	6,885	%94
10	5,930	1,368	7,299	%100

Sales in ILS				
Year	Greenhouse cover films Sales in ILS	Thermal shaders Sales in ILS	Recycled Plastic in ILS	Total
Price of Kg (ILS)	10.5	10.5	2.4	
1	24,570,000	5,670,000	3,456,000	33,696,000
2	28,648,620	6,611,220	3,801,600	39,061,440
3	33,128,222	7,644,974	4,181,760	44,954,957
4	38,042,242	8,778,979	4,599,936	51,421,157
5	43,426,682	10,021,542	5,059,930	58,508,154
6	49,320,304	11,381,609	5,565,923	66,267,835
7	52,279,522	12,064,505	6,122,515	70,466,542
8	55,416,293	12,788,375	6,734,766	74,939,435
9	58,741,271	13,555,678	7,408,243	79,705,192
10	62,265,747	14,369,019	8,149,067	84,783,833

Sales in USD				
Year	Greenhouse cover films Sales in USD	Thermal shaders Sales in USD	Recycled Plastic in ILS	Total
Price of Kg (USD)	3.09	3.09	0.7	
1	7,226,471	1,667,647	1,016,471	9,910,588
2	8,426,065	1,944,476	1,118,118	11,488,659
3	9,743,595	2,248,522	1,229,929	13,222,046
4	11,188,895	2,582,053	1,352,922	15,123,870
5	12,772,554	2,947,512	1,488,215	17,208,281
6	14,505,972	3,347,532	1,637,036	19,490,540
7	15,376,330	3,548,384	1,800,740	20,725,453
8	16,298,910	3,761,287	1,980,814	22,041,010
9	17,276,844	3,986,964	2,178,895	23,442,703
10	18,313,455	4,226,182	2,396,784	24,936,421

- **Raw Materials Costs:**

Raw Materials Costs										
Year	Main RM Cost (USD/Kg)	Annual increase in Price	Other RMs (Additives)	Total Cost (USD/Kg)	Total Production in Kg	Main Production Line Raw Material Cost in USD	Raw material cost for the recycling production line (USD/Kg)	Recycled Production Quantity (Kgs) at 200 kg / hour	Recycled Raw Material Cost in USD	Total Raw Material Cost
1	1.20	%0	0.40	1.60	2,880,000	4,608,000	0.35	1,440,000	504,000	5,112,000
2	1.22	%2	0.40	1.62	3,358,080	5,453,522	0.36	1,584,000	565,488	6,019,010
3	1.25	%2	0.40	1.65	3,883,162	6,401,314	0.36	1,742,400	634,478	7,035,792
4	1.27	%2	0.40	1.67	4,459,164	7,462,186	0.37	1,916,640	711,884	8,174,070
5	1.30	%2	0.40	1.70	5,090,307	8,648,017	0.38	2,108,304	798,734	9,446,751
6	1.32	%2	0.40	1.72	5,781,134	9,971,861	0.39	2,319,134	896,179	10,868,040
7	1.35	%2	0.40	1.75	6,128,003	10,732,552	0.39	2,551,048	1,005,513	11,738,065
8	1.38	%2	0.40	1.78	6,495,683	11,552,070	0.40	2,806,153	1,128,186	12,680,256
9	1.41	%2	0.40	1.81	6,885,424	12,435,015	0.41	3,086,768	1,265,824	13,700,839
10	1.43	%2	0.40	1.83	7,298,549	13,386,350	0.42	3,395,445	1,420,255	14,806,605

- **Waste in Production:**

Waste in Production Costs				
Year	Waste in Production	Total Production in Kg	Total waste in Kg	Total Cost (USD/year)
1	%3.5	2,880,000	100,800	161,280
2	%3.5	3,358,080	117,533	190,873
3	%3.0	3,883,162	116,495	192,039
4	%3.0	4,459,164	133,775	223,866
5	%2.5	5,090,307	127,258	216,200
6	%2.5	5,781,134	144,528	249,297
7	%2.0	6,128,003	122,560	214,651
8	%2.0	6,495,683	129,914	231,041
9	%1.5	6,885,424	103,281	186,525
10	%1.5	7,298,549	109,478	200,795

- **Construction:**

Construction		
Item	Item	Cost (USD)
Building Construction	Building construction- Barracks	700,000
	Fire system	150,000
	Lighting system	20,000
Solar System	Solar System (0.5 Mega)	400,000
Total		1,270,000

- **Furniture and Equipment:**

Furniture and Equipment			
Group	Item	Cost (EUR)	Cost (USD)
Production Line and Equipment	Production Line	3,792,000	4,588,320
	Shipping and Taxes	50,000	60,500
	Reel Lifting and handling	40,000	48,400
	Raw material containers and silos	50,000	60,500
	Installation: Assembly and wiring	50,000	60,500
	Software and electrical infrastructure	20,000	24,200
	Compressor and compressed airliners	60,000	72,600
	Water and air cooling system	100,000	121,000
	Power Generator	50,000	60,500
	Recycling Production Line (Including washing and palletizing...etc.)	272,727	330,000
Furniture	Administrative Offices	20,000	24,200
	Computer	25,000	30,250
Labs	Inspection Lab	35,000	42,350
Vehicles	Forklifts	50,000	60,500
	Cars	200,000	242,000
Other Miscellaneous		50,000	60,500
Total		4,864,727	5,886,320

- **Incorporation Expenses:**

<b>Incorporation Expenses</b>	
<b>Item</b>	<b>Cost (USD)</b>
Licenses	20,000
Salaries before starting work	50,000
Environmental Impact study	20,000
Miscellaneous	20,000
<b>Total</b>	<b>110,000</b>

- **Total Capital Expenses:**

<b>Total Capital Expenses</b>	
<b>Item</b>	<b>Cost (USD)</b>
Construction	1,270,000
Furniture and Equipment	5,886,320
Incorporation Expenses	110,000
<b>Total</b>	<b>7,266,320</b>

- **Manpower:**

Manpower		Max Number of Employees	Monthly Salary (USD)	Annual Salary (USD)	Number of Needed Manpower									
					1	2	3	4	5	6	7	8	9	10
General Manager Office	General Manager	1	3,500	45,500	1	1	1	1	1	1	1	1	1	1
	Secretary	1	600	7,800	1	1	1	1	1	1	1	1	1	1
Financial Department	Financial Manager	1	2,000	26,000	1	1	1	1	1	1	1	1	1	1
	Accountants	3	1,000	39,000	1	1	2	2	2	3	3	3	3	3
	Store Manager	1	1,500	19,500	1	1	1	1	1	1	1	1	1	1
Factory Management	Factory Manager	1	1,700	22,100	1	1	1	1	1	1	1	1	1	1
	Production Engineer	4	1,500	78,000	2	2	3	3	3	4	4	4	4	4
	Maintenance Engineer	1	1,300	16,900	1	1	1	1	1	1	1	1	1	1
	Main Production Line Workers	24	900	280,800	18	18	20	20	22	22	24	24	24	24
	Recycling Production Line Workers	9	700	81,900	9	9	9	9	9	9	9	9	9	9
	Store handling	6	700	54,600	4	4	4	4	5	5	6	6	6	6
	Forklifts Drivers	4	700	36,400	3	3	4	4	4	4	4	4	4	4
Quality Management	Quality Assurance Manager	1	1,500	19,500	1	1	1	1	1	1	1	1	1	1
	Quality Control Officers	3	1,200	46,800	1	1	2	2	3	3	3	3	3	3
	Safety Engineer	1	1,500	19,500	1	1	1	1	1	1	1	1	1	1
Administrative Management	Administrative Manager	1	2,000	26,000	1	1	1	1	1	1	1	1	1	1
	Sales and Marketing Manager	1	2,000	26,000	1	1	1	1	1	1	1	1	1	1
	Human Resources Officer	1	1,600	20,800	1	1	1	1	1	1	1	1	1	1
Total		64	25,900	867,100	49	49	55	55	59	61	64	64	64	64



Manpower		Number of Needed Manpower									
		1	2	3	4	5	6	7	8	9	10
General Manager Office	General Manager	45,500	47,775	50,164	52,672	55,306	58,071	60,974	64,023	67,224	70,585
	Secretary	7,800	8,190	8,600	9,029	9,481	9,955	10,453	10,975	11,524	12,100
Financial Department	Financial Manager	26,000	27,300	28,665	30,098	31,603	33,183	34,842	36,585	38,414	40,335
	Accountants	13,000	13,650	28,665	30,098	31,603	49,775	52,264	54,877	57,621	60,502
	Store Manager	19,500	20,475	21,499	22,574	23,702	24,887	26,132	27,438	28,810	30,251
Factory Management	Factory Manager	22,100	23,205	24,365	25,584	26,863	28,206	29,616	31,097	32,652	34,284
	Production Engineer	39,000	40,950	64,496	67,721	71,107	99,550	104,527	109,754	115,242	121,004
	Maintenance Engineer	16,900	17,745	18,632	19,564	20,542	21,569	22,648	23,780	24,969	26,217
	Main Production Line Workers	210,600	221,130	257,985	270,884	312,871	328,515	376,299	395,114	414,869	435,613
	Recycling Production Line Workers	81,900	85,995	90,295	94,809	99,550	104,527	109,754	115,242	121,004	127,054
	Store handling	36,400	38,220	40,131	42,138	55,306	58,071	73,169	76,828	80,669	84,703
	Forklifts Drivers	27,300	28,665	40,131	42,138	44,244	46,457	48,779	51,218	53,779	56,468

<b>Quality Managem ent</b>	<b>Quality Assurance Manager</b>	19,500	20,475	21,499	22,574	23,702	24,887	26,132	27,438	28,810	30,251
	<b>Quality Control Officers</b>	15,600	16,380	34,398	36,118	56,886	59,730	62,716	65,852	69,145	72,602
	<b>Safety Engineer</b>	19,500	20,475	21,499	22,574	23,702	24,887	26,132	27,438	28,810	30,251
<b>Administ rative Managem ent</b>	<b>Administrati ve Manager</b>	26,000	27,300	28,665	30,098	31,603	33,183	34,842	36,585	38,414	40,335
	<b>Sales and Marketing Manager</b>	26,000	27,300	28,665	30,098	31,603	33,183	34,842	36,585	38,414	40,335
	<b>Human Resources Officer</b>	20,800	21,840	22,932	24,079	25,283	26,547	27,874	29,268	30,731	32,268
<b>Total</b>		<b>673,400</b>	<b>707,070</b>	<b>831,285</b>	<b>872,849</b>	<b>974,958</b>	<b>1,065,185</b>	<b>1,161,997</b>	<b>1,220,097</b>	<b>1,281,102</b>	<b>1,345,157</b>

- **Administrative Costs:**

Administrative Costs	
Item	Cost (USD/Year)
Stationery	6,000
Internet	12,000
Auditing	5,000
Licenses	2,000
Cleaning	2,500
Misc.	2,500
<b>Total</b>	<b>30,000</b>

- **Utilities:**

Utilities				
Year	Water (USD)	Electricity (USD)	Diesel (USD)	Utilities Cost (USD/Year)
1	1,000	81,008	52,941	134,949
2	1,050	103,901	52,941	157,892
3	1,103	120,147	52,941	174,191
4	1,158	137,969	52,941	192,068
5	1,216	157,497	52,941	211,654
6	1,276	178,872	52,941	233,089
7	1,340	189,604	52,941	243,886
8	1,407	200,981	52,941	255,329
9	1,477	213,039	52,941	267,458
10	1,551	225,822	52,941	280,314

- **Marketing:**

Marketing	
Item	Cost (USD)
Marketing	30,000
<b>Total</b>	<b>30,000</b>

- **Maintenance:**

Maintenance			
Item	Cost (USD)	Yearly Maintenance Rate	Cost (USD)
Construction	1,270,000	5%	63,500
Equipment	5,886,320	3%	176,590
<b>Total</b>	<b>---</b>		<b>240,090</b>

- **Insurance:**

Insurance	
Item	Cost (USD/Year)
Building and Equipment	58,863
Employees	10,000
<b>Total</b>	<b>68,863</b>

- **Depreciation:**

Depreciation			
Item	Cost (USD)	Depreciation Rate (%)	Depreciation Cost (USD)
Building Construction	870,000	10%	87,000
Solar System	400,000	5%	20,000
Production Line and Equipment	5,426,520	10%	542,652
Furniture	54,450	20%	10,890
Labs	42,350	15%	6,353
Vehicles	302,500	20%	60,500
Other Miscellaneous	50,000	15%	7,500
<b>Total</b>	---	---	<b>734,895</b>

- **Amortization:**

Amortization			
Item	Cost (USD)	Amortization Rate (%)	Amortization (USD) Cost
Incorporation Expenses	110,000	10%	11,000

- **Operating Costs:**

Ye ar	Operating Cost										Total Operating Cost (USD)
	Rawmat erial Cost	Produc tion Waste	Manpo wer	Administ rative	Utilit ies	Market ing	Mainten ance	Insura nce	Deprecia tion	Amortiza tion	
1	5,112,000	161,280	673,400	30,000	134,949	30,000	240,090	68,863	734,895	11,000	7,196,477
2	6,019,010	190,873	707,070	31,500	157,892	30,000	240,090	68,863	734,895	11,000	8,191,193
3	7,035,792	192,039	831,285	33,075	174,191	30,000	240,090	68,863	734,895	11,000	9,351,230
4	8,174,070	223,866	872,849	34,729	192,068	30,000	240,090	68,863	734,895	11,000	10,582,429
5	9,446,751	216,200	974,958	36,465	211,654	30,000	240,090	68,863	734,895	11,000	11,970,875
6	10,868,040	249,297	1,065,185	38,288	233,089	30,000	240,090	68,863	734,895	11,000	13,538,747
7	11,738,065	214,651	1,161,997	40,203	243,886	30,000	240,090	68,863	734,895	11,000	14,483,649
8	12,680,256	231,041	1,220,097	42,213	255,329	30,000	240,090	68,863	734,895	11,000	15,513,783
9	13,700,839	186,525	1,281,102	44,324	267,458	30,000	240,090	68,863	734,895	11,000	16,565,095
10	14,806,605	200,795	1,345,157	46,540	280,314	30,000	240,090	68,863	734,895	11,000	17,764,258

- **Working Capital:**

Working Capital		
Item	Working Capital Percentage	Cost (USD)
Manpower (Average of first five years)	20%	162,382
Administrative	20%	6,000
Utilities	20%	26,990
Marketing	20%	6,000
Maintenance	20%	48,018
Raw Material	50%	2,556,000
Insurance	20%	13,773
<b>Total</b>	<b>-</b>	<b>2,819,163</b>

- **Investment Expense:**

Investment Expenses	
Item	Cost (USD)
Total Capital Expenses	7,266,320
Working Capital	2,819,163
<b>Investment Cost</b>	<b>10,085,483</b>

- **Profits:**

Profits							
Year	Total Operating Costs (USD)	Loan (USD)	Total Revenues (USD)	Profits Before Taxes (USD)	Taxes (USD)	Net Profit After Tax (USD)	(%) Profit Increase
1	7,196,477	1,225,327	9,910,588	1,488,784	104,215	1,384,569	0%
2	8,191,193	1,225,327	11,488,659	2,072,139	145,050	1,927,089	39%
3	9,351,230	1,225,327	13,222,046	2,645,489	185,184	2,460,305	28%
4	10,582,429	1,225,327	15,123,870	3,316,113	232,128	3,083,986	25%
5	11,970,875	1,225,327	17,208,281	4,012,078	280,845	3,731,232	21%
6	13,538,747	1,225,327	19,490,540	4,726,466	330,853	4,395,613	18%
7	14,483,649	1,225,327	20,725,453	5,016,477	351,153	4,665,324	6%
8	15,513,783	1,225,327	22,041,010	5,301,900	371,133	4,930,767	6%
9	16,565,095	1,225,327	23,442,703	5,652,281	395,660	5,256,621	7%
10	17,764,258	1,225,327	24,936,421	5,946,836	416,279	5,530,558	5%

<b>Loan Period in Years</b>	10
<b>Laon Payment</b>	Monthly
<b>Loan amount (USD)</b>	10,085,483
<b>Monthly payment</b>	102,111
<b>Number of payments</b>	120
<b>Total interest (USD)</b>	2,167,790
<b>Total cost of loan (USD)</b>	12,253,273
<b>Annual Interest Rate</b>	4%
<b>Tax Rate</b>	7%



- **Financial Indicators:**

Financial Indicators		
Year	Net Profit After Tax (USD)	Cumulative Net Profit (USD)
0 (Investment Exp)	(10,085,483)	(10,085,483)
1	1,384,569	(8,700,914)
2	1,927,089	(6,773,825)
3	2,460,305	(4,313,520)
4	3,083,986	(1,229,534)
5	3,731,232	2,501,698
6	4,395,613	6,897,311
7	4,665,324	11,562,635
8	4,930,767	16,493,402
9	5,256,621	21,750,023
10	5,530,558	27,280,581

Payback Period in Years (PBP)	
4.3	Years
Return on Investment (ROI)	
37%	
Net Present Value (NPV)	
14,287,889	
Internal Rate of Return (IRR)	
26%	

- Cash-flow:

		Start	2021				2022				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4										
Beginning Cash Balance		0	0								0	2,524,124	5,590,767	9,314,841	13,538,381	18,409,168	23,944,336	29,749,214	35,819,535	42,215,711
Cash Inflows																				
	New Investment	10,085,483	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Sales	0	2,477,647	2,477,647	2,477,647	2,477,647	2,872,165	2,872,165	2,872,165	2,872,165	9,910,588	11,488,659	13,222,046	15,123,870	17,208,281	19,490,540	20,725,453	22,041,010	23,442,703	24,936,421
Total Inflows		10,085,483	2,477,647	2,477,647	2,477,647	2,477,647	2,872,165	2,872,165	2,872,165	2,872,165	9,910,588	11,488,659	13,222,046	15,123,870	17,208,281	19,490,540	20,725,453	22,041,010	23,442,703	24,936,421
Cash Outflows																				
	Construction Expenses	1,270,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Furniture and Equipment Expenses	5,886,320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Incorporation Expenses	110,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Working Capital	2,819,163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rawmaterial Cost	0	1,278,000	1,278,000	1,278,000	1,278,000	1,504,752	1,504,752	1,504,752	1,504,752	5,112,000	6,019,010	7,035,792	8,174,070	9,446,751	10,868,040	11,738,065	12,680,256	13,700,839	14,806,605
	Production Waste Cost	0	40,320	40,320	40,320	40,320	47,718	47,718	47,718	47,718	161,280	190,873	192,039	223,866	216,200	249,297	214,651	231,041	186,525	200,795
	Manpower	0	168,350	168,350	168,350	168,350	176,768	176,768	176,768	176,768	673,400	707,070	707,070	872,849	974,958	1,065,185	1,161,997	1,220,097	1,281,102	1,345,157
	Administrative	0	7,500	7,500	7,500	7,500	7,875	7,875	7,875	7,875	30,000	31,500	33,075	34,729	36,465	38,288	40,203	42,213	44,324	46,540
	Utilities	0	33,737	33,737	33,737	33,737	39,473	39,473	39,473	39,473	134,949	157,892	174,191	192,068	211,654	233,089	243,886	255,329	267,458	280,314
	Marketing	0	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
	Maintenance	0	60,022	60,022	60,022	60,022	60,022	60,022	60,022	60,022	240,090	240,090	240,090	240,090	240,090	240,090	240,090	240,090	240,090	240,090
	Insurance	0	17,216	17,216	17,216	17,216	17,216	17,216	17,216	17,216	68,863	68,863	68,863	68,863	68,863	68,863	68,863	68,863	68,863	68,863
	Depreciation	0	183,724	183,724	183,724	183,724	183,724	183,724	183,724	183,724	734,895	734,895	734,895	734,895	734,895	734,895	734,895	734,895	734,895	734,895
	Amortization	0	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
	Taxes	0	47,497	47,497	47,497	47,497	57,706	57,706	57,706	57,706	189,988	230,823	270,957	317,901	366,618	416,626	436,926	456,906	481,433	502,051
Total Outflows		10,085,483	1,846,616	1,846,616	1,846,616	1,846,616	2,105,504	2,105,504	2,105,504	2,105,504	7,386,464	8,422,015	9,497,972	10,900,330	12,337,494	13,955,372	14,920,575	15,970,689	17,046,528	18,266,309
Net Cashflow		0	631,031	631,031	631,031	631,031	766,661	766,661	766,661	766,661	2,524,124	3,066,643	3,724,074	4,223,540	4,870,787	5,535,167	5,804,878	6,070,321	6,396,176	6,670,112
Closing Balance		0	631,031	631,031	631,031	631,031	766,661	766,661	766,661	766,661	2,524,124	5,590,767	9,314,841	13,538,381	18,409,168	23,944,336	29,749,214	35,819,535	42,215,711	48,885,823