



**OFFICE FOR THE PROMOTION OF THE COMMERCIAL
AGRICULTURAL SECTOR**

In collaboration with
INTERNATIONAL CAPITAL CORPORATION (MOÇAMBIQUE) LDA

IDENTIFICATION OF OPTIONS & FEASIBILITY FOR
THE PROMOTION OF RURAL AGRO-INDUSTRY

SUNFLOWER SEED PROCESSING

PRELIMINARY BUSINESS PLAN

October, 2002

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PRELIMINARY BUSINESS PLAN

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A. BACKGROUND AND OPPORTUNITIES

Moçambique is a traditional producer of oleaginous seed plants. Among the most usually grown are copra (coconut), cotton, sunflower and sesame seed as well as the peanut. There are other plant oils for other industrial uses such as mafurra (*Trichilia emetica*) whose oil is considered a vegetable oil and of great use in the manufacture of soap; and the castor bean or seed which also has industrial applications but at the moment has no commercial uses.

Thus, the set up of installations to process oleaginous seeds for the production of edible oils, presents an opportunity to add value to agricultural products, thereby contributing to the improvement of the food diet, particularly that of the rural populace, where the consumption per capita continues to be less than one litre per person per year.

With the exception of cotton, all of the other oleaginous plants only require a simple transformation process. The processing of the sunflower seed, whose production has increased during the last years as a result of development projects carried out by various NGO's, such as CARE and WORLD VISION, among others, therefore becomes a business opportunity. Since it is an oleaginous plant that does not have an export market, it can only acquire a reasonable commercial value if processed in its entirety and sold in the form of edible oil or oilcake.

There is potential for the development of this industry in Niassa, Nampula and Cabo Delgado provinces, notwithstanding the existing large processing plants in Zambézia, Nampula and Sofala provinces.

In fact, as noted, there already are several large oil producing factory. However, the majority of these are located in urban areas, far from the centres for growing of the oleaginous plants. This aspect, allied to the fact that these are large scale plants that require large amounts of raw material made more costly due to transport and are therefore generally operating at levels below their installed capacity, has the consequence that these large scale plants have a low profitability.

Having analysed the several alternative locations on the basis of the conditions inherent to each, the district of Chiúre in Cabo Delgado Province was chosen as the model for the installation of a small to medium scale processing plant, and. In Chiúre District, there is already a reasonably developed marketing and sale of plant oils (sunflower and sesame) led by a businessman of recognised capacity with substantial experience in agricultural marketing. This businessman has both the necessary installations and the means of transport, which suggests that an investment in a processing plant could be accomplished here without significant capital investment requirements, with the advantage of being close to the sources of supply of the raw material inputs and managed by someone who already controls part of the market to which the final product would be sold. The businessman in question has a commercial network which extends into several districts in the province, and which could be of great utility in the eventual commercialisation of the final products.

B. BUSINESS STRUCTURE AND INVESTOR PROFILE

The ideal profile of the person who would develop this type of business venture is someone who already has experience at the very least with agricultural marketing and in particular with plant oils. Preferably the person would already have some assets, such as warehouses,

transport fleet, rural stores, etc. and in sum would be a business person already active in the area with the added advantage of knowing the local environment and being a member of the community.

Given the nature of the processing unit, the investment in equipment and buildings, if not already available, would be approximately US\$14 000. The installations needed for the presses and other equipment for the cleaning of the seeds, packaging and filtering the oil should not be more than 150 square metres, with around half of this space reserved for the storage of the seed, since the seed must be acquired in sufficient quantities during a three month period to provide the raw material input needed for the entire year.

C. MARKET

The average consumption of edible oils per person, is calculated at around 3.81 litres in urban areas and 0.64 litres in rural areas¹. Using this indicator as the average, Cabo Delgado Province could consume around one and a half million litres. However in spite of the appearance of a large market, the numbers presented must be confronted with other factors, of which the lack of purchasing power is the most important, thereby reducing drastically the capacity of the consumer market to absorb the product. Nonetheless, and even taking into account all of these factors, the existing installed capacity does not meet the available market demand market.

In the provincial capital city of Pemba there is an oleaginous processing plant belonging to the company SAIN which produces in particular sunflower and sesame oils and occasionally peanut oil. This factory has a capacity of approximately one tonne of raw material per day on the basis of three working shifts.

This factory, even if producing at its maximum capacity would not solve the consumption problem by virtue of which consumers with less purchasing power continue to have imported refined edible oils as the only available product which is sold in Pemba for around 25,000 Meticals, while the price for the unrefined oil charged by the company SAIN is about 15,000 Meticals a litre at the door of the factory. It was determined that the price of the unrefined oil was set at 15,000 Meticals because urban consumers preferred the refined oil over the unrefined oil. In any event, the unrefined oil is sold by retailers at higher prices, usually around an average of 20,000 Meticals/litre.

It is notable that in the more remote areas, above all those with difficult means of access, the unrefined oil reaches the price of 20 000 Meticals a litre, while, for example, in Murrupula, a rural community in Nampula Province 80 kilometres from the city of Nampula, served by a good road, unrefined oil is sold at a price that is not higher than 16 000 Meticals/litre.

¹ Source: Ann Gordon and Mark Langworthy, 1999, **Report on the edible oil sub-sector in Mozambique**, Care International, Maputo

For the processing plant that is being proposed for installation in a sunflower growing zone, the oil could be sold at a price of 17,500 Meticals/litre at the door of the factory, given that refined oil, which is sold at a price that has been increased by the transport costs and the losses that occur during such transport, is currently sold at a price higher than that charged in urban areas.

Although there is a market for the oilcake residue (animal feed), there is currently no feed product production unit in Cabo Delgado Province, which necessarily limits the market for this product, and makes it difficult to sell the oilcake to dispersed, individual consumers. Nonetheless the production of oilcake in rural areas could to a certain degree act as a contributing incentive to the raising of stock animals.

In this particular case and as a means to create an incentive to consume oilcake as animal feed, a price of 1,000 Meticals/kg, which would be considered accessible, would be charged. With increased production, new markets should be procured, especially abroad such as in South Africa which is currently paying for copra oil cake around US\$115 per tonne, The price covers US\$35 for transport and US\$80 for the exporter or approximately 2,000 Meticals/kg. Sunflower oilcake has greater value in the international market than does copra oilcake.

D. SUPPLY OF RAW MATERIAL

In spite of the relatively low agricultural production, the sunflower is quite popular in Moçambique, where as an edible oil it is much appreciated, having been introduced into Moçambique through importation and donations. It is very healthy for the diet and is a very clear oil, even when not refined, provided that it has been properly processed. Normally, the oil content of a seed is around 45-48%. However in Moçambique the oil content of seed (variety Black Record) can be between 33% to 48%, with the result that mechanical extraction does not permit good results, above all under conditions in Moçambique where normally 3 to 4 kilograms of seed is required to produce one kilogram of oil. This low output quality results from the fact that traditionally the grain produced is used as seed for several years leading to the degradation of its genetic qualities. In this regard, the installation of processing units in rural areas could play a relevant role in encouraging the improvement in quality and in crop results. For the purpose of calculating the profitability of this venture, an extraction rate of 25% has been used, since this is the most likely level to be obtained in function of the initial quality of the raw material.

In the district of Chiúre and surrounding areas, the production of sunflower is around 1,000 tonnes. With the introduction of a production program as a market guarantee, the crop harvest could be much larger. For the unit proposed, it is assumed that it will process only about 300 tonnes in the first year, rising gradually until production reaches 1,000 tonnes in the fifth year. Nonetheless, with sufficient raw material available, the plant could immediately process larger quantities, since its installed capacity operating on a 24 hour basis, is 1,800 tonnes/year.

During the first phase, the family sector would be the major source of supply of the raw materials. Nevertheless, it is foreseen that the investor would plant its own sunflower crop fields at a reasonable size and scale, in order gradually to control the quality and revenue as well as to demonstrate, by example to the smallholder farmers the benefits of improved crop varieties and farming techniques as well as the personal benefit obtained from the reduction in the costs of the raw material.

Normally, a rural family can produce around 300 to 500 kilograms of sunflower seed, in an area of about a half of a hectare. Thus the number of families benefiting from this project could go from a total of 1,000 at the beginning of the operation to over 3,000 in five years. There is no need to use chemicals or fertilisers. This crop is a traditional crop and adjusts itself to the traditional system of farming used by the smallholder farmers as well as not being a crop that requires intensive farming. The most difficult tasks are the tilling of the soil and the seed planting done in the period of January and February, when work requirements for other crops such as tobacco, cotton and maize) is low.

E. PRODUCTION PROCESS DESCRIPTION

The processing of the sunflower seed like the majority of oleaginous crops, is carried out by the simple technique of using manual or mechanical presses. Mechanical motorised presses permit the processing of larger quantities of seed, making the business venture more viable.

The technology used for the production of unrefined oil, has not in recent years undergone any great change. The technology consists of a simple scale to weigh the sacks of seed; cleaning equipment for the removal of foreign elements from the seed; screw conveyors; hammer mills for the crushing of the seed are advisable but can be dispensed with; presses to extract the oil from the seed; filters for purification of the oil; tanks for the storage of the oil that has been produced; and simple equipment for filling the containers, depending on what type is to be used, barrels of 200 litres, tins of 5/10 litres or glass or plastic bottles.

In the case under consideration and given the nature of the unrefined oil product, it is advisable to use 20 litre barrels or tins for sale to wholesalers who will then distribute the oil in more appropriate sizes to the retail stores and consumers. More sophisticated containers such as glass or plastic bottles or smaller sized tins of 5/10 litres are not recommended given the cost of acquisition.

Since it is projected that the plant will operate at around 50% of its capacity in the first year, with one eight hour shift per day, the subsequent increases, to make use of the additional production can be accomplished simply by increasing the number of shifts until the maximum of three production shifts working 24 hours per day, 25 days per month during 12 months or in other word 1,800 tonnes.

Refining, which requires a more sophisticated production process, requires additional investment and the use of conventional energy, for which reasons it is not recommended, at least not in a first stage, for plants of this type located in rural areas.

Generally, the investment in equipment for a plant of 250 kilograms/hour should not exceed US\$14 000, including a building to house the plant. Transport was not included in the investment projections since it was considered that the investors should use existing available resources for the venture. It is absolutely essential to keep the cost of investment as low as possible so as not to make the business venture unfeasible from the very start. This is a viable opportunity, but is limited to investors who are already established and have access to the buildings and vehicles that are necessary. The business venture and revenue to be earned is too small to support the purchase of new vehicles or the construction of new buildings.

The presses can be supplied by the following companies:

Agro-Alfa SARL, Av. de Angola n° 2475, Maputo, Tel: (2581)465 911/465 258, Fax: (2581) 466 003, email: agroalfa@tropical.co.mz.

Griffin Exports, Stand 153, Northlands Business Park, New Market Road, North Riding
PO Box 2697, North Riding, 2162, South Africa (Jose de Souza)
Tel: (2711) 462-1222 / 462-1085 Fax; (2711) 462-1462 E-mail: jose@griffintrading.co.za

RUTEC Pty Ltd, 50 Davies Street, New Doornfontein, Tel 27 11 402 3245 Fax 27 11 402 3246 E-mail: rutech@iafrica.com.

ITDG, 3rd floor Coal House, 17 Nelson Mandela Avenue, P.O.BOX 1744, Harare, Zimbabwe, (Mr. Alex Mugove) Tel (263 4) 780995, 750880/2 Fax (263 4) 771030 E-mail: itdg@ecoweb.co.zw

F. MANAGEMENT & LABOUR

The technology for the processing of oleaginous crops does not require very specialised labour. The training is relatively quick and the equipment is sufficiently hardy so as to permit normal handling.

The number of workers per press is relatively low permitting that, in the plant each press can be operated by two employees at the most. The level of knowledge required allows the employment of persons who would fall into the national minimum wage which is around 820,000 Meticals. The plant could be managed by a supervisor with more thorough knowledge of the technology used, although highly specialised knowledge is not required.

G. CONSTRAINTS & RISKS

In general, the business of processing oleaginous seeds does not constitute a substantial risk. Nevertheless, due to certain problems that are characteristic of the national economy (such as the cost of transport, communications, energy, etc.), any business venture encounters certain difficulties which must be overcome. Aside from the normal difficulties for this industry there is also the problem of the unfair competition from massive, illegal imports of refined oil which causes great problems for the national manufacturers of edible oils.

With regard to the availability of raw material, due to the oscillation in prices from competing crops, shortages of sunflower seeds can occur as a result of farmers deciding to plant other more profitable crops from one year to the other. For this reason, a marketing and distribution system built from a close relationship between the processor and the smallholder farmer is absolutely necessary to guarantee that the business venture will have a certain degree of sustainability. The introduction of sales contracts between the producer and the company could guarantee up to a certain point that the company will receive the necessary quantities of raw material. The price offered by the company should be competitive and guaranteed since there is no certainty that the farmers will continue to grow sunflower in the next crop season or that they won't sell their crop to another buyer who offers a better price. In this regard, the company's own sunflower crop production could play a very important role, since it would

not only lower the costs of the purchase of the raw material, but also permit the processor to achieve a greater independence from the other sources of supply of the seeds.

Another relevant aspect is linked to the levels of revenue from the planting of sunflowers. The quality and quantity obtained per hectare has a huge impact on the income of the smallholder farmers and could be the key to a profitable business which benefits all the parties concerned. The establishment of standards setting the quality parameters, seed oil content, acidity index, etc. will permit the creation of a payment system based on the quality of the product which is an excellent incentive to improve production.

Another risk would be the lack of any market for the oilcake, since there is not any feed production factory in Cabo Delgado province. However given that initial quantities are not substantial, the provincial market could be expanded or even extended to other provinces.

Another alternative that should be explored is the international market and in particular the South African market, which has, as previously mentioned, imported copra oilcake from Moçambique for its feed manufacturing plants.

H. LINKS & SUPPORT NETWORKS

In Cabo Delgado there are many organisation of the NGO type, that are involved in the development of the private sector. A large number of them work in the agricultural sector. In the area of Chiúre, of note is the program of Helvetas which among others provide rural extension services, with the supply of certain inputs, the establishment of nurseries, in particular for cashew trees, for small holder farmers. In sum, these NGO's contribute substantially to the introduction of better cultural practices among the peasant farmers. Similar to the activities undertaken by Helvetas, others can constitute an excellent support basis to the development of a business initiative in the area of edible oils. On the other hand, MADER (the Ministry of Agriculture and Rural Development) has undertaken a program called PAMA – Program for Support to Agricultural Markets ‘ whose activities fit perfectly with the support to initiatives of this sort, thus constituting a complementary support initiative to the significant value accruing from the establishment of processing plants that are adding value to agricultural products.

I. ASSUMPTIONS AND PRELIMINARY FINANCIAL PROJECTIONS(US\$000) – BASE CASE

General Assumptions

- Sale of sunflower oil in the domestic market
- Opportunity Cost of Capital = alternative domestic application without risk = treasury bonds = 28%
- Target project internal rate of return = 35%
- Cash flow years 6 – 10 = cash flow year 5
- Cash flow terminal year 10 = 0
- Necessary funds = investment + operating funds
- Bank loan term = 5 years (with reimbursement of capital each year)
- Tax obligations are not included (these will vary depending on the nationality of the investor, location of the investment, and the special tax regime applied)

BASE CASE FINANCIAL ASSUMPTIONS

Equity Capital	50%
Cost of domestic bank loans after inflation (interest rate)	30%
Net present value discount rate	35%
Target Internal Rate of Return (IRR)	35%
Income Sensitivity Factor	1 (relating to the base case)
Operating Cost Sensitivity Factor	1 (relating to the base case)
Year 1 Operating cost investment (in Year 0)	50% of the annual operating cost
Capital Investment	14 (USD 000)
Capital Equipment Depreciation	15% (of the initial value each year)

Volumes/prices/cost Assumptions (USD real)	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Quantity of raw material processed (tonnes)	0	300	450	500	750	1000
Quantity of oil produced(tonnes)	0	70	105	116	174	233
Quantity of oil seed cake produced (tonnes)	0	210	315	350	525	700
Oil sale price (USD/tonne)	0	730	730	730	730	730
Oil seed cake sale price (USD/tonne)	0	40	40	40	40	40
Raw material cost / tonne	0	125	125	125	125	125
Labour cost/tonnes processed	0	10	10	10	10	10
Energy/tonne processed	0	12	12	12	12	12
Packaging material (USD/tonne)	0	48	48	48	48	48
General and other costs	0	3	4	4	5	6

BASE CASE(USD 000)

Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
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CASH FLOW - OPERATIONS**VOLUMES**

Oil	0	279.8	419.6	466.3	699.4	932.5
Oil seed cake		69.8	104.6	116.3	174.4	232.5

INCOME AFTER VAT

	0	59.3	89.0	98.9	148.3	197.7
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OPERATING COSTS

Raw material Purchase	0	-52.5	-77.3	-85.2	-125.7	-166.3
Labour	0	-37.5	-56.3	-62.5	-93.8	-125
energy	0	-3.0	-4.5	-5.0	-7.5	-10.0
Packaging	0	-3.6	-5.4	-6.0	-9.0	-12.0
Depreciation	0	-3.3	-5.0	-5.6	-8.4	-11.2
Other general costs & expenditure	0	-2.1	-2.1	-2.1	-2.1	-2.1
	0	-3.0	-4.0	-4.0	-5.0	-6.0

OPERATIONAL CASH FLOW

	0	6.8	11.7	13.7	22.6	31.5
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CASH FLOW – FINANCING**INVESTMENT (Including Year 1 Operating Costs)**

Equity Capital	40.3	0.0	0.0	0.0	0.0	0.0
Bank Finance	20.1	0.0	0.0	0.0	0.0	0.0

CAPITAL & OPERATING EXPENDITURE

	-40.3	0.0	5.0	0.0	0.0	0.0
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BANK FINANCE COSTS

Interest – long term loan	0	-10.1	-9.8	-7.7	-6.4	-5.2
Principal – long term loan	0	-6.0	-4.8	-3.6	-2.4	-1.2
Overdraft Facility – short term loan	0	-4.0	-4.0	-4.0	-4.0	-4.0
	0	0.0	-1.0	0.0	0.0	0.0

TOTAL CASH FLOW

Annual Cash Flow	0.0	-3.3	6.9	6.0	16.1	26.2
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Accumulated Cash Flow	0.0	-3.3	3.6	9.6	25.7	52.0
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Net Present Value (NPV) up to Year 10**\$20.34****IRR Cash Flows (including cash flows for Yrs 6-10)****-20.1** **-3.3** **6.9** **6.0** **16.1** **26.2****Internal Rate of Return (IRR)****43%**

On the basis of the assumptions in the base case scenario, and assuming that 50% of the necessary investment comes from equity funds and 50% from loan capital, an investor who

contributes US\$20,000 for capital and operating expenditure in Year 0 will generate an internal rate of return (IRR) of 43%. This is above the target of 35% (28% for treasury bonds plus a 7% risk premium). In other words, the net present value is less than what the investor could earn (28%) investing in treasury bonds.

If the project was financed with 90% equity funds, the rate of return for the investor would be at least equal (42%) to the rate with 50% equity capital (43%) but the net present value increases from US\$20,000 to US\$33,000 due to the reduction of the interest costs.

The table that follows shows in summary this “base case scenario” for the three alternative financing structures (50% equity funds, 90% equity funds and 10% equity funds).

SENSITIVITY OF THE BASE CASE TO THE FINANCING STRUCTURE						
Equity Funds	50%					
Bank Loan	50%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	-3.3	6.9	6.0	16.1	26.2
Accumulated Cash Flow	0.0	-3.3	3.6	9.6	25.7	52.0
Net Present Value (NPV) up to Year 10	\$20.34					
IRR Cash Flows (including cash flows for Yrs 6-10)	-20.1	-3.3	6.9	6.0	16.1	26.2
Internal Rate of Return (IRR)	43%					
Equity Funds	90%					
Bank Loan	10%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	4.8	14.9	12.2	21.3	30.4
Accumulated Cash Flow	0.0	4.8	19.7	31.8	53.1	83.5
Net Present Value (NPV) up to Year 10	\$33.27					
IRR Cash Flows (including cash flows for Yrs 6-10)	-36.2	4.8	14.9	12.2	21.3	30.4
Internal Rate of Return (IRR)	42%					
Equity Funds	10%					
Bank Loan	90%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	-11.4	-2.6	-4.3	5.5	18.2
Accumulated Cash Flow	0.0	-11.4	-14.0	-18.3	-12.8	-5.4
Net Present Value (NPV) up to Year 10	2.31					
IRR Cash Flows (including cash flows for Yrs 6-10)	-4.0	-11.4	-2.6	-4.3	5.5	18.2
Internal Rate of Return (IRR)	33					

Increasing the loan finance to 90% (10% equity capital) the rate of return decreases to 33%, which is less than the target of 35%. In addition, the net present value is reduced to a lowly \$2,000 due to the increase in the interest costs.

J. SENSITIVITY ANALYSIS (BEST CASE / WORST CASE)

The project is also very sensitive to changes in revenues forecast and operating costs. Assuming a “best case scenario” in which the earnings increase by 10% and the operating costs are reduced by 10%, the rate of return for financing with 50% equity funds, increases to 104%. With 90% equity funds, the rate of return is 84%. If the investor only contributes 10% equity funds, the rate of return increases to 201% (See the table below)

SENSITIVITY ANALYSIS OF THE FINANCING STRUCTURE FOR THE BEST CASE SCENARIO

Equity Funds	50%					
Bank Loan	50%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	8.3	24.8	24.7	43.7	62.7
Accumulated Cash Flow	0.0	8.3	33.1	57.8	101.6	164.3
Net Present Value (NPV) up to Year 10	\$65.21					
IRR Cash Flows (including cash flows for Yrs 6-10)	-18.9	8.3	24.8	24.7	43.7	62.7
Internal Rate of Return (IRR)	104%					
Equity Funds	90%					
Bank Loan	10%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	15.9	31.5	30.4	48.6	66.7
Accumulated Cash Flow	0.0	15.9	47.3	77.8	126.3	193.0
Net Present Value (NPV) up to Year 10	\$76.95					
IRR Cash Flows (including cash flows for Yrs 6-10)	-34.0	15.9	31.5	30.4	48.6	66.7
Internal Rate of Return (IRR)	84%					
Equity Funds	10%					
Bank Loan	90%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	0.8	18.2	19.0	38.9	58.8
Accumulated Cash Flow	0.0	0.8	18.9	37.9	76.8	135.6
Net Present Value (NPV) up to Year 10	\$53.47					
IRR Cash Flows (including cash flows for Yrs 6-10)	-3.8	0.8	18.2	19.0	38.9	58.8
Internal Rate of Return (IRR)	201%					

Because of the high cash flow level generated in this best case scenario, the project can support a significant level of loan finance and the use of loans raises the rate of return. With 90% equity funds, the net present value is US\$77,000 and with 90% loan funds decreases to US\$53,000. The decrease is due to the reduction in the accumulated cash flow as a result of the impact of the higher interest costs.

The extreme sensitivity of the cash flow has a significant contrary impact in the “worst case scenario” in which the earnings are reduced by 10% and the costs increase by 10%. In this case, independently of the financing structure, the rate of return is negative.

The following table provides a summary of the cash flow and the rate of return for the “worst case” scenarios.

SENSITIVITY ANALYSIS OF THE FINANCING STRUCTURE FOR THE WORST CASE SCENARIO

Equity Funds	50%					
Bank Loan	50%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	-14.9	-13.6	-21.2	-26.4	-33.1
Accumulated Cash Flow	0.0	-14.9	-28.5	-49.7	-76.1	-109.2
Net Present Value (NPV) up to Year 10	(\$43.58)					
IRR Cash Flows (including cash flows for Yrs 6-10)	-21.4	-14.9	-13.6	-21.2	-26.4	-33.1
Internal Rate of Return (IRR)	#DIV/0!					

Equity Funds	90%					
Bank Loan	10%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	-6.3	-3.5	-9.1	-11.7	-15.0
Accumulated Cash Flow	0.0	-6.3	-9.8	-18.9	-30.6	-45.6
Net Present Value (NPV) up to Year 10	(\$18.23)					
IRR Cash Flows (including cash flows for Yrs 6-10)	-38.5	-6.3	-3.5	-9.1	-11.7	-15.0
Internal Rate of Return (IRR)	#DIV/o!					

Equity Funds	10%					
Bank Loan	90%					
	Yr 0	Yr 1	Yr 2	Yr3	Yr 4	Yr5
Annual Cash Flow	0.0	-23.5	-23.7	-33.3	-41.1	-51.2
Accumulated Cash Flow	0.0	-23.5	-47.2	-80.5	-121.5	-172.7
Net Present Value (NPV) up to Year 10	(\$68.92)					
IRR Cash Flows (including cash flows for Yrs 6-10)	-4.3	-23.5	-23.7	-33.3	-41.1	-51.2
Internal Rate of Return (IRR)	#DIV/0!					

Note: #DIV/0! Implies a negative annual cash flow in this worst case scenario

The detailed analyses of the best case and worst case scenarios are set out in the annexes to this document.

Given the cash flow sensitivities, a potential investor is, for this reason, encouraged to be very cautious in giving consideration to this business opportunity and, as a prerequisite, should carry out a thorough investigation into the raw material and operating costs as well as the price levels in preparing a detailed business plan.

K. KEY ISSUES TO CONSIDER IN THE PREPARATION OF A DETAILED BUSINESS PLAN

In addition to the thorough investigation of the costs and prices, the key issues that a potential investor should address in the process of preparation of the detailed business plan are as follows:

- The investor should be diligent about identifying and securing the market, given the threat of different competitive products in the markets that are supplied by different formal and informal business people. The opportunity exists to supply the rural communities around the factory and it is important that the investor competes with the various competitors that appear.
- Given the instability of the supply of raw material, the investor should give consideration to growing sunflower as a stopgap for shortages in supply, offer loyalty prices to attract sellers and enter into partnerships with sunflower growers associations in order to guarantee the supply of sunflower seed from the members of the association.

ANNEXES

- **ASSUMPTIONS AND FINANCIAL PROJECTIONS – BASE CASE**
- **ASSUMPTIONS AND FINANCIAL PROJECTIONS – BEST CASE**
- **ASSUMPTIONS AND FINANCIAL PROJECTIONS – WORST CASE**