LIMPOPO CORRIDOR SPATIAL DEVELOPMENT PROMOTING AGRO-INDUSTRIAL PROCESSING





ETC International Study together with the SEED

STUDY TEAM



António da Silva Francisco Marco Machado José Castro Filomena dos Anjos Jacinto Mutemba António André



October 2002







CONTENTS

CONTENT	S	III
LIST OF	ΓABLES	VII
LIST OF O	GRAPHS	v i i i
	MAPS	IX
EXECUTI	VE SUMMARY	XI
VISION AN ESTRATEG	ID DIAGNOSIS Y: SUMMARY OF THE VIABILITY OF THE THREE ANCHOR PROJECTS	xi xii
PART I. V	ISION	1
1 INTRODU	JCTION: Principles, Objectives e Methodology	1
1.1 What o	loes this study offer	1
1.2 SOME PF	RINCIPLES UNDERLYING THE STUDY	
1.3 OBJEC	TIVES AND MAIN RESULTS OF THE STUDY	6
1.4 Metho	dology	7
2 LIMPOPO) VALLEY: Area, Population and Economy	9
2.1 THE LI	MPOPO CORRIDOR – the geographical DEFINITION AND SCOP	РЕ 9
2.2 BROAD	O AND NARROW definitionS of the limpopo corridor	
2.3 Unpred	cedented future opportunities for the Limpopo Corridor?	12
2.4 geral c	constraints on investment in the Limpopo Corridor	14
PART II.	DIAGNOSIS	21
3 HYDRO-A	AGRICULTURAL INFRASTRUCTURES	22
3.1 Hydro-	agricultural infrastructures along the Limpopo Valley	23
3.2 Curren	t situation of the irrigated perimeters in the Limpopo Valley	23
3.3 The m	ost common types of irrigation	23
3.4 Potent	ial for irrigation development in the Limpopo Valley	24
3.5 Prospe	ects for the development of irrigation	25
4 AGRICUL	TURAL SECTOR	26
SEED	Main Report	ETC



iii

	4.1 Ag	ricultural production	27
	4.2 Pro	oduction sytems	29
	4.3 Ag	ricultural potential of the area	
	4.4 The	e Irrigated Areas	
	4.5 Pot	tential for rice production: main production systems	32
	4.6 Pot	tential for tomato production	
	4.7 Inv	vestments needed to make tomato production viable	40
	4.8	Coastal area	41
	4.9	Coconut palms and copra: potential production	41
5 I	LIVES	TOCK SECTOR	44
	5.1	Potential for livestock production	44
	5.2	Current production and products	45
	5.3	Evolution of numbers of animals - cattle	45
	5.4	Projection (forecast for the next 10 years)	46
	5.5	Small ruminants (sheep and goats)	46
	5.6	Pigs	46
	5.7	Livestock production	47
	5.8	Livestock policy and strategy	48
6 9	SECTO	DR AGRO-INDUSTRIAL	51
	6.1 cor	nceptual approach	51
	6.2	Methodology for the approach used in the study	52
	6.3	Territory covered by the study	53
	6.4	Crops studied	54
	6.5	Potential of the agro-industrial processing sector	55
	6.6	Constraints on the agro-industrial processing sector	57
	6.7	Implications for the selected projects	58
PA	RT I	II. STRATEGY	62
7	Public	: Investment to improve the conditions for private investment	63
8	Anchc	or projects identified and developed	65
	8.1	Anchor projects identified	65
	8.2	Anchor projects developed	66
	8.3	Main results of the 3 pre-viability studies	66
91	PRE-V	IABILITY ASSESSMENTS FOR THREE PROJECTS	67
	9.1	PROJECT 1: Recovery of the Conhane rice processing factory	67
SE	ED		11111



iv

9.2	PROJECT 2: Chilembene processing factory -Tomatoes, tinned vegetables and fruit juice concentrates
9.3	PROJECT 3: Construction of a coconut products factory in Inhambane/Maxixe
10 BI BI	LIOGRAPHY82
APPEN	CIES
Append	lix 1: Terms of Reference
Append	ix 2: Pre-viability Study for the Conhane Rice Factory
Append	ix 3: Pre-viability Study for the Chilembene Tomato

Factory Appendix 4: Pre-viability Study for the Coconut Products Factory in Inhambane/Maxixe





v





vi

List of Tables

vii

Table SUMEXC Summary table of the viability indicators of the three anchor projects	xii
Table 1.1 Estimate of the surface area and population of the Limpopo Corridor, 1997-2002	10
Table 1.2: The Index of Economic Freedom, Mozambique 1995-2002	17
Table 1.3: Business people: What do they want to see solved, and what do they demand of the Government and of the CTA?	18
Table 2.1 - Irrigable area by basin	24
Table 2.2: Development Potential in the Limpopo Valley	25
Table 2.3: Use of the area by type of crop	27
Table 2.4: Crop areas in Gaza as a percentage of the country	28
Table 2.5: Number of fruit trees and production, 2000	29
Table 2.6: Differing Productive Regions. Area occupied and potentialarea (in hectares)	30
Table 2.7: Investment needed to prepare and operate 1,000 hectares of rice	35
Table 2.8: Machinery: the costs per hour of the machinery are the same as the Technological charter, plus 20-25% for replacement	36
Table 2.9: Inputs	36
Table 2.10: labour	36
Table 2.11: Transport	36
Table 2.12: Family Sector: Initial Investment	37
Table 2.13: Operation: the costs per H/M are the same as the currentones plus 20-25% for replacement	37
Table 2.14: Inputs	38
Table 2.15: Minimum areas doer rice	38
Table 2.16: Operation per hectare	40
Table 2.17: Inputs per ha	40
Table 2.18: Potential production of Copra	42
Table 2.19: Place of occupation of the land	43
Table 2.20: Rhythm of plant production	43
Table 2.21: Number of each species (Gaza), 2000	44
Table 2.22: Evolution of numbers of pigs	46
Table 2.23: Places visited for the agro-processing industry	54
Table 3.1: Anchor projects identified	65
Main Report	

viii

able 3.2: Anchor projects developed
Table 3.3: PROJECT 1 - Recovery of the Conhane rice processing factory(short presentation)78
able 3.4: Costs and Benefits for Conhane rice processing factory 69
able 3.5: Rice sale price, August 2002 70
able 3.6: Paddy rice – Estimated price paid to the farmer
Table 3.7: Summary of pre-viability indicators for Project 1 - Conhanerice processing factory
Table 3.8: PROJECT 2 - Chilembene processing factory (short presentation)
able 3.9: Costs and Benefits for Chilembene Processing Factory
able 3.10: Tomato Sales Prices, August 200275
Table 3.11: Summary of pre-viability indicators for Project 2 –Chilembene tomato processing factory
Table 3.12: PROJECT 3 – Construction of a coconut products factory inInhambane/Maxixe (short presentation)77
Table 2.13: Costs and Benefits for Coconut Products Factory inInhambane78
able 3.14: Coconut derivatives sales prices, August 2002
Table 3.15: Summary of pre-viability indicators for Project 3 –Integrated coconut derivatives processing factory inInhambane80

List of Graphs

Graph 1.1 Gross domestic product, Mozambique 1996-2000 11
Graph 1.2 Weight of the Limpopo Valley in the National Economy compared with Maputo City and the Southern Region
Graph 1.3. Weight of the GDP of the Limpopo Corridor in the Economy of the Southern Region, Mozambique 1996-2000
Graph 1.4 Limpopo Corridor, 1996-2000 12
Graph 1.5 Structure of the GDP of the southern region, with and without Maputo city, by economic activity, Annual average between 1996 and 200013
Graph 1.6 Evolution of some indicators on investment, and on food and non-food production: Mozambique versus Sub-Saharan Africa, 1975-199915
Graph 1.7 African countries ranked according to the improvement index (1996/1999) of the Africa Competitiveness Report, 2000/200116
Graph 1.8 Economic Freedom and per Capita Income, 1999
Graph 1.9 Projection of Property Rights and per Capita Income, 1999 20
Main Report

Graph 2.1 Rainfall versus Coastal Distance.26Graph 2.2 Distribution of Cultivated Area by size of farms.27Graph 2.3 Area Used by Type of Crop.28Graph 2.4 Evolution of Number of Cattle, 1980-200145Graph 2.5 Evolution of Number of Goats and Sheep, 1995-2001.46Graph 2.6 Percentage Contributed to Meat by Species47Graph 2.7 Evolution of Beef Production, 1992-200148Graph 2.8 Rice production in the Limpopo valley.58Graph 2.9 RICE: dehusking capacities59

List of Maps

Map 1.1 Location of Limpopo Cooridor in the Map of Mozambique	. 1
Map 1.2 Area covered by the Limpopo Corridor	. 10
Map 2.1 Southern provinces of Mozambique	. 26
Map 2.2 Gaza Province	. 45



SEED



ix

EXECUTIVE SUMMARY

VISION AND DIAGNOSIS

- 1. The main audience for this study consists of business people interest in investing in the agro-industrial sector in the Limpopo Corridor (CL) region, as well as all the public or private bodies who are assisting their clients in this task.
- 2. The main objective of the study is "To identify agricultural and agro-processing projects worthy of consideration by the private sector, but which need additional public investment so that the investment environment may become truly favourable". More than a simple opportunity study, this work offers a previability assessment, which pre-supposes a pre-selection of projects from a vast range of possible investment opportunities.
- 3. The following report has three main parts: Part I Vision: The Limpopo Corridor in the context of the Spatial Development Initiative (SDI); Part II Diagnosis of the agricultural, livestock and agro-industrial situation, as well as the relevant infrastructures and investments; Part III General and specific strategy for promoting agro-industrial processing in the Limpopo Corridor, including the results of the pre-viability assessments of three specific projects. So as not to make the report too exhaustive the complete details of the three specific pre-viability assessment studies have been put in appendices.
- 4. The study considers the strategic framework and current socio-economic context, in which agro-industrial processing in the Limpopo Corridor is emerging, as not only promising and attractive, but also unprecedented. Indeed, it is even forecast that the Limpopo Corridor will be able, over the next 10 to 20 years, to undergo a radical transformation in its structure of economic activity, a transformation resulting from the impact of large and medium projects under implementation in the region - namely, the heavy mineral sands, the Pande natural gas, the Massingir dam, and cross-border tourism, among others. These undertakings could, in themselves, revolutionise the economic structure of southern Mozambigue, which is currently heavily dependent on agriculture. Two possible shifts may occur. One alternative is that the economic structure of the Limpopo Corridor region changes in a direction identical to that of the capital; that is, it comes to be dominated by the tertiary sector, because of growing transport, tourism and commercial activity. The other possibility is that the secondary sector (mining and manufacturing industry) comes to play an increasingly dynamic, if not dominate, role in the region's economy.
- 5. This is not the first time that attempts have been made to stimulate agroindustrial processing in the Limpopo Valley, but will this process now become

SEED



xi

sustainable and lastiSubject:ng? The direct and simple answer offered by the study may be summarised in two words - it depends! It depends, not so much on extreme economic strategies, like the colonial and the socialist policies of past decades, but on what is really done so that national capital develops and is consolidated in Mozambique. In this regard, two important instruments may contribute to the success of encouraging agro-industrial processing. First, the Spatial Development Initiative, which has financed this work, and has been financing various initiatives in the Limpopo Corridor and beyond. Second, and perhaps even more important, promoting agro-industrial processing will depend in the long term on Mozambique's capacity to develop legal and institutional mechanisms able to convert the savings and assets available in the country into productive and competitive capital.

6. The diagnosis of the current situation stresses the hydro-agricultural sector, agricultural production, particularly the products selected for pre-viability assessment, presented in part III, livestock, and agro-industrial processing. The study also lists the opportunities and the specific constraints on agro-industrial investment in the Limpopo Corridor.

ESTRATEGY: SUMMARY OF THE VIABILITY OF THE THREE ANCHOR PROJECTS

7. Three pre-viability studies were selected from among the anchor projects identified, and their indicators referring to one of the two scenarios considered (the "realistic" one) are as follows:

TABLE SUMEXC: SUMMARY TABLE SUMEXC: SUMMARY TABLE SUMEXC: SUMMARY TABLE SUMEXC: SUMMARY TABLE SUMPLY S	ABLE OF THE VIABILITY E ANCHOR PROJECTS
Project 1 – Conhane rice proce modernisation and c	essing factory (recovery, liversification)
Investment needed	1 333 125\$00 USD
Break-even year	Year 3
"Break-Even"	1 646752 983\$00 USD
Sales in Break-even year	1 797 277\$00 USD
Time to recover investment	54 months
IRR	22,97 %
NPV	267 775\$00 USD
Project 2 - Chilembene processing vegetables and fruit juice concentra and diversifi	factory (tomato paste, tinned ates: recovery, modernisation cation)

Investment needed





Main Report

Break-even year	Year 3
"Break-Even"	1,221,052 USD
Sales in Break-even year	1,850,869 USD
Time to recover investment	55 months
IRR	21,01 %
NPV	437,035 USD

Project 3 - Integrated Coconut derivatives processing factory (Construction of a new factory in Inhambane/Maxixe)

Investment needed	3,317,469 USD
Break-even year	Year 3
"Break-Even"	1,637,010 USD
Sales in Break-even year	2,356,473 USD
Time to recover investment	55 months
IRR	21.67 %
NPV	517,617 USD

For the three 3 projects

Interest rate of bank financing (70% of	
the total investment)	10%
Taxes	Payment in full of all existing
	taxes is contemplated
Safety for inputs supply (quality,	Investment are expected for
quantity and competitiveness)	agricultural tools (in Project 2),
	financing of agricultural
	productive factors (in the 3
	projects), and the required
	extension services (in the 3
	projects)

- 8. From the analysis of the economic and financial profitability indicators, it can be noted that the three projects summarised above are technically, economically and financially viable, at least in term of pre-viability at the moment. The precautions taken in the assumptions used and the sensibility analysis made of the project's critical parameters, give them a very reasonable margin of safety, and significantly reduce the project risk. For purposes of pre-viability, the net benefits arising from the processing of produce envisaged for later stages, which will bring much greater added value to the project, were not considered. These conclusions will be real to the extent that the constraints identified in general terms on the agricultural sector and on agro-industry are overcome. In the investment and costs forecast, measures and the respective resources for ensuring the supply of raw material, which has been one of the main constraints on the factories already established, are safeguarded.
- **9.** In sum, with a total private investment in the three anchor projected selected, amounting about 9 to 10 million US dollars (including investment into the agricultural sector as a way to unsure the adequate supply in terms





of the required quality, quantity and competitiveness), the basic conditions can be set up for the promotion of the agricultural and the agro-industrial activities in the Limpopo Valley. Besides being technically, economically and financially viable, these three projects can me used, in the way them have been conceived, as good references of the advisable type of strategy for new agro-processing projects that eventually will emerge in the Limpopo Valley.





PART I. VISION

THE LIMPOPO CORRIDOR IN THE CONTEXT OF THE SPATIAL DEVELOPMENT INITIATIVE

1 INTRODUCTION: PRINCIPLES, OBJECTIVES E METHODOLOGY

1.1 WHAT DOES THIS STUDY OFFER

The main audience for this study consists of businesses interested in investing in the agro-industrial sector in the Limpopo Corridor (CL) region, as well as all private or public entities who assist their clients in this task.

Like the other development corridors already established in Mozambique, the Limpopo Corridor is defined more by a spirit of cooperation, generated by a series of geographical and socio-economic synergies, than by the politico-administrative boundaries fixed by the national government and by local administrations.

This study intends to go beyond the many surveys on the rich opportunities for agroindustrial investment in the Limpopo Valley. Rather than an opportunity study, it is a study assessing the pre-viability¹ of specific projects resting, on the one hand, on selecting some of the commercial opportunities identified in earlier studies; and on the other hand, in recognising projects which, although in an advanced stage of implementation, are faced with a range of difficulties.

The context for this study is also different from the context of earlier studies, both in



¹ The term "pre-viability" means the possibility that something specific may be undertaken, among many others that are necessary or which one would like to do. That is, in the pre-viability phase, one selects the projects to be prioritised, out of a vast range of investment opportunities.





terms of the framework for its strategic planning, and in the socio-political circumstances in which it arose.

The main strategic framework for the study is the so-called Spatial Development Initiative (SDI); a strategy for encouraging private investment opportunities, proven to be viable and profitable, in specific areas of southern Africa.

As for the sociocircumstances in which the economic the commercial risk particularly country the last five years, the by the Limpopo river Limpopo railway has the most privileged and for private investment. by the presence of projects in several activity, which are now stage of design, or of such "Corridor as processing of heavy the Limpopo National Massingir dam; and infrastructure projects important benefits for of the Valley in the term - the high tension Inhambane, and the the natural gas at

This study intends to go beyond the many surveys on the rich opportunities for agro-industrial investment in the Limpopo Valley. Rather than an opportunity study, it is a study assessing the pre-viability of specific projects resting, on the one hand, on selecting some of the commercial opportunities identified in earlier studies; and on the other hand, in recognising projects which, although in an advanced stage of implementation, are faced with a range of difficulties.

political the study arose, environment and in the factors stand out. Over region covered basin and the become one of attractive areas This is confirmed anchor major sectors of in an advanced implementation: Sands" (the mineral sands); Park, the major two which will bring the development medium and long power line to exploitation of Pande (Southern

Mining Corporation Limited, 2001).

These projects have already benefited from the improvement in economic conditions for investment and exports created in Mozambique over the past decade. But their main contribution to a business climate favourable to the development of agricultural processing takes place mostly at the micro-economic level: increased size of local markets, re-establishment of trust between businesses, the public and public bodies, and the improvement in the business environment necessary for encouraging efficiency, productivity and competitiveness between the various economic agents at the level of local and regional markets.

The study report contains three major parts:

Part I. Vision: The Limpopo Corridor in the context of the Spatial Development Initiative (SDI);

Part II: Diagnosis of the agricultural, livestock and agro-industrial situation, as well as the relevant infrastructures and investments;

Part III: General and specific strategy for encouraging agro-industrial processing in the Limpopo Corridor, including the results of the pre-viability assessments of three specific projects.



So as not to make the report too exhaustive the complete details of the three specific pre-viability assessment studies have been put in appendices.

1.2 SOME PRINCIPLES UNDERLYING THE STUDY

THIS IS NOT THE FIRST TIME THAT ATTEMPTS HAVE BEEN MADE TO PROMOTE AGRO-INDUSTRIAL PROCESSING IN THE LIMPOPO VALLEY... In the last halfcentury, on at least two other occasions, efforts were made to encourage agroindustrial processing in the Limpopo Corridor region. These efforts ended in failure, for different reasons, but in both cases due principally to the nature of the political and economic system which gave birth to the economic and development policies implemented.

The first experience of agro-industrial transformation in Mozambique occurred under the first and second Promotion Plans of the Portuguese colonial administration. National independence, in 1975, put an end to that experiment, but with an important particularity. Apart from overthrowing the colonial regime and administration, the revolutionary and socialist nature of independence also provoked the destruction of the mercantile-capitalist system developed in the country in the 20th century (Newitt, 1995; SOGREAH & INGENIERIE, 1996: 7.1).

The second experience of promoting an agro-industrial sector in Mozambique arose out of the socialist strategy, designed as an alternative to the model of capitalist economic development. The new strategic framework of agro-industrial processing and, indeed, of the national economy in general, was implemented between 1977 and 1985. State and cooperative ownership of production were prioritised to the detriment both of private foreign investment, and even of the scarce agrarian and productive capital which was accumulated during the colonial period by a small number of Mozambicans, who obtained it, among other ways, because they enjoyed "assimilated" status. Thus, just as in the first experiment, so the second attempt to promote agro-industrial processing in the Limpopo Valley region also failed. In this case, the failure was due not so much to the marginalisation of Mozambicans from the main opportunities of accumulating productive capital available, but to the denial of the role that capital plays in increasing productivity, production and the national wealth in general (Newitt, 1995).

... BUT WILL THIS BE THE TIME WHEN AGRO-INDUSTRIAL PROCESSING IN THE LIMPOPO VALLEY PROVES SUSTAINABLE AND LASTING? The most direct answer to this doubt may be summarised in two words - it depends! It depends, not so much on extreme economic strategies, like the colonial and the socialist policies of past decades, but on what is really done so that national capital develops and is consolidated in Mozambique.

After more than a decade and a half of profound economic reforms in the country, there have been various expressions of frustration and critical observations made of the Mozambican economy's structural adjustment programme. The structural adjustment programme has led to criticisms, within and outside of the national and international institutions that designed it, even though Mozambique is regarded as a success story in implementing this kind of programme. The problems identified include: the growing trap of foreign dependence; the content of specific sector policies; the limitation of technical and financial resources. Because of the





limitations identified, the International Monetary Fund (IMF) and the World Bank have been giving increasing support to the PRSPs. Other international agencies, such as the UNDP (1996, 1999, 2002) and UNCTAD (2002) go further, in insisting on the need to replace the poverty reduction strategy based on the structural adjustment perspective, with a strategy oriented towards human development.

Throughout this work, a vast range of opportunities and constraints, relevant to the pre-viability assessments of the specific projects selected, are identified. However, at this introductory level, it seems useful to stress the core of one fundamental constraint, even though it is very politically controversial, and which is behind the failure of the market economy, and specifically of capitalism, in non-western countries such as Mozambique. To this end, it is worth stressing the vision sketched out by de Sotto (2000), a vision which offers a more constructive perspective than many discourses manacled by a growing attention on the pauperisation of poverty itself.

De Sotto argues that Third World leaders do not need to wander through the corridors of Foreign Ministries or of the international financial institutions of the

world in search of the poor areas and of their own de Sotto (2000), of dollars completely used. To do this, it is the mystery of how transformed into

If de Sotto is right, specific reforms and including, for which motivated this the economic reforms the Mozambican depend on ability to transform existing but unused productive capital. in Mozambique, as in countries, are so much for lack of because they do not institutional convert their savings capital.

• THIS IS NOT THE FIRST TIME THAT ATTEMPTS HAVE BEEN MADE TO PROMOTE AGRO-INDUSTRIAL PROCESSING IN THE LIMPOPO VALLEY ...

• ... BUT WILL THIS BE THE TIME WHEN AGRO-INDUSTRIAL PROCESSING IN THE LIMPOPO VALLEY PROVES SUSTAINABLE AND LASTING?

• INVESTING IS NOT A GAME, MUCH LESS A LEAP IN THE DARK

• COMPLEMENTARITY AND CONFIDENCE IN THE AGREEMENTS ESTABLISHED

PRODUCTIVITY AND
COMPETITIVENESS

• THE GOAL OF THE INVESTOR - SECURITY AND TIME their future. Inside the shanty towns countries, claims there are trillions available to be sufficient to solve these goods can be productive capital.

the success of initiatives, example, the SDI study, and many of implemented by government, will Mozambique's the countless assets into Millions of citizens many of the poor decapitalised, not money, but have the legal and mechanisms to into productive

Hundreds or thousands of small business people emerge every year in the informal sector, filling in the gaps and limitations of the legal economy. They stay in the extra-legal sector because of the non-existence of mechanisms for access to the enormous potential that property possesses when, apart from a mere paper or title, it can and should serve as a mediating instrument that attracts and keeps practically everything that is necessary to make a market economy function. De Sotto also holds that property launches the seeds of the system in making people





5

responsible and goods fungible, in following transactions, and therefore offering all the mechanisms needed so that the monetary and banking systems operate and so that investment performs its function. The link between capital and money, as understood today, is made through property (de Sotto, 2000).

In Mozambique, it was only as from 1990, with the approval of the new Constitution of the Republic, that the judicial recognition of the post-independence capitalist market economy was formalised, But the formal property system that should allow the procedure, forms and rules which establish the conditions under which goods are transformed into active capital is still incipient and very inefficient. The absence of such a system is perhaps the greatest constraint on the development of a healthy, efficient and sustainable market economy.

INVESTING IS NOT A GAME, MUCH LESS A LEAP IN THE DARK. Investors do not take decisions based on hunches, but on specific data that are, to some extent, immune both to exaggerated optimism and to baseless pessimism. Thus the current work takes two main concerns into consideration: to be of good professional and technical quality, on the one hand, and to be intellectually creative, on the other. In this context, the question of creativity is far from obvious or recognised as an explicit criterion of quality.² Common sense is dominated by various and confused notions of creativity, some of which reduce it to merely artistic aspects, and others to thoughtless spontaneity. However, for this work, creativity is understood as a series of skills, which cannot be reduced to technical aspects, but are indispensable for making real changes in perceptions and ideas, as well as in attitudes and behaviour, of the parties involved in any private investment: the investors and the beneficiaries of the investment.

COMPLEMENTARITY AND CONFIDENCE IN THE AGREEMENTS ESTABLISHED - What Mozambique most needs, for private investment to increase in key sectors in order to improve the living standards of Mozambicans, and not just in a few oases, is: complementarity and confidence in the agreements established.

The worst thing you can ask - and much more so if you demand it - from a private investor is that he takes the place or carries out the social duties that are entirely the responsibility of public, non-profit making bodies. Unfortunately for the economic development of Mozambique, a great deal of confusion has existed in this regard, both in the past and today. It thus seems important to clarify explicitly, and right at the start, that this work rests on a simple but crucial idea: there can only be good conditions for investment when complementarity of interests prevails, instead of union, mixture or subordination.

Complementarity, rather than antagonism and distrust, is the motor of the commercial relationship between the parties involved in the investment: on the one hand, the companies, in their individual or collective name, national or foreign, who are looking for new places for their applications; and on the other hand, the countries, or specific regions within a particular country, which are trying to attract financial and human resources in order to generate wealth. The drawing together of the two sides is far from simple and direct. While the companies have their

² In its simplest definition "creative" means generating or producing something which did not exist before. But as de Bono (1996: 3) points out, from such a perspective "creating confusion" could also be seen as an example of creativity.





specific strategic objectives, notably profit, countries and societies have economic and social objectives that transcend the attraction of the investment (UNCTAD, 2001).

PRODUCTIVITY AND COMPETITIVENESS. These two concepts mean little to most Mozambicans. Perhaps the idea that increased income depends on individual capacity and effort means rather more? But even this probably still means very little... for the time being.

National lack of productivity is serious and worrying, and with current levels of productivity, Mozambicans will never attain international levels of income. It is in productivity that the key to improving Mozambican living standards is to be found, the key to reducing dependence and poverty, as well as the gap between the Mozambican economy and the regional and international economy.

In an economy that is now very open to the outside world, but more in terms of dependence and imports, the only way in which Mozambique can aspire to living standards ever closer to the international average, is through improving economic competitiveness. But the solution for greater competitiveness lies, in the last instance, in productivity.

THE GOAL OF THE INVESTOR - SECURITY AND TIME: it is not by chance that investment is often, metaphorically, called a "vehicle". In other words, it is a more effective means for the investor to move from one particular stage, where he currently is financially, to where he wants to be in the future. If there is a risk, a direct threat, or even a simple suspicion that the main objective of the investment will not be achieved, then it would be difficult to expect a great inflow of investors.

Serious investors do not invest their money for philanthropic or charitable reasons, nor are they motivated by a special affection for a particular product. And why should they, when here is room for such activities, but at other levels? All that the investor wants is to go from place A to place B in financial terms, but for this he will need a minimum of confidence, if guarantees are not given, that he will do so safely and within a reasonable time. Thus security and time are crucial in the considerations that investors make: is it worthwhile trying to achieve their financial objectives in that country or region?

In this context, the preparation of the current work rests on the clear assumption that it is real opportunities for profit, and not the plans and much less the clientship of middlemen, which in the final instance can determine continual and sustainable economic growth. In this context, what role is the government expected to play in the area where it is hoped that private business will invest? A role that is limited (from the directly economic viewpoint), but crucial: to protect property rights and the goods of citizens, to ensure compliance with contracts, to treat people equally before the law, and to minimise macro-economic imbalances, among many other aspects. Is this not more than enough to keep government members fully occupied?

1.3 OBJECTIVES AND MAIN RESULTS OF THE STUDY





Main Report

7

The specific objectives of this study are:

• To assess the role that agriculture plays in the Valley, and which it could play in the future in the economy of the region, and of the country in general.

• To review in detail agricultural production capacity;

• To review the available and potential irrigation conditions, as well as other infrastructures and their management capacity;

• To assess the capacity for processing agricultural produce and the production technology;

• To develop the scenarios and policies that could unleash agricultural and agro-processing potential;

• To draw up a strategic development concept which takes into consideration family producers and the initiatives of the medium and large business sector; and

• To identify agricultural and agro-processing products worthy of consideration by the private sector, but which need additional public investment so that the investment climate may be truly favourable.

In this context, the Terms of Reference (TORs) established by the promotor and direct client of this work expect to receive the three following specific results:

- a general agricultural and agro-processing assessment of the region under study;
- (ii) a list of projects identified; and
- (iii) presentation of at least three detailed pre-viability projects for investment for selected products out of the vast range of existing possibilities.

Among the specific objectives presented by the Client in the Terms of Reference (TORs), the last one captures the main aim of the study: "To identify agricultural and agro-processing products worthy of consideration by the private sector, but which need additional public investment so that the investment climate may be truly favourable". At the end of the study, the client, the immediate beneficiary of this work, expects to have available three pre-viability assessments for projects in the agro-industrial processing sector.

1.4 METHODOLOGY

Bearing in mind that there have been several studies in the past concerning the development of the Limpopo Valley, the present study was prepared in three phases, namely: (i) review of the available secondary literature; (ii) work assessing conditions on the ground, assessing and updating the available data, and collecting indispensable new data; and (iii) analysis of the information and preparing the final report.

In the course of the work, the team responsible for the study contacted governmental and non-governmental bodies, members of the business community





who have been investing, or who are willing to invest, particularly those who are interested in agricultural production and in agro-industrial processed.

A preliminary draft, containing the provisional results of the study, was discussed at meetings with the main stakeholders. A first meeting was held with the Competir Group at Chokwe on 2/09/2002. A second much wider meeting was held specifically to discuss the results of the first draft was also held in Chokwe on 3/10/2002. A third meeting was in Johannesburg, at The Development Bank of Southern Africa Limited (DBSA) on 11/10/2002, which included participation by teams involved in similar studies, particularly those undertaken in the Beira and Zambezia Corridors.





2 LIMPOPO VALLEY: AREA, POPULATION AND ECONOMY

2.1 THE LIMPOPO CORRIDOR – THE GEOGRAPHICAL DEFINITION AND SCOPE

Today Mozambique has a well-established SDI programme, with at least five specific SDIs at various stages of implementation. Through various studies, the SDI has identified specific places in accordance with their privileged potential, so far under-used and latent, and their leadership possibilities in terms of accessibility and competitive viability among the various commercial investments eligible.

In particular, the Limpopo Valley is one of the privileged places within the Limpopo Corridor, in terms of agro-industrial processing. Located to the north of Maputo city, the Limpopo Valley covers the Limpopo River Basin, and the Limpopo Railway that links Zimbabwe to the Port of Maputo. As regards its agricultural potential, the Limpopo valley has good soils, proven practical antecedents, sufficient water, and market opportunities, both nationally and regionally.

Since the SDIs seek to promote the creation of new and viable jobs, as well as potential opportunities for investment, identified for private businesses, the main focus of this study is to set forth the most advisable strategy for launching agroprocessing activity in the CL, as well as identifying and formulating projects that could, in the short to medium term, act as catalysts for the agricultural development of the area in question. In particular, the specific objectives of the Limpopo Corridor are:

- Undertake activities which seek to restore to health the economy of the area, particularly in the traditional sectors of agriculture, agro-industry, and livestock, and to promote new investments in tourism, mines, production of electricity and others, so as to create jobs, and thus guarantee the long term sustainable economic development of the region;
- 2. Establish attractive conditions in the Corridor for public and private investment, in partnership with the communities, in sectors of the economy that present comparative advantages so as to guarantee rapid growth in the region's economy; and
- 3. Develop an adequate transport and communication system that makes the region competitive in terms of investments.

2.2 BROAD AND NARROW DEFINITIONS OF THE LIMPOPO CORRIDOR

Located north of Maputo, the Limpopo Valley is constituted by the Limpopo River Basin and the Limpopo Railway linking Zimbabwe and Maputo Port. This area was, not so long ago, considered the bread-basket of Mozambique in terms of its agricultural potential. A huge irrigation scheme was established by the Portuguese in the mid 1950's with the intention of settling Portuguese farmers as a way of

Main Report

SEED



effectively occupying the country. Downstream and upstream of the irrigation scheme other developments took place such as raising livestock and medium-scale agro-processing industries. Rice from the Limpopo Valley, as well as dairy produce were exported to European markets as well as to some of the neighbouring countries.

In more specific terms, the Limpopo Corridor is defined by the railway which runs from the Port of Maputo to Chicualacuala, linking southern Mozambique to the neighbouring Republic of Zimbabwe. For purposes of planning, three main regions may be identified within the perimeter of the Limpopo Corridor: primary, secondary and tertiary.

The primary region of the corridor consists of the transport and communications infrastructures that have been developed along the corridor.

The secondary region consists of the various admininistrative divisions crossed by the primary infrastructural axis, namely the districts of Manhica, Magude, Chokwe, Macia, Xai-Xai, Chibuto, Guija, Mabalane e Chicualacuala.

The third region consists of other areas outside of the main axis by resources which influence and economically subsidise the primary region, such as the Massingir dam, the Pande and Temane gas fields, and the Banhine and Zinave National Parks.

While aware that the area included in the Limpopo Corridor is not defined, or limited by the established administrative boundaries, for the purposes of this current study, two definitions of the extension of the CL are considered, one broad and one narrow. Table 1.1 summarises the data concerning the broad definition of the CL, covering the above mentioned three main sub-regions: primary, secondary and tertiary. In terms of the existing administrative district division this

14		ESt	mate	or the	sum	ace area a
	Surface	•	Popul	ation		Population
District			1997	2002		
	(1000 kn	%	(1000 p	eople.)	%	Density
Valley total	125	100	2.013	2.297	100	18
Gaza	76	61	1.117	1.266	55	17
Xai-Xai City	0,1	0	112	145	6	1.448
Bilene	2,2	2	139	161	7	73
Chibuto	5,7	5	169	165	7	29
Chicualacuala	18.2	15	36	38	2	2
Chiqubo	14.9	12	14	15	1	1
Chokwe	2.5	2	182	226	10	90
Guiiá	4.2	3	60	65	3	15
Mabalane	9.1	7	27	29	1	3
Mandlakazi	3.8	3	167	176	8	46
Massangena	7,5	6	13	14	1	2
Massingir	5,6	4	25	25	1	4
Xai-Xai	1,9	2	174	208	9	110
Other districts	49	39	896	1.031	45	21
Inhambane	0,2	0	58	64	2,8	320
Maxixe	0,3	0	99	133	5,8	442
Jangamo	1,3	1	84	113	4,9	87
Morrumbene	2	2	115	129	5,6	54
Massinga	2	1	63	68	3,0	38
Mabote	14,2	11	38	38	1,7	3
Funhalouro	7,9	6	15	17	0,7	2
Panda	7,0	6	47	49	2,1	7
Inharrime	2,1	2	79	93	4,0	44
Zavala	2,6	2	131	157	6,8	60
Magude	7,0	6	40	34	1,5	5
Manhiça	2,4	2	127	137	6,0	58
Note: 1/2 of Funhalou	uro, 1/3 of Ma	assinga	a			
Source: INE. 1999. Demographic Projections 1997-2010						

corresponds roughly to the Gaza province, 10 of the 14 districts of Inhambane province, and the two districts in Maputo province that border on Gaza (Magude



Main Report



and Manhica). In summary terms, the broad definition of the CL covers about 125,000 square kilometres of surface area, and between 2 and 2.3 million inhabitants. This represents 15-20 per cent of the total surface area of Mozambique, and 10-15 per cent of the country's total population. In a narrower definition of the Limpopo Corridor, from which Inhambane Province is totally excluded, the CL covers about 85,000 square kilometres and between 1.3 and 1.5 million inhabitants. The broad definition of the CL is that which responds better to the TSRs, particularly as regards coconut production, which is mainly concentrated in Inhambane province.

A further important dimension of the CL, if not the most important from the

point of view of the concept of a development corridor, concerns the size and characteristics of its economy, its weight in the economy of the region, and of the country in general. As with its surface area and population, the immediate estimate of the economy of the CL can only be done in an approximate and indicative fashion.

Mozambique's southern region, which includes the CL, produces

(in US\$ 10⁶) 3.600 3.400 3.200 -3.000 2.800 2.600 1997 1996 1998 1999 2000 GDP 2.937 3.189 3.453 3.473 2.947

Graph 1.1 Gross domestic product, Mozambique 1996-2000

almost 50% of the national economy, estimated at 3.2 billion US dollars a year, over the last five years of the 1990s (Graph 1). However, of this 50%, Maputo city represents about 72%, while the other three provinces (Maputo, Gaza and Inhambane) represent only 28% (UNDP, 2000, 2002).

Graphs 1.2 and 1.3 show, in a summary and approximate manner, what the CL, in its broad definition, represents in terms of the national wealth. It is assumed that





production to the CL; Inhambane province 58%; and Maputo province around 36%.³

³ The formula used in estimated the GDP of the LCwas as follows:

 $GDP_{LV} = Gaza_{100\%} + Inhambane_{58\%} + Mapto Province_{36\%}$

SEED

_ Main Report



Thus the CL may currently represent about 9% of the national economy. In monetary terms, this corresponds to more or less 274 million US dollars per year, over the last five years of the 1990s, in comparison with about 440 million US dollars from the three southern provinces (not counting Maputo city, which contributed around 1,133 million US dollars to the national economy).

Thus, while Maputo City represents 72% of the economy of the southern region, the Limpopo Corridor represents between 15 and 20 per cent, and the rest of the south accounts for the other 11% (UNDP, 2002).

2.3 UNPRECEDENTED FUTURE OPPORTUNITIES FOR THE LIMPOPO CORRIDOR?

As already mentioned, the CL region, particularly the Limpopo River Basin and the Limpopo Railway Line, has become one of the most attractive places for private

investment in Mozambique. Important large and medium-sized projects have been drawn to the area in recent years, such as Corridor Sands (the processing of heavy mineral sands), the National Limpopo Park, the Massingir Dam; the high tension power line to Inhambane and the Pande natural gas - these are two major infrastructure projects which in the medium and long term will bring important benefits to the development of the Valley.



12

Mozambique has a total surface area of 78.5 million hectares, but currently only

3.9 million hectares are being used for agricultural purposes. This represents 5%, or one twentieth, of the total surface area, in contrast to the 12,5%, or one eighth, used for agriculture, which was attained in the early 1970s.

This contrast with the current agricultural under-use of the land become still clearer when we consider that three decades ago, with 42 million hectares of land (practically half the territory) unoccupied, but capable of agricultural use, Mozambique had an estimated active population of four million people, of whom 90% (mostly women) were occupied in the primary sector, mainly in agriculture.

Currently, with an agricultural usage that is about 40% less than that of 1970, Mozambique has a population twice as large, and the active population is over six million; of these people, 90% of the women and about 70% of the men are occupied in agricultural activity.

In the particular case of Gaza Province, which covers much of the CL, currently only about 460,000 hectares is being used for agriculture, compared with 2.5





million hectares that was in use at the end of the 1960s. That is, agricultural usage stands at just a sixth, or 18%, of what was achieved more than three decades ago (DSPIE, 1973; INE, 2001).

Currently about 16-20% of the total land in the country is used for agriculture. Of this 95% consists of household farms, 4.5 per cent is medium farms, and less than 1% consists of large farms. In turn, while the weight of the primary sector in the GDP is around 36% (Graph 1.4), it absorbs more than 85% of the economically active population.

But will this structure of production and occupation of the labour force remain the same over the next 10-20 years? The data currently available allows us to foresee two alterative answers to this question.

One alternative is that the current production and employment structure remains unchanged. This hypothesis is not very likely, and would only happen if the large and medium investment projects did not become reality, or were failures.



The other alternative is radical change in the current structure of production,

either to the kind of structure similar to that of Maputo City (4% primary sector, 20% secondary sector, and 76% in the tertiary sector), or to a structure where the secondary sector dominates, due to the contribution from mining and manufacturing industry. Graph 1.5 illustrates the two hypotheses mentioned above: the first, represented by the blue bars, in which the GDP of the southern region contains a major contribution from agriculture; and the second, shown by the brown bars, illustrates the kind of structure that may be expected, should





services (transport, tourism and trade) grow faster, relatively and absolutely, than the secondary sector. Otherwise, as soon as extractive and manufacturing industry begin to produce in Gaza and Inhambane, structural changes will be noted immediately in productive activity. It is enough to mention, for example, that extractive industry in Gaza province is currently represented solely by salt extraction, which contributes 0.1% of the provincial GDP. Within the next 5 to 10 years, when Corridor Sands begins to produce, extractive industry in Gaza should grow by many thousands of per cent.

But while it is possible to envisage radical changes in the medium or even the short term in the production structure of the southern region, the same cannot be said for the structure of occupation of the economically active population. The large projects will offer important job opportunities, but perhaps the more significant opportunities are indirect rather than direct. If this is the case, then it may be envisaged that while the primary sector might represent 10% or less of GDP, the transfer of workers from the agricultural sector to the secondary and tertiary sectors will be much slower.

This is not the place to imagine the consequences of this latter scenario, but it is a factor which should deserve attention at other opportunities. In any case, in relation both to job opportunities and to the need to promote agro-industrial production, the socio-economic framework sketched out above for the near future of the southern region shows a promising and unprecedented scenario.

As described above, the Limpopo Valley has a range of characteristics which, added to a series of large scale private and public initiatives, presents an environment that is favourable, and has great potential, for the development of the agricultural sector and for agro-industry. These characteristics and initiatives are detailed further below, in section 6.5.

2.4 GERAL CONSTRAINTS ON INVESTMENT IN THE LIMPOPO CORRIDOR

The following series of four graphs summarise eloquently the annual average percentage growth trends in gross internal investment, public and private, compared with the average annual growth of food and non-food production, in Mozambique and in sub-Saharan Africa. Obviously, with negative private investment in the first decade after independence, and investments not higher than the average annual population growth in the second decade, the crisis in food and non-food production in the country was inevitable.

Apart from the improvement shown in the series of previous graphs concerning private investment, there are other indicators, which are generally used by investors and international agencies, that bear witness to serious progress in the past decade, concerning the elimination of the basic constraints on investment. For example, UNCTAD (2001) in its *An Investment Guide to Mozambique: Opportunities and Conditions* stresses the current competition index in Africa, shown in the following chart. Mozambique seems to emerge as a possible chosen spot for investment.







Graph 1.6 Evolution of some indicators on investiment, and on food and non-food production: Mozambique versus Sub-Saharan Africa, 1975-1999

However, a variety of evidence suggests that, notwithstanding the deep reforms and improvement in conditions for national and foreign investment, there is still an enormous gap between the high latent demand that exists in Mozambique and effective access. As the ICON Group International (2000) notes, a country can possess high latent demand, but provide low access, thus becoming a much less attractive market than many small countries who present greater levels of access.

Table 1.2 summarises the evolution of the indicators that form the economic freedom index. The Economic Freedom Index (EFI), produced by O'Driscoll et al. (2002) of the Heritage Foundation and the Wall Street Journal, measures the impact of taxes and customs duties, of commercial regulation, of government intervention in the economy, of corruption in the government, of the judicial system, and of the customs services, among other relevant factors. In his last report, O'Driscoll (2002: xiv) mentions Mozambique as a country that has undergone great changes. In 1996, it was classified as economically unfree. However, due to the improvements observed in recent years Mozambique has now been classified as economically "mostly unfree" instead of "unfree".





This type of classification may be questioned because of its more or less subjective character, and the value judgements inherent to it. In any case, the indicators that form the EFI synthesise and capture important aspects of business activity, and, in many cases, find empirical testimony in day-to-day economic life, in this case in Mozambique. For example, Hamela (2002a, 2002b) recently summarised "What business people want to see solved... by the government and the CTA".





Image: Solution of the second state	
Trade Policy 5.0 Government intervention 4.0 Foreign investment 4.0 Wages and Prices 4.0 regulation Fiscal Burden 3.0 Monetary Policy 5.0 Banking and Finance 4.0 Property Rights 4.0 Black Market Trade Policy 3.0 Government intervention 3.0 Foreign Investment 2.0 Vages and Prices 3.0 Regulation Fiscal Burden 3.0 Government intervention 3.0 Foreign Investment 2.0 Wages and Prices 3.0 Regulation Fiscal Burden 3.5 Monetary Policy 1.0 Banking and Finance 3.0 Property Rights 4.0 Black Market country 2002 2001 2000 1999 1998 1997 1996 7 Trend 3.05 3.35 3.80 3.9 4.10 4.00 4.10 4.00 or is 1990 to 1999, according to World Bank Group data, compound growth in GDP averaged 3.9 percent annually r capita GDP increased from \$144 to \$198 (in constant 1985 U.S. dollars). Mozambique's overall score is 0.30 point bus sets powery, however, its monetary policy, foreign investment, and black market scores spectively, 2 points, 1 point, and 1 poi	
Fiscal Burden 3.0 Monetary Policy 5.0 Banking and Finance a.0 Property Rights 4.0 Black Market Image: Strain St	ade licy
Image: Constraint of the constraint constraint of the constraint of the constraint of the	scal Irden
Trade Policy3.0Government intervention3.0Foreign Investment2.0Wages and Prices3.0RegulationFiscal Burden3.5Monetary Policy1.0Banking and Finance3.0Property Rights4.0Black Marketountry20022001200019991998199719961ountry20022001200019991998199719961or 19903.053.353.803.904.104.004.104or 1990to 1999, according to World Bank Group data, compound growth in GDP averaged 3.9 percent annually r capita GDP increased from \$144 to \$198 (in constant 1995 U.S. dollars). Mozambique's government interver rore is 1 point worse this year; however, its monetary policy, foreign investment, and black market scores spectively, 2 points, 1 point, and 1 point better this year. As a result, Mozambique's overall score is 0.30 point be s year.ade Policy - Score: 3 - Stable (moderate level of protectionism). scal Burden of Government: Score - Income and Corporate Taxation: 3 - Worse (moderate tax rates); Score - Government Expenditure: 4-Stable (high level of government expenditure); Fi Score: 3,5-Stable (High cost of government) overnment Intervention in the Economy - Score: 3-Worse (moderate level) 	
Fiscal Burden3.5Monetary Policy1.0Banking and Finance3.0Property Rights4.0Black Marketountry20022001200019991998199719961orend3.053.353.803.904.104.004.104.10om 1990 to 1999, according to World Bank Group data, compound growth in GDP averaged 3.9 percent annually r capita GDP increased from \$144 to \$198 (in constant 1995 U.S. dollars). Mozambique's government interver pre is 1 point worse this year; however, its monetary policy, foreign investment, and black market scores spectively, 2 points, 1 point, and 1 point better this year. As a result, Mozambique's overall score is 0.30 point be s year.ade Policy - Score: 3 - Stable (moderate level of protectionism). scal Burden of Government: Score - Income and Corporate Taxation: 3 - Worse (moderate tax rates); Score - Government Expenditure: 4-Stable (high level of government expenditure); Fi Score: 3,5-Stable (High cost of government) overnment Intervention in the Economy - Score: 3-Worse (moderate level) operater Policy - Score: 1-Better (very low level of inflation) upital Flows and Foreign Investment - Score: 2-Better (low barriers) unking and Finance - Score: 3-Stable (moderate level of restrictions)	ade Ilicy
ountry20022001200019991998199719961irend3.053.353.803.904.104.004.104.004.10om 1990 to 1999, according to World Bank Group data, compound growth in GDP averaged 3.9 percent annually r capita GDP increased from \$144 to \$198 (in constant 1995 U.S. dollars). Mozambique's government interver per is 1 point worse this year; however, its monetary policy, foreign investment, and black market scores spectively, 2 points, 1 point, and 1 point better this year. As a result, Mozambique's overall score is 0.30 point be 	scal Irden
Trend3.053.353.803.904.104.004.10om 1990 to 1999, according to World Bank Group data, compound growth in GDP averaged 3.9 percent annually r capita GDP increased from \$144 to \$198 (in constant 1995 U.S. dollars). Mozambique's government interver pore is 1 point worse this year; however, its monetary policy, foreign investment, and black market scores appectively, 2 points, 1 point, and 1 point better this year. As a result, Mozambique's overall score is 0.30 point be 	untry
 m 1990 to 1999, according to World Bank Group data, compound growth in GDP averaged 3.9 percent annually capita GDP increased from \$144 to \$198 (in constant 1995 U.S. dollars). Mozambique's government interver use is 1 point worse this year, however, its monetary policy, foreign investment, and black market scores pectively, 2 points, 1 point, and 1 point better this year. As a result, Mozambique's overall score is 0.30 point between. ade Policy – Score: 3 – Stable (moderate level of protectionism). cal Burden of Government: Score – Income and Corporate Taxation: 3 – Worse (moderate tax rates); Score – Government Expenditure: 4-Stable (high level of government expenditure); Fi Score: 3,5-Stable (High cost of government) vernment Intervention in the Economy – Score: 3-Worse (moderate level) metary Policy – Score: 1-Better (very low level of inflation) pital Flows and Foreign Investment – Score: 2-Better (low barriers) nking and Finance – Score: 3-Stable (moderate level of restrictions) 	end
pital Flows and Foreign Investment – Score: 2-Better (low barriers) nking and Finance – Score: 3-Stable (moderate level of restrictions)	1990 to 199 apita GDP i is 1 point ctively, 2 po par. e Policy – il Burden rates); Score:
nking and Finance – Score: 3-Stable (moderate level of restrictions)	
	etary Poli tal Flows
ages and Prices – Score: 3-Stable (moderate level of intervention) operty Rights – Score: 4-Stable (low level of protection)	etary Poli tal Flows ting and F
egulation – Score: 4-Stable (high level)	etary Poli tal Flows ting and F es and Pr erty Righ
ack Market – Score: 4-Better (high level of activity). Source: http://cf.heritage.org/indev/	etary Poli tal Flows ting and F es and Pr erty Righ Ilation – S

Many of the problems and concerns listed by Hamela illustrate and support the pointing and classification summarised in Table 1.2, which may be verified in the summary presented in Table 1.3



Table 1.3: Business people: What do they want to see solved, and what do they demand of the Government and of the CTA?

Inspections by the Finance Ministry (MPF). The businesses of central and northern Mozambique are aghast at the MPF's multi-Government intervention in the economy institutional inspections. They complain that they receive local, provincial and central (Maputo) inspections. The inspectors do not educate, they merely repress. The "southerners" (central inspectors) multiply the penalties and the "famous" fines. Reimbursement of VAT for the "provincials" is increasingly expensive, because of the "fee for speeding things up", as the businessmen call it, which varies between 5 and 10 per cent. Informal versus formal sector: the same old war. The businessmen believe that the fines, and not the taxes in themselves, are responsible for driving business into the informal sector. Labour Ministry promotes unemployment. Labour legislation: For the private sector in the centre and north, the Labour Law is "socialist", it only protects the worker, it encourages indiscipline, it discourages foreign investors who come looking for cheap and disciplined labour, and it sponsors very low productivity. Recruitment of foreigners: why does the government have to interfere in the hiring of foreign managers, when there are no qualified staff at provincial level ? Experience shows that it is more expensive to recruit a good quality national cadre to go to the provinces, than to recruit a foreigner. Certain business people say that the Ministry of Labour is promoting unemployment (instead of prioritising job creation) by frightening away foreign investment (take the example of the Zimbabweans registered to invest in Manica. Out of 50 only 5 are implementing their projects. Faced with a variety of complications, the rest gave up and went to Australia, South Africa and New Zealand.) The business people of Manica and Cabo Delgado raised the old question of land - which still cannot be used as collateral to obtain credit for agriculture. They do not believe that property in land, or at least a market in land titles, would prejudice the peasants: on the contrary, it could be the key to their access to capital, vital for the practice of agriculture on a business footing. A lot of land remains unused because of politically influential people. For their part, the investors don't know why they have to go around discussing with 10, 20 or more peasants in order to obtain a land title. As for the one stop counter (BU), at least in Zambezia business people question its impact in reducing the time and paperwork necessary for obtaining any licence. Worse still if the Counter activity intended includes obtaining a piece of land. The procedures and papers necessary have not been changed in the various directorates, It is just that now it is the BU rather than the investor that goes up and down flights of stairs in order to obtain any government authorisation. Indeed, the time needed to obtain a licence has become even longer, because the official of the BU is not going to use "lubricants" (i.e. bribes) throughout the entire process, because he is not an interested party.

The business people think that those involved in this programme have been affected by "navel syndrome": their objective is to develop themselves. Hence the quantity of "4 x 4"s and other trappings worthy of a programme of hundreds of millions of dollars, part of which is in the form of loans, which our children and grandchildren are going to pay further down the line.

Source: Hamela, 2002a, 2002b.

18

Among the various objectives of the present study, the most important specific objective is to produce three pre-viability studies of projects in the agro-industrial processing sector. In practice, however, the demonstration of the viability of a specific project is just one of the purposes of a broader assessment of the



-and

One Stop

PROAG

2

Main Report



possibilities of the financial viability, in this case, of agro-industrial activity in the country. There are other objectives and results which are part of the indispensable requirements to optimise the positive and wide-ranging effect of investment, such as: defining priorities among the countless possible projects; minimise the investment risk, or better still, choose the best combination of risk, profitability and other objectives.

The sensibility analysis of results, like that presented here for the three projects selected, leaves the final conclusion in the hands of the investors and the decision-making authorities. The decision makers and investors will have to choose from a range of possible results, the probability of which in many cases is not specified. Risk analysis tries to minimise he uncertainties which persist, since it is a tool for assessing the probability that certain events will occur. However, even if it is very improbable that at a particular moment all the worst, or all the best estimates of the variables under analysis will occur, most investors are convinced that, at least in relation to the worst, it was not long ago that Mozambique experienced them.

A good risk analysis eliminates the need to qualify estimates in advance as pessimist or conservative, optimistic or realistic. But, in the final analysis, it is the investor who, faced with data on the micro- and macro-economic situation of the country, has to decide whether to take the risk, or to wait for economic freedom to evolve from an unfree to a mostly free situation as graphs 1.8 and 1.9 illustrate.

The perceptions and ideas shown in Graphs 1.8 and 1.9 are present, more or less consciously, in the thoughts of investors and of many other people. It is scarcely worth conjuring away the validity of the notion of "free" and "unfree" in terms of the Mozambican economy. In the final instance it is the enormous persuasive power of such ideas, perceptions and images, such as those in graphs 1.8 and 1.9,

that countries like Mozambique have to face, and to which they must find effective solutions, if they are really banking on promoting private investment, whether foreign national. or Thus considerations of the power of this sort of representation is no less important than observing the IRR (internal rate of return) and the NPV (net present value of the cash flows) of the projects selected.



The main constraints which

explain the current reduced economic activity are, without any doubt, the following:

⇒ Lack of coordination of public policies with a direct or indirect influence on agricultural and agro-industrial activity:



Main Report



Support for agriculture granted late, and allocated according to criteria that are difficult to understand



investment by the state in "R & D", which is a determinant factor for the competitiveness of the agricultural sector;

 \Rightarrow Lack of tax incentives or reduced interest rates offered by the state in accordance with the performance of economic agents;

⇒ Lack of belief in public policies and in the central state actors implementing them. The economic agents do not believe in the capacity of the state to intervene in managing public policies and making them operational

⇒ Poor supply of agricultural machinery services: these are scarce and expensive;

⇒ Agricultural inputs not available locally, and on time, and sold by economic agents at grossly inflated prices, which they seem to have fixed among themselves;

⇒ Poor supply of technical services: extensionists, agricultural technicians, consultancy in management and marketing;

 \Rightarrow Difficult access to credit (the financial sector refuses to finance agriculture, because of the activity's risk, and because of the impossibility of farmers providing acceptable guarantees), and interest rates that are completely intolerable for any economic activity (about 40%);

⇒ Non-existence or shortage of raw materials (e.g.: rice, cashew, copra);

⇒ In general, poor quality of raw materials;

The difficulties faced by many of the existing industrial units and farmers in the business sector of restoring their productive capacity with new financing, while they are still burdened with debts contracted before the floods of 2000;

⇒ The available labour is poorly qualified, poorly motivated and his lost the feeling that they are "industrial professionals".





PART II. DIAGNOSIS

OF THE AGRICULTURAL AND LIVESTOCK SECTOR AND OF AGRO-INDUSTRIAL PROCESSING





Once the data, both secondary and primary, was collected, selected, analysed and discussed, the general diagnosis that the team made can be grouped, in a summary manner, as follows:⁴

- Agricultural water resources
- Agricultural sector
- Livestock sector
- Agro-industry
- Potential of the Limpopo Valley
- Main constraints

So as not to make the present report too exhaustive, in this second part, a summary of the chapters drawn up, individually or jointly, by the members of the team is presented.

3 HYDRO-AGRICULTURAL INFRASTRUCTURES

The Limpopo Valley combines natural conditions and infra-structures which justify investment in agricultural production with the use of irrigation. The Limpopo Basin covers an area of 412,000 square kilometres, of which 19% is inside Mozambique. The Massingir dam, were it to operate at 100% (storage capacity of 125 million cubic metres), bearing in mind urban and rural use of water and a reserve of 410 million cubic metres to control saline intrusion, could supply about 1,690 million cubic metres of water for irrigation, allowing the existing irrigation schemes to function fully, and to extend the current irrigated areas.

The main tributaries of the Limpopo river outside Mozambique are the Sasha, Bubye and Nuanetze rivers in Zimbabwe (left bank), and the Palala, Sand, Sterk and Pafuri rivers in South Africa (right bank). Within Mozambique, the main tributary is the Elephants River on the left bank of the Limpopo.

Within Mozambique, the Limpopo basin is almost flat, with a slight inclination in the direction NW-SE. The Limpopo River is 1,461 kilometres long, of which 516 kilometres are inside Mozambique. The average height of the entire basin is about 840 metres above sea level.





⁴ The complete individual reports will be include din the appendix.
3.1 HYDRO-AGRICULTURAL INFRASTRUCTURES ALONG THE LIMPOPO VALLEY

According to the survey undertaken in May 2002 (FDHA, Survey of Existing Irrigation Schemes in the country - Phase III, 2002), the total area identified as being currently equipped with irrigation infrastructures in the three southern provinces of Mozambique (Inhambane, Gaza and Maputo) is 75,747 hectares, of which only 23,145 hectares (30.6%) is operational.

Gaza is the province that has the largest area equipped for irrigation (50,323 hectares), of which about 17.5% (8,825 hectares) are currently irrigated. 30,000 hectares of the equipped land (60%) belongs to the Eduardo Mondlane Irrigation System, in Chokwe district, but currently only 7,500 sectors are being exploited. Inhambane is the province with the smallest areas equipped for irrigation and actually irrigated (1,285 hectares and 177 hectares respectively). In Maputo province the area equipped for irrigation is 24,139 hectares, of which about 59% (14,143 hectares) are currently irrigated.

3.2 CURRENT SITUATION OF THE IRRIGATED PERIMETERS IN THE LIMPOPO VALLEY

The largest area equipped for irrigation in the south of the country is in Gaza province, along the Limpopo Valley. The Eduardo Mondlane Irrigation System, in Chokwe district, is that which has the largest area with infrastructures, around 30,000 hectares, though only 7,500 hectares is currently regarded as operational. In terms of the size of the irrigation systems, stress should also be laid on the Macia, Matuba and Xai-Xai irrigation systems (8,000 hectares, 3,834 hectares and 2,970 hectares respectively). These schemes are the largest irrigated perimeters, and where there has been large investment through public funds for the development of irrigated agriculture. The state is still the owner of these irrigation systems.

Each of these irrigation systems was designed to be used as part of a giant state farm. Since such farms no longer exist, it is now urgent to seek solutions for defining the property regime of these systems, and types of management and operation that allow the most to be made of the investment that has occurred. The management of some of the state-owned irrigation schemes is being transferred in part to peasants' associations and to the private sector, who are responsible for paying the running costs inherent to operating the systems, as well as for their sustainable management.

3.3 THE MOST COMMON TYPES OF IRRIGATION

Gravity fed irrigation, whether by channels (vegetables, beans, maize) or by flooded basins (rice, fruit trees), and manual irrigation (watering cans) are the methods most commonly used. Irrigation by sprinkling covers an area of about 8,330 hectares, of which 7,800 hectares are sugar cane plantations (conventional sprinkling, central pivot, rain gun and floppy). Irrigation by manipulation of the water table occurs, and is also practiced in areas along the





coastal strip. Drop-by-drop irrigation is a new method of irrigation in Mozambique, and has been identified only in Maputo province, where it currently occupies an area of 115 hectares (vegetables and fruit trees).

3.4 POTENTIAL FOR IRRIGATION DEVELOPMENT IN THE LIMPOPO VALLEY

In southern Mozambique, the total area equipped for irrigation is 75,747 hectares, of which 1,170 hectares are in Inhambane, 50,323 hectares are in Gaza, and 24,139 hectares are in Maputo. The most important irrigation schemes in the south of the country are in Gaza province along the Limpopo Valley (Chokwe: 30,000 hectares; Macia, 8,000 hectares, Matuba, 2, 834 hectares, and Xai-Xai, 2,970 hectares). Along the three river basins in the southern area, there is a development potential of about 280,000 hectares of land, appropriate for irrigated agriculture. Of this area, about 53% is along the Limpopo Valley.

Table 2.1 - Irrigable area by basin					
Basin	Area that could be irrigated	%			
Umbeluzi	21 000	7.5			
Incomati	111 000	39.6			
Limpopo	148 000	52.9			
Total	280 000				

In the Limpopo valley, of the about 150,000 hectares available for irrigation, only 50,323 (34%) were developed, and of these only 8,825 (17.5%) are currently operational. The rehabilitation (about 41,500 hectares), and extension of the existing irrigation systems, as well as the construction of new irrigation systems would have a great impact on reactivating the agricultural potential of the valley and on promoting agro-industry.

There are three regions with development potential in the short and medium term, namely:

- The Chokwe region;
- The Elephants River region;
- The Xai-Xai region.

These regions were selected bearing in mind that the rehabilitation of Massingir and Macaretane, in conformity with the existing social infrastructure (roads, power supply etc), has been approved. In the long term, other regions along the valley could come to be integrated into the areas development.





3.5 PROSPECTS FOR THE DEVELOPMENT OF IRRIGATION

Based on the potential that the Limpopo Valley presents, and in line with the existing infrastructures, it is envisaged that in the short and medium term, and in the context of agricultural hydraulics, projects that will make an impact on the development of the valley in particular and the country in general would rest essentially on:

- Rehabilitation of the Eduardo Mondlane Irrigation System, and extending the irrigated area (through building new irrigated parameters);
- Rehabilitation of the Xai-Xai irrigation system, and possibly extending the currently existing irrigable area;
- Building new irrigation systems along the Elephants River and downstream from the Massingir dam;
- Training activities for farmers in relation to the best crops, best height, nest manner and best place to market their production;
- Rehabilitation of some local agro-industries which have been paralysed for a long time, and building new ones;
- Establishing a system in the region for supplying inputs and technical assistance;
- Setting up services for maintaining hydraulic infrastructures;
- Setting up a technological and market information system in the Chokwe region.

These activities would make possible the relaunching of the valley's agricultural potential and would set up the basic conditions for the long term projection of a more integrated plan for the development of the entire Limpopo Valley. A projection for the development of the irrigation sector, presented in the SOCREAH study (1993) estimated that an area of 150,000 hectares could be considered as fit for irrigation. Table 2.2 summarises how this area is distributed between the main regions.

Table 2.2: Development Potential in the Limpopo Valley						
			(in hectares)			
Region	Current	Mid-term	Long Term			
Elephants river	427	15,800	15,800			
Upper Limpopo	500	500	500			
Middle and Lower Limpopo	49,500	59,500	133,700			





4 AGRICULTURAL SECTOR

The agricultural area considered in this study covers around 8 million hectares, mostly in Gaza province. Apart from Gaza, this study includes the coastal areas of Inhambane province.

From the physiographical point of view, the agricultural area may be divided into two major zones. The first zone, consisting of an alluvial valley and marine sediments, has good agricultural potential; both for rain-fed agriculture, in the areas with greatest rainfall, and for irrigation in well drained soils.

The second zone, with ondulating topography, has deep and well drained sandy soils, that allow deep rooting of trees. Its fertility is low, as is its capacity to



26

retain water at the surface, though the depth of the soil allows orchards and forests, as well as some crops such as cassava and "boer" beans, to make good use of rain water.



The agricultural productivity of the area under study is determined by the

availability of water rather than by fertility. Rainfall in the coastal areas is about 1,000 mm, but in the interior rainfall falls off rapidly as can be seen from the extinction typical curve shown in the accompanying graph, until it reaches less than 400 in the mm areas furthest removed from the

coast.

In the first kilometres, the reduction in rainfall is higher than 10 mm per kilometre. Consequently the growing period drops from 6-7 months (November-May) at the coast to 3-4 months (November to March) in Chibuto, and there is practically no growing season in Pafuri, Chicualacuala and Mapai, in the interior,





more than 300 kilometres from the coast, which makes it non-viable to grow most crops.

4.1 AGRICULTURAL PRODUCTION

Agricultural production in the area under study is mostly in the hands of the peasant family sector, which represents 99% of rural farms, and 95% of the

cultivated area. Graph 2.2 and Table 2.3 show the distribution of the cultivated area according to the size of farms.

It is estimated that the average size of fields, without counting fruit trees, is 1.7 hectares for the family sector, which is slightly larger than the average for the country which is estimated at 1.3 hectares. For medium and large producers, it is estimated that average areas of cultivation are 6.3 and 41 hectares, respectively.



27

Table 2.3: Use of the area by type of crop								
Type of farm	Type of Use of cultivated area farm							
	Food c	ood crops Cash crops				Vegetable		
	Area (ha)	%	Area (ha)	%	Area (ha)	%		
Small	340 550	95,6	871	32,2	22 317	91,9		
Medium	14 646	4,1	174(1)	6,4	1 259	5,2		
Large	913	0,3	1 661(2)	61,4	706	2,9		

Drawn up on the basis of CAP 1999-200. (1) Rice, cotton and sugar cane. (2) Rice

Rice is practically the only cash crop on the large and medium farms of Gaza province. Cotton, which in the past covered important areas, is now limited to 27 hectares. However, the small farms are responsible for 160 hectares of cotton, 438 hectares of sugar cane, 170 hectares of sunflower, and 103 hectares of tobacco.





In this province, as in the rest of the country, maize is the dominant food crop, accounting for almost 50% of the cultivated area. Also important are cassava, a crop very well adapted to the agro-climatic conditions of the area and which, by

characteristics, its can use not make only of rainfall during the rainy season, but also of unseasonal rains which are in the area. common Pulses, mainly nhemba beans and groundnuts are also crops adapted to sandy soils, and tolerant of dry periods.

Table 2.4 shows a summary of the cultivated area, in comparison with the rest of



28

the country. As the table shows, vegetables have considerable importance, and this area has traditionally been one of the main suppliers of vegetables to Maputo city.

Сгор	Gaza	Country	(%)
Food crops	299 126	3 110 610	9,6
Groundnuts	41 424	319 482	13,0
Sweet potato	13 407	46 305	30,0
"Boer" beans	1 915	72 700	2,6
"Jugo" beans	11 660	83 564	14,0
Butter beans	3 495	59 721	5,8
"Nhemba" beans	40 078	207 158	19,4
Cassava	61 693	637 847	9,7
Sorghum	3 914	232 447	1,68
Millet	3 238	39392	8,4
Maize	156 157	1 268 075	12,3
Cash crops	2 564	202 372	1,3
Cotton	182	131 284	0,1>
Rice	1 661		100
Sugar Cane	443	35 294	1,2
Sunflower	170	7 555	2,2
Tobacco	107	26 635	0,1>
Vegetables	24 424	200 957	12,2

Table 2.4: Crop areas in Gaza as a percentage of the Country

CAP 1999-2000. INE





The sandy soils and fossil dunes of the coastal areas are very appropriate for fruit trees and have been traditionally used for these crops. Up to 20 kilometres from the coast, rainfall is still higher than 800 mm, which is sufficient for fruit trees, including those most demanding in rainfall, as is the case with coconut palms. This represents a total area of Gaza and Inhambane coastal zones of about 1,300,000 hectares that are fit for producing these crops. The area available is still greater, if we consider that crops such as cashew and mafurra oilseeds are more tolerant and can be grown is areas with lesser amounts of rainfall. The number of fruit trees in the Gaza and Inhambane coastal region is shown in Table 2.5.

		-				
Fruit ⁽¹⁾	Yield	Gaza		Inhan	Total	
	(ton/tree)	N°	Prod.	N°	Prod.	Prod.
			(ton)		(ton)	(ton)
Avocado	0,040	119 366	4 775	153 927	6 175	10 950
Guava	0,005	58 751	294	90 466	452	746
Orange	0,040	598 638	23 946	1 490 153	59 606	83 552
Lemon	0,050	231 412	11 571	225 593	11 280	22 851
Mafurra	0,010	511 576	5 116	112 369	11 237	16 353
Mango	0,050	795 171	39 758	1 238 714	61 936	101 694
Paw-paw	0,020	944 495	18 890	1 092 321	21 846	40 736
Tangerine	0,050	365 963	18 298	2 335 839	116 792	135 090
Grapefruit	0,040	3 352	134	25 614	1 025	1 159
Cashew	0,010 ⁽²⁾	5034 600	25 732	16052171	16 052	41 784
Palms	0,006 ⁽³⁾	912 996	4 382	20722889	99 470	103 852

Table 2.5: Number of fruit trees and production, 2000

(1) The number of trees comes from CAP 1999-2000, INE, and the yields from qualified informants.

(2) Based on the cashew nuts market by tree in the provinces in the 97-98 to 99-00 campaigns, and considering that only 30% of the nuts are marketing through the formal system. Data from INCAJU.

(3) Copra. A production of six kilos per tree, and a use of 80% is estimated.

In 2000, there were a total of 8.7 million fruit trees in Gaza, and 43.4 million in Inhambane, giving a total of 52 million trees in the two provinces. Estimating an average of 100 trees per hectare, the area occupied represents 40% of the area potentially fit for fruit trees. Even in relation to this level of occupation, the under-used production is enormous. This offers good possibilities for industrial processing of this raw material.

4.2 PRODUCTION SYTEMS

One of the major limitations on peasant production is the poor availability of labour. Over time, farmers have developed technologies that allow them to





increase the efficiency of this scarce factor and reduce the risks, such as sowing in groups (with an area equivalent to 1.2-1.3 hectares, according to the calculations made by INIA).

Other techniques to overcome the limitations of the labour force include planting fruit trees which, even under current conditions of a low rate of use of the fruit produced, is highly profitable in relation to the low level of demand put on existing labour. Another way of increasing labour productivity is through livestock. Animal traction is very widespread in the areas, being used by at least 50% of the peasants.

4.3 AGRICULTURAL POTENTIAL OF THE AREA

From the point of view of actual and potential agricultural and livestock productivity, three main regions can be identified, as shown in Table 2.6.

Table 2.6: Differing Productive Regions. Area occupied and potentialarea (in hectares)

Province	Region						
	Соа	astal	Irriga	Irrigable Extension Grazing		nsive ng (2)	
	Current	Potential	Current	Potential	Current	Potential	
Inhambane	434 389	1 006 000					
Gaza	86 633	244 000	50 322(1)	133 700	2 500 000	4 000 000	

The area currently exploited is about 9,000 hectares

As subsistence agriculture, system 2 of Region R3 of PROAGRI (INIA, 194).

Table 2.6 shows that there is a vast margin for expansion of agricultural production in the Limpopo area. The limitation are more in terms of technical, financial and economic capacity, rather that availability of land or adequate infrastructures.

The remaining pages of the diagnosis stress only the crops, both in the irrigated areas, and in the coastal area which, in Part III of this work will be the object of assessing pre-viability projects, namely: rice, tomatoes and some fruits, and coconuts. In particular, the intention here is to stress the production potential and the investments needed to make viable the crops selected as a priority in promoting agro-industrial processing.

4.4 THE IRRIGATED AREAS

With the repair of the Chokwe irrigation structures and the planned development of other irrigation schemes, the minimum area of rice (soils with irrigation structures and without alternative uses) may reach 11,000 hectares in the 2002-02 campaign, and to 40,000 hectares in the medium term. It could occupy



Main Report



even larger areas if the results prove economically attractive (in the 1970s, the area under rice cultivation in the Chokwe irrigation scheme reached 18,000 hectares). The situation of this crop for the coming campaign may be summarised as follows:

- Irrigated land available that is well suited to rice production (minimum of 11,000 ha.)

- Good quality water in sufficient quantities for the timely flooding of the sown basins;

- Rice varieties that are of proven adaptation to the area, of modern design, and consequently with good productive capacity. With regard to this, it can be guaranteed that the current yields (less than 3 tonnes per hectare on average, but reaching 7 tonnes/hectare by the greatest users) are not limited in the rainy season sowings by problems with the varieties or seeds being used. Significant increases in yields cannot be expected in the short term through genetic improvements. This does not mean that improvement work should be stopped. The introduction, development and evaluation of new crop varieties, as well as the productive systems. Furthermore, the development of varieties tolerant to low temperatures during flowering, as well as the adaptation of aromatic varieties (both exotic and semi-aromatic varieties of local origin) will be very important in raising yields from rice production in the valley.

- Capacity to produce seed that is adequate to the needs in both quality and quantity.

- Producers who have a good knowledge of the crop and a good business attitude, but who lack organisation.

- Technicians who are well trained in research and extension, but with weak financial support for developing their activities.

- There are no important pests or diseases, with the exception of the weeds common to all rice-growing area (Echinochloa Sps. among the grasses, and Commelina among broad leafed plants), and birds, which are the main pest, particularly in late harvests when the bird population is larger.

- Aged fleet of machinery, with no chance of renovation, involving low yields and high costs, which prevents agricultural work, mainly sowing and harvesting, from taking place on time. We can give an example of this by comparing the costs of preparing the land in the Rice Technological Chart (Rural Consult Ltd 2002), which records 3 H/M for ploughing, plus 1 H/M for levelling, with a total cost of US\$ 43/ha. On the other hand, with preparation using a heavy plough with offset discs (5 m of working width), with a tractor of 150 HP and a working speed of 6.5 km/H, one hectare can be prepared in 0.4 H (estimating a loss of 30% on the turns) at an operational cost of US\$ 6/ha.

- High costs of inputs (worsened by exaggerated financial costs) and bad use of them. For example the Rice Technological Chart records the application of 12 I of Propanil (for the control of grasses), and 4 I of MCPA (for controlling broad-leafed weeds), with a total cost of US\$ 43/ha/ But with good levelling of the ground better results can be achieved (since the greatest





reduction in yields because of weed infestation occur in the first 20-30 days of crop development) with the application of 2 l of Pendimethalin with a cost of less than US\$ 10/ha. It is similar with sowing, which is done manually with the consumption of 120 kgs of seed per hectare (with more levelling to cover the seeds); but it could be done, together with application of fertiliser, in a single operation using a line sower and fertiliser, and using 100 kg/ha of seed.

- Finally, we should mention industrial productivity which is one of the aspects where comparison with the Asian productive systems is most unfavourable. The efficiency of the Inacio de Souza mill is 43% (43% of whole grains and 23% broken ones). The Orli rice factory estimates a total efficiency (whole plus broken grains) of 63%, thus the efficiency of the milling is probably less. In comparison with the mills of a modern industry, with efficiency in the order of 60%, the difference is 39%. Although broken grain has a relatively high commercial value in Mozambique, industrial efficiency continues to be an extremely negative factor, faced with the competition from Asian rice.

The rice production potential of the valley is large, but under the current conditions it cannot face competition from imported Asian rice. One can sharpen one's pencil and refine one's costs, but the differences are too large for cosmetic arrangements. the solution involves total replacement, both in agricultural production and in industry, and this means investment, organisation and support structures.

4.5 POTENTIAL FOR RICE PRODUCTION: MAIN PRODUCTION SYSTEMS

Rice has traditionally been a dominant crop in the Limpopo Valley irrigation areas. It once covered 18,000 hectares in the Chokwe irrigated area, and in the 1970s reached total production in the Valley of over 70,000 tonnes of husked rice. Currently, with the rehabilitation of the irrigation schemes in the area under way, and with local rice facing strong competition on the local market from imported Asian rice, the viability of this crop has been questioned.

With regard to this, there is one fact to be borne in mind: there are no alternatives to rice for heavy, poorly drained soils, at least in the rainy season. The area of these soils has been estimated at 29,000 hectares, for the potentially irrigable areas of Gaza (INIA Series Terra e Agua. Technical Note 26). In the Chokwe irrigation scheme, they occupy an area of 11,000 hectares. This doe snot imply, logically, that rice cannot occupy other irrigated soils in the Valley but that, with the future development of irrigated areas, there will be an area of 40,000 hectares which should be covered with rice, or with a hypothetical alternative crop. The challenge, however, lies in developing alternative technologies that make rice in this area profitable. The main systems of commercial rice production in the world can be classified as:

System of the Developed Countries

Totally mechanised and with a high level of investment. Irrigated fields (in some cases even before the sowings, which are done using aircraft with soaked

_ Main Report



seeds), with very good levelling of the soil and regulation of the water, as well as chemical control of pests and diseases. The production is complemented with post-harvest systems which include driers, silos, high yielding (more than 60%) mills and industrialisation of the grain and the by-products. The types of rice produced have large and rounded grains (Caroline type) Yields are around 5 tonnes/hectare. With some variations, this system is practiced in the USA (Florida), Europe (Spain and Italy) and Japan.

System of the Asian Countries

This productive system is basically the traditional one, with a series of improved varieties, fertilisers and chemical to control pests. In the most humid areas, the crop is rain-fed (upland rice). Traditional irrigation, using surface springs, as well as gravity-fed irrigation is the common method for paddy rice. Levelling is frequently done by ploughing in flooded soils using traction from water buffalo. The nursery and transplanting system is universally applied. The post harvest systems, post-harvest treatment conditions and milling are very efficient. The type of rice produced is mainly "patna" but the production of aromatic varieties is also frequent. Unit yields are relatively low (around 2.5 tonnes/hectare) but the costs are also low, and post-harvest yields are high.

Chinese system

This may be described as a mixture of the two previous systems. Extensive use of hybrid rice varieties. It is the only region that currently uses this technology which is only recently being developed by transnational seed companies. Yields are around 4 tonnes/hectare.

Extensive-Intensive system

This system is used in Australia and in Uruguay, and is being introduced into some parts of Argentina and southern Brazil. The system is based on alternating rice with periods of mixed pastures, grasses with forage legume (2 years of rice, and 2-3 years of grazing). The use of inputs is high, with the exception of nitrogen fertilisers, which are left by the pulses. The varieties produced are patna, carolina and also aromatic rice. the use of direct sowing methods is common. This system gives the highest yields per sown area, reaching an average of 6 tonnes/hectare. Milling, and the use of by-products, including the oil, are efficient. In west Africa, the successful spread of varieties (including the Jasmin aromatic variety), improved technologies and production support systems have resulted in important increases in production, but one cannot speak of a different production system.

"Madagascar" System

Based on the transplant of plants that are a few days old, with intervals of 40 centimetres, and with just one plant per hole, Irrigation keeps the soil continually humid, but without being flooded, and no agricultural chemicals or fertilisers are used. Weed control is through the leaves keeping the soil in





shadow, since horizontal leaved varieties are used. Apart from the practical difficulties in transplanting plants that are so small (outside of small, garden-type areas), there is no explanation, either physiological or agricultural, for how this system manages to obtain yields of 9-10 tonnes/hectare, as claimed by the creators of this method. Thus these revelations have been received with interest, but also with scepticism. Furthermore, these results have not been repeated by IRRI researchers.

In southern Africa, Mozambique is the only country with good conditions for rice production. thus there are broad possibilities, from the viewpoint of the market (starting with the domestic market, for rice, but only if it can be produced in conditions that are competitive with the current supplier of these markets, mainly the Asian countries. There are two clearly different regions for rice production in Mozambique:

• The region of Sofala, Zambezia and part of Nampula, where climate and soil conditions allow production in conditions similar to those of the Asian countries, with advantages in transport costs and labour. Indeed, two rice production projects have already been drawn up, one in the Beira Corridor and the other in the Zambezia development area, which seek to produce 300,000 tonnes of husked rice per year.

• The irrigated areas in the south of the country, where investments in irrigation infrastructures and the costs if machinery and inputs, indicate that competition should be undertaken mainly by increasing yields. In this area, the immediate possibilities are the use of technologies from the developed countries, while at the same time carrying out research to adopt technologies for handling the crop which make it possible to reduce production costs and increase yields in the productive systems.

The use of hybrid rice varieties, for instance, seems interesting, as does cultivating Azolla (a symbiosis of a fern and algae, able to fix atmospheric nitrogen) in the rice flood water; crop rotation with forage legumes, in order to fix nitrogen, the poridtion of fodder, the reduction of infesting weeds (Sesbania aculeata or S. exaltata which can grow in flooded soils and fix nitrogen in the above water areas of the plant, or some annual pulse which can grow in the dry seasons like Crotalaria or Styloshantes, the latter with the ability to re-seed), or even breeding fish in the flood water where more than 500 kilos/ha of fish per crop season can be produced.

Investments needed to make rice viable

Mozambique has made, and continues to make, major investments in repairing the Limpopo Valley irrigation systems. The investment must be supplemented with developing production that allows making the most out of them. It is not possible to do this by maintaining rain-fed subsistence agricultural production systems, in these relatively expensive areas. Investments, and organisation of production and marketing will be needed to develop efficient and profitable productive systems.





This does not necessarily mean replacing the small scale producer by large commercial companies, but it does mean the integration of agro-industrial companies that finance, promote and add value to the production of the small and medium agricultural producers.

Business sector: Initial investment

The viability of growing rice, faced with imports of Asian rice, would involve modernising the machinery used and a good levelling of the land, that would follow the repair of the irrigation infrastructures that is currently under way. The estimated costs per 1,000 hectares in the commercial sector are shown in Table 2.7.

Item	Operation	No. units	Unit price	l tem Price
1	Levelling the land (1) Hectares	1 000	200	200 000
2	Machinery for preparing the sowing. Preparation calculated at 25 days of 16 effective working hours.			
	Tractor dual traction of 150 HP	2	50 000	100 000
	Heavy offset harrow, 5.1 m broad Chain harrow	2 2	7 500 500	15 000 1 000
3	Sowing and applying fertiliser			
	Sowing and applying fertiliser. (6 m wide de largo). To sow in 25 working days of 16 effective hours per day. Yield 0.4 H/bectare.	2	10 000	20 000
	Centrifugal	1	1 000	1 000
	Tractor dual traction, 80 HP.	2	30 000	60 000
4	Application of herbicides			
	Sprayer with 2,000 I tank. 15m range of work, Yield 0.15 H/ha.	1	4 000	4 000
	Tractor dual traction, 80 HP	1	30 000	30 000
5	Harvest			
	Combine harvester with 4.3m of cutting Mechanical unloading wagon	4 8	150 000 5 000	600 000 40 000
	Total			1 070 000
(3) (1) Hired machinery			

Table 2.7: Investment needed to prepare and operate1,000 hectares of rice

Business sector: Operational costs





Table 2.8: Machinery: the costs per hour of the machinery are the same as the Technological charter, plus 20-25% for replacement

Operation	H/M	US\$
Preparation of the soil	1,80	21,60
Sowing and application of fertiliser	0,40	4,80
Application of herbicides	0,15	1,80
Coverage with urea	0,20	2,40
Harvest	0,30	7,20
Levelling (20 % of the area)		20,00
Total	2,85	57,80
Data from the Technological Chart	8,00	111,00
Difference	-5,15	-53,20

Table 2.9: Inputs							
Input	Unit	Amount/ ha	Unit cost (US\$)	Cost/ha			
Fertiliser NPK 12-24-12	Ton.	0,2	316	63,0			
Seeds	Ton.	0,1	250	25,0			
Surface fertiliser (urea)	Ton.	0,15	236	35,4			
Pre-emergent herbicides	L	2.0	4	8,0			
Broad leaf herbicide, 2- 4D or MCPA	L	1,5	3	4,5			
Water (6 moths)	Ha/year	0,5	20	10,0			
Total inputs				145,9			
Data from the Technological Chart				169,4			
Difference				-23,5			

Table 2.10: Labour

Opening of fields, control of birds,	25 days	US\$ 30
Technological Chart	57 days	US\$ 57
Difference	-32 days	US\$ - 27

Table 2.11: Transport

Transport of inputs and harvest	US\$ 25.0
Total direct costs	US\$ 258.7
Technological	US\$ 365.0
Difference	US\$ 106.3
SEED Main Report	



Average yields expected, assuming that the agricultural operations are carried out on time: >5 tonnes/hectare

Family Sector: Initial Investment

				_
Item	Operation	No Unit.	Unit Price	I tem Price
1	Levelling the land (1) Hectares	1 000	200	200 000
2	Machinery for preparing the sowing. Preparation calculated at 25 days of 16 effective working hours.			
	Tractor dual traction of 100 HP	3	35 000	105 000
	Heavy offset harrow, 3.6 m broad	3	6 000	18 000
	Chain harrow	3	500	1 500
3	Sowing and applying fertiliser	50	20	1 000
	10H/hectare.			
	Centrifugal	3	1 000	3 000
4	Application of herbicides "Mocila" type sprayer with 20 I tank, and 2m range of work, Yield 4H/ha.	1	4 000	4 000
5	Harvest and threshing Manual			
	Total			328 500

Table 2.12: Family Sector: Initial Investment

Family sector: direct costs

SEED

Table 2.13 summarises the total direct costs for the family sector, which come to US\$ 269.2/hectare with a yield of 4.5 tonnes/hectare. The yield is relatively lower than that of the business sector, because of problems in carrying out agricultural operations on time.

Table 2 13: Operation: the costs per H/M are the

current ones plus 20-25% for replacement						
Operation	Days	H/M	US\$			
Preparing the soil		1,0	12,0			
Fertilising. Centrifuge plus chain harrow		0,5	6,0			
Sowing	2,0		2,0			
Application herbicides	4,0		4,0			
Covering with urea	2,0		2,0			
Harvest and threshing	20,0		20,0			
Labour. Opening fields, irrigation, loading and unloading bird control etc	30		30			
Total	58,0	1,5	76,0			



a as the

37

Main Report

	Table 2.14: Inputs						
Input	Unit	Amount /ha	Unit Pr US\$	rice	Cost/ha		
Fertiliser NPK 12-24-12	Ton.	0,2		316	63,2		
Seeds	Ton.	0,05		250	12,5		
Surface fertiliser (urea)	Ton.	0,15		333	50,0		
Pre-emergent herbicide	L	2,0		4	8,0		
Post-emergent herbicide	L	1,5		3	4,5		
Water (6 months)	ha/year	0,5		20	10,0		
Total inputs					148,2		
Hire of transport					45,0		

Development of production

Once the investments envisaged have been made, later, with the development of new irrigated areas, the minimum areas for rice cultivation in the valley would be those shown on Table 2.15:

Table 2.15: Minimum areas doer rice								
Year	Area (ha)	Yield Ton/ha	Production (Tonnes)	Observations				
1-5	15 000	5	45 000					
5-10 5-10	22 000 15 000 37 000	5 4,5	110 000 67 500 177 500	Rice 2nd session (1) Total Production				
10 and seg.	40 000 28 000 68 000	5,5 5,0	220 000 140 000 360 000	Prod, total				

(1) Second season rice will probably give lower unit yields because of solar radiation, but it will also have lower fertiliser costs, making use of the residual effect of the P applied on the first sowing. It will also have fewer problems with birds.

With this production, and with rice in Zambezia and Sofala already being developed, as from the fifth year, Mozambique may be able to pass from net importer to net exporter of rice, to the neighbouring markets, since the country has the best conditions in southern Africa for rice production.

4.6 POTENTIAL FOR TOMATO PRODUCTION

Tomatoes were the most important vegetable in the valley's irrigated area, when the Chilembene processing factory was operating, with a capacity of 230





tones/hour, and tomato paste was exported to the GDR, and later to Japan. In this period, over 500 hectares in the Chokwe irrigation scheme were planted with tomato.

The tomatoes produced in the valley are mainly on the industrial type, with small fruit, less juice than the table varieties, and with a strongly coloured paste. This type of tomato is ideal for the production of concentrate. In addition, it is well accepted as tomato for consumption in the Maputo market. SEMOC markets 3 varieties of the industrial-type tomato, at the price of US\$ 50 per kilo of seed.

A tomato processing factory will need about 1,000 hectares of this type of tomato. Production from the irrigated area could also expand its participation in the Maputo market, which consumes 19,000 tonnes of this type of tomato in the dry season. In total, the area planted with this type of tomato could reach 1,300 hectares.

There are also good possibilities of exporting table tomatoes to the South African market, particularly in the May-September period, competing with the winter tomatoes from southern South Africa. The quality is for these exports, as well as for a more demanding market than that of Maputo. For this, "long life" varieties must be used, with a good appearance and which last for a long time after harvesting, or hybrids may be used, such as HTX 14, marketed by SEMOC at US\$ 350/kg.

Crop management, particularly irrigation, is different for the two types of tomato. In tomatoes for industry, the main objective is to obtain intensely coloured tomatoes, a high concentration of solids, and uniform ripening, so as to achieve one, or at most two, harvests. To this end, spaced irrigation shifts must be used, and irrigation must be abandoned in the final period of ripening. But, in the case of tomatoes for direct consumption, irrigation must be frequent, which favours the development of large fruit, with a high juice content.

The crop cycle is also different in the two types of production. For the industrial tomatoes, the cycle is 100-120 days (including 30 days in the nursery), while in tomatoes for direct consumption, the cycle may be 120 days. The cycle may even reach 150 days, if supports are used, since the plants continue to grow and to flower, but the cuttings do not support the weight of the fruit in highly grown plants.

Tomatoes are a crop that is not sensitive to the photo-period so that, in theory, they could be planted at any time. High temperatures, however, lead to exaggerated vegetative growth, to the prejudice of fruit production. Temperatures higher than 25 degrees C, accompanied by high atmospheric humidity, also favour the development of diseases and pests, especially the rotting of fruit. For this reason, the production period is limited to the dry period, from June-July to December.



4.7 INVESTMENTS NEEDED TO MAKE TOMATO PRODUCTION VIABLE

Industrial Tomatoes

Crop cycle 100 days

Sowing in nurseries, March-August. Transplant at 30 days.

Table 2.16: Operations per nectare							
N.°	Operation	H/M	Days	Observations			
1	Preparing nurseries and sowing		15	In plastic trays or bags made of newspaper. Subtract of ermiculite or turf			
2	Ploughing, weeding formation of ridges and depth fertiliser	5	4	Ridges at 0.8m			
3	Transplanting		10	Distance between plants 0.3 m.40,000 plants/ha			
4	Irrigation		6				
5	Wedding and prunning		10				
6	6 Application of agro- chemicals and surface		10				
7	Harvest and transport	10	20	Track			
	Total	15	75				

Table 2.17: Inputs per ha

Input	Unit	Amounts	Total Price US\$	Observations
Boxes and substract	box	400	500	
Seeds	g	200	12	
Fertiliser (deep)	ton	0.75	250	15-15-15
Urea	ton	0.05	12	2 months after transplant
Water	Year	0.5	20	
Agro- fertilizer			30	Ridomil, Difolatan, Lorsbn ou similares
Total			824	

Yields: 45 ton/ha





4.8 COASTAL AREA

This region extends for more than 600 kilometres, along the Gaza and Inhambane coast, with a total area of over 1.5 million hectares. Sandy and very deep soils, plus its sub-humid climate, with rainfall in excess of 900 mm, make this zone ideal for tree production.

The rainy period extends for 6-7 months, and there is still rainfall greater than 20 mm, even in the dry months - which favours the production of those fruit trees that flower in the dry season, such as cashew and mango trees.

On the basis of 100 plants per hectare, and in comparison with the area available, it has been estimated that about 35% of the potential area for fruit is currently occupied by fruit trees. The percentage is much lower, if we take into consideration that the area with rainfall of between 900 and 700 mm is also fit for fruit production and this area amounts to millions of hectares in the two provinces.

With the exception of coconut palms, the fruit trees are not grouped into commercial plantations. Instead they are scattered and alternate with other crops and with spontaneous vegetation. This characteristic makes it difficult to collect the fruit for sale, but on the other hand it explains the surprisingly good health of the plants, given that production is totally organic, with out any use of agro-chemicals.

There are real conditions for exporting fruit to South Africa, taking into account the quality of the fruit produced, and the difference in ripening, which ranges from more than two months for the north of Inhambane to 1 month for Gaza. These advantages are not currently being made use of, for lack of organisation in harvesting the fruit and preparing it for export. With regional support and transport centres for the "Typification and Packaging Centre" this possibility could become real.

4.9 COCONUT PALMS AND COPRA: POTENTIAL PRODUCTION

Coconut plantations are found the length of the Mozambican coast, with the highest concentrations in Zambezia and Inhambane provinces. For a very long time, these two provinces have had an organisation for the production and ownership of the trees. While in Zambezia copra production has mostly been in the hands of companies who, since colonial days, used abundant and cheap waged labour for their production, in Inhambane production has always been undertaken by peasant farmers who immediately sold the crop to vegetable oil factories.

Strangely enough, currently, while participation by the family and private sectors is growing in Zambezia, where the companies are even hiring out the management of the plantations, and buy more than 20,000 tonnes from the family and private sectors, in Inhambane there are complaints of a shortage of raw materials, and companies are starting to plant dwarf palms on a total of 10,000 hectares (a million trees).





Production in Inhambane is normally estimated at 100 coconuts/palm tree for the tall variety, and 250 for the dwarf palm. Technical international data estimates that it takes 4,000 to 6,000 coconuts from tall palms or 5,000 to 9,000 from dwarf palms to produce a tonne of copra. Thus the production of copra per tree will be at least 16 kilos for the tall variety and 38 kilos for the dwarf palm. This is much more than estimated in table no, 5, based on the production and number of plants in the 1970s.

Even with these low estimates, the potential production of copra in Inhambane and Gaza is almost 300% higher than that presented by the factories which is shown in the following Table 2.18:

Table 2.18: Potential production of Copra							
Factory	Tonnes of copra	Oil production	Bagasse production				
	Processed	(tonnes)	(tonnes)				
Copromol	24 000	12 000	8 000				
Somoil	6 000	3 000	2 000				
Inhacongo	6 000	3 000	2 000				
Total	36 000	18 000	12 000				

The prices paid to the producers have been falling in recent years, from a maximum of US\$ 150 per tonne in 1996 to the current price of 1,900,000 meticais (US\$ 79), so that it is possible that part of the shortage of raw material experienced by the factory is due to an increase of auto-consumption, the sale of fresh coconuts (much more profitable than copra), and the production of sura (a drink made out of palm tree sap).

On the other hand, the plantations show no shortage of trees, nor the dominance of old trees. The decline in prices is due in part to the fall in international prices faced with the competition of African palm oil, and in part to the high financial costs of the companies.

Both Copromol and Somoil are planning to plant 5,000 hectares with dwarf palms, with an approximate total of a million plants. The formalities for granting land for these plantations are being finalised, and the availability of seeds is guaranteed. It is estimated that the pace of occupation of the land will be as follows Table 2.19:





Table 2.19: Pace of occupation of the land						
Year O	Preparation of land and nurseries					
Year 1	1,000 ha; 100,000 plants					
Year 2	3,000 ha; 300,000 plants					
Year 3	7,000 ha; 700,000 plants					
Year 4	10,000 ha; 1,000,000 plants					

The dwarf varieties are very precocious. They begin to bear fruit as from the second year, but commercial production only begins in the third year (10%). They reach 50% in the third year, and can reach 100% as from the fifth year. In accordance with this, the actual productions of the new plantations would be as indicated in Table 2.20:

Table 2.20: Rhythm of plant production								
Project		Age, nu	umber and	d product	tion of the	plants		
Year	Third	year	Fourth	year	Fifth and yea	d later rs	Total	
	No.	Tonnes	No	Tonnes	N° plants	Tonnes	Tonnes	
	plants	copra	plants	Copra		Copra	Copra	
1								
2								
3	100 000	250					250	
4	200 000	500	100 000	1 250			1 750	
5	400 000	1 000	200 000	2 500	100 000	2 500	6 000	
6	300 000	750	400 000	5 000	300 000	7 500	13 250	
7			300 000	3 750	700 000	17 500	21 250	
8					1 000 000	25 000	25 000	



5 LIVESTOCK SECTOR

In principle, the livestock sector is not considered within the projects to be selected for pre-viability assessment in accordance with the terms of reference set for the present study. However, both the review of secondary sources and the field visits, immediately showed the difficulty of leaving aside the livestock sector, at least from the general diagnosis of the current situation.

5.1 POTENTIAL FOR LIVESTOCK PRODUCTION

The livestock potential of Gaza province has been calculated by INIA (on the basis of an Australian model adapted by Reddy and Timberlake) at 590,000 UA. As Table 2.22 shows, in 2000 the livestock herd estimated on the basis of Census included 178,097 cattle, 383,214 goats and 30,620 sheep. Using the equivalence that 1 UA = 1.6 head of cattle = 5 goats = 5 sheep, the total population would be 194,077 UA. That is, it is estimated that only a third of the province's livestock potential is currently being used.

As can be seen from this Table 2.21, the data reported by the Provincial Livestock Service (SPP) are lower than the real number of animals registered in the census. this discrepancy results from the inefficiency of the data collection system.

SPECIES	Number	Percentage	Number	
	SPP*		(Census) **	
Cattle	153 152	53,7%	178 097	
Sheep	17 786	6.2%	30 620	
Goat	68 282	24%	383 214	
Pig	7 119	2.5%	109 039	
Chicken	23 536	8.2%	1 532 488	
Ducks	12 735	4.5%	30 620	
Donkey	2 198	0.7%	5 350	
Total	284 808*			

Table 2.21: Number of each species (Gaza), 2000

Source : * SPP- 2001; ** Census agro-pecuário (1999-2000)





ΔΔ

5.2 CURRENT PRODUCTION AND PRODUCTS

Currently, according to the SPP in Gaza cattle are the species with the largest weight, representing about 54% of the total animal population. Goats account for 19.7% and chickens for 14,6%, according to the data obtained in 2001 (SPP). The survey of 2001 reports that, compared with the previous year, there was an increase in the number of cattle of 13%, in goats of 38%, in sheep of 71.6%, and in pigs of 10.6% (Table 2.21).

5.3 EVOLUTION OF NUMBERS OF ANIMALS - CATTLE

The annual survey (2001) found a total of 153,152 heads of cattle, corresponding to an annual rate of growth in numbers of 13%, and a birth rate of 44.1%.

Despite the low levels of birth recorded, numbers are growing. This growth is, on the one hand, the result of restocking (which, to our understanding, is insignificant). Under the restocking programme, Gaza province, in the 1992-2000



this growth.

The greatest concentrations of cattle in Gaza province are to be found in Mabalane, Chokwe, Chibuto and Xai-Xai districts. It is said that Chokwe district has the highest concentration of cattle (SPP, 2001).

The ratio of cattle to land in Gaza is 2.02 head per square kilometre and the ratio of cattle to human inhabitants is 0.144 head

SEED



per person. It should be noted that in 1970 the density was 1.7 head per square kilometre throughout the country (Quental Mendes, 1974).

Main Report





5.4 **PROJECTION (FORECAST FOR THE NEXT 10 YEARS)**

According to the data presented in the appended table, in 10 years from how the number of animals will be the same or greater than the number listed in 1975. With an annual rate of extraction of 4.7%, and an average growth rate of 15%, average annual production of 3,250 tonnes of beef could be reached, with a peak of 7,414 tonnes in 2011.

46

5.5 SMALL RUMINANTS (SHEEP AND GOATS)

The results from the agricultural and livestock census show that Gaza provinces has 7.59% of the country's goats and 17.59% of its sheep. Based on the annual information from the province, the districts with the largest concentration of small ruminants are Mabalane, Chicualacuala, Guija and Chokwe. These districts contribute with 65.7% of the province's goats and 76.9% of its sheep.

The Graph 2.5 on how the numbers are evolving shows that between 1995 and 2001 there has been an increase of about 92% in the number of goats, and 117% in the number of sheep.



re are 0.9 goats per square kilometre and 0.2 sheep per square kilometre. There are 0.06 goats per person in the province.

5.6 PIGS

The number of pigs in Gaza is growing. According to the information from the census, 4.55% of the country's pigs are in this province. Table 2.22 shows the way number have grown from 1995 to 2001:

	Table 2.22: Evolution of numbers of pige						
		1995	2000	2001	Census (99-200)		
	Number	3.605	6.453	7.119	109.039		
SEED		N	Main Report		14	Ŋ	



Source: DINAP, 2000; SPP'S, 2001

The largest concentrations of pigs in 2001 were in the district of Manjakaze, Mabalane, Guija and Chokwe. It should be mentioned that almost all the pigs belong to the family sector.

5.7 LIVESTOCK PRODUCTION

Meat production, from the various species exploited in Gaza, amounted to 227.48 tonnes in 2001. One should note that beef accounted for 97.6% of this.



<u>Beef</u>

Beef production in Gaza in 2001 was 222.21 tonnes (about 1,300 head), which was an increase of 35% when compared to 2000. The family sector accounted for 79.5% and the private sector for 20.5%. Average carcass weight was 168 kilos, compared with 152 kilos recorded in 2000, and was about 1.45 kilos per existing head. It should be noted that, in 2000, 66% of the animals slaughtered in the Maputo municipal slaughterhouse came from Gaza (DINEP, 2000). The rate of extraction, in 2001, was 0.7% and 1.7% for the family and private sectors respectively. It is important to note that the average in the country was 13.1% in the 1967-1974 period, reaching a maximum of 15.2% in 1971. Over the same period (1967-1971), the business sector south of the Save showed an annual average rate of extraction of 17.1%







5.8 LIVESTOCK POLICY AND STRATEGY

Based on government guidelines, the Ministry of Agriculture, through its National Livestock Directorate, defines its strategy/policy as promoting livestock development so that this sector may contribute to increased food security and improved household diet, using rationally and sustainably the available resources.

To reach the objectives mentioned above, the following policy has been defined;

- Rehabilitate livestock infrastructures (including drinking point, dip tanks, handling corridors and corrals, quarantine units, analysis and diagnosis laboratories, breeding posts, etc.)
- Undertake restocking (priority for ruminants and the family sector as target group)
- Promote development of the institutions linked to livestock.

Support for the family sector, apart from promotion activities, involves:

- Assistance for milk producers
- Introducing programmes to expand use of animal traction
- Promotion of increased poultry production



Main Report



• Support for extension services.

In the private sector, the programme seeks to improve the skills of commercial breeders and undertake activities in order to continue restocking: to rehabilitate milk production capacity and increase production of pork.

Main constraints on the livestock sector

- Defective general management
- Defective veterinary care
- Insufficient breeding cows
- Prevalence of disease
- Defective health coverage to prevent and control diseases
- Insufficient livestock infrastructures
- Water shortages during 4-6 months of the year
- Absence of available credit
- Lack of a commercial culture
- Defective commercial network for family sector livestock products
- Lack of industries (meat, milk, animal feed)
- Limited extension for publicising technical norms on breeding ad handling animals/

Main opportunities for the livestock sector

- Existence of various livestock species. There is a good beef cattle unit.
- Existence of some livestock infrastructures (dip tanks, treatment corridors, drinking points)
- Quality grazing land, though scarce in the dry season
- Existence of livestock farmers with some knowledge of breeding (there is a tradition of breeding animals)
- Willingness of the breeders to develop animal production.

Strategy to be adopted

Despite the negative factors, there is the potential to develop livestock production in the Limpopo Valley. This potential is related to the existence of animals (several species), grazing land, agro-industrial infrastructures, and organisation of livestock breeders (albeit at an embryonic stage). Some changes in the breeding system could contribute to developing livestock production aimed at the market.





Gaza province is the second largest producer (24.66% of head) of cattle in the country, and occupies top position in the southern region. In possesses 54.2% of the number of cattle in the south. In the region, Inhambane province is in second position (31.7%), and in last place is Maputo province, with 14% of the number of cattle south of the Save. As for goats, top position goes to Inhambane (52.3%), followed by Gaza with 34.2%. As for sheep, Gaza has 63% of the numbers in the southern region.

The Limpopo Valley has as its main advantages the fact that it possesses good agro-climatic conditions for the production of ruminants, such as: good and large areas for grazing, relatively cheap labour, and a relatively favourable climate. This aspect may be observed from the fact that livestock numbers are growing. Despite this, the Valley does not stand out as a major meat and milk producer because the extensive breeding system practiced and the seasonal rainfall does not favour year-round pastures. Because of this, the animals lose weight in the dry season and gain weight in the rainy season.

It should be stressed that the existence/re-activation of agro-industries in the region also plays an important role in livestock production, because their by-products can be used to feed the animals, as well as contributing to improved quality of livestock produce through meat and milk processing.

Changes in the production system by some of the large and medium breeders may be advantageous, particularly in the dry season, by keeping the growth and fattening of the animals constant, and thus achieve greater productivity from the herd. this is because it will make possible a speedy return on the capital invested, with results in increased productivity by area, greater weight gain in short time, better health control etc.

Base don what has been described above, we suggest that the following projects be promoted:

- Beef cattle
- Building a slaughterhouse
- Production of fodder
- Promotion of livestock fairs
- Establishment of a tanning industry
- Milk cattle
- Small ruminants
- Pigs
- Use of wild animals as
- livestock





6 SECTOR AGRO-INDUSTRIAL

6.1 CONCEPTUAL APPROACH

The relaunching of agro-processing in the Limpopo Valley, which is the purpose of the present study, is necessarily linked to the effective exploitation of the Valley's agricultural potential. Indeed, relaunching agro-industry is, in itself, the incentive needed to relaunch agricultural activity since it represents, in addition to a way of absorbing agricultural production, also, at least from the macroeconomic perspective, the factor that adds value to this production.

However, during intensive consultations, interviews and discussions that we undertook during the present study, it was shown to be crucial that, in order to envisage or encourage private investors to take party in the agro-processing business in the valley, whether to reactivate existing plants, or to start up entirely new projects, it was certainly necessary to answer the question: When will there be stable and sustainable reactivation of competitive and quality agricultural production in Chokwe?

If this question is not answered quickly, in a consistent manner, with concrete and convincing projects and activities - particularly public ones - then it will be difficult to see other private investors joining the longstanding drama of the farmers who are already there. And the public investments must be viewed as

the indispensable catalyst for private investment, both by granting it the necessary security, and by acting in areas where recovery is difficult or slow. Thus aspects linked to

- physical infrastructures;
- agricultural support structures;
- agricultural research policy and strategies;
- rural extension;
- stimulating credit for agricultural activity;
- systems to absorb production;
- storage systems;
- mechanisms to certify origin and quality,

are an important part of institutional package that is indispensable for successful agriculture. These components are eminently public

investment - even if carried out by private suppliers. To them will be added the private investment initiatives, stimulated by the public investments and attitude towards agriculture.

One cannot envisage any flow of private investment into agroprocessing while there is no security as to an abundance of good quality raw materials at tolerable prices, for a long enough period to allow these investments to be profitable.

51

SEED

Main Report



The drama currently experienced in the Mozambican agricultural sector, and in the Limpopo Valley in particular, is in itself sufficiently demotivating, because, apart from all the risk factors linked to the business, there are also the risks of natural disasters - cyclical drought and floods - which make investment in this sector still more vulnerable. More seriously, they also keep the financial sector away from rural business. The possibility of agriculture, and then agro-industry, of attracting quality investments in the Limpopo Valley is thus linked to a clear and interested positioning of the state at the head of the relaunching process.

A special note, and one that illustrates the drama that agriculture in the valley is going through, should be made of the imminent closure of the only seed processing company in Chokwe, belonging to SEMOC/SEED Co., because of an alleged lack of viability resulting from a low level of sales. If this happens, the paralysis of this unit will certainly compromise the entire agricultural production system in the Valley, particularly rice production. When it came to rice seed, SEMOC was noteworthy both as a producer/promoter and as a processor/seller.

6.2 METHODOLOGY FOR THE APPROACH USED IN THE STUDY

The concept of *Anchor Project* has headed the methodology adopted for undertaking this study.

This concept is based on the conviction that a good *anchor project* contains the potential to carry with it a series of positive multiplier effects. And, in the conviction that a good agro-industrial project, rather than necessarily a good agricultural project, may contribute in a decisive and effective form to carry along not only the directly associated agricultural activity, but also the transport system, the distribution of inputs, the mechanisation services, savings and credit services, and storage systems, among others. That is, a series of anchor projects could set in motion the recovery of an entire integrated production, processing and marketing system in the Limpopo Valley, for one crop or a series of crops. Thus:

It has been assumed that each of the crops selected for this study obeys a specific geographical distribution along the Valley: Rice in Chokwe and Macia; vegetables in Chokwe and Xai-Xai; copra, cassava, tangerines and paw-paws in Inhambane. Thus each visit to each of these places had in mind analysing the problematic of the agro-processing of each local crop. Looking at this distribution, the crops were divided between those already processed, within the Valley perimeter or along it, and those not yet processed, but with potential for processing.

For the crops already processed, the study was guided towards deeper knowledge of the capacities, types of technology, and current state of the processing units, through making an inventory of them, and how operational they are, as well as the most probable causes for





the current state of affairs. The principle is that if this study and subsequent activities result in the relaunching of the agro-processing units at the highest levels of production attained in their history, then it will have been worthwhile. But the study has greater and wider ambitions.

The yields from the technologies used in the established agroprocessing units were analysed and compared with those of competing countries to determine their competitiveness and viability.

Once the **overall agro-processing capacities** for each crop with the Valley or its surroundings were determined, a comparative analysis was made of the potential capacity of agricultural production to supply raw material to the established processing units and excess production which could justify the appearance of other processing units.

For each crop, the agro-processing potential was assessed: based not exclusively on the local experience, but above all on the known international experience, for each crop possible levels of processing, their applications, yields and costs were studied, as well as the processing of by-products. The possibilities for the agro-processing of each crop were outlined. The reference point always borne in mind was the international market for the processed product. That is: when is the agro-processing of a particular drop regarded as competitive, faced with the most competitive markets known ? If it is not competitive, how can it be made competitive ? Determining this agro-processing potential by crop took as references two main objectives:

- i. To extract the maximum value added per crop, in a competitive manner;
- ii. To expand the market for the crop, and reward it better.

Scenarios were drawn up that would determine the pre-viability of private investment in agro-processing in the Limpopo Valley and thus projects were defined to be recommended for seeking out/encouraging investors.

6.3 TERRITORY COVERED BY THE STUDY







Gaza, Inhambane and Maputo provinces were covered - Maputo not because it is within the Limpopo Valley, but because Maputo City is the market par excellence of the products produced in the Valley, and because it has agroprocessing units, such as the Inacio de Sousa rice dehusking plant, which take as their raw materials agricultural products produced in the Valley.

Maputo city, apart from being the main market for Limpopo Valley agricultural produce, is also the corridor through which markets such as South Africa can be reached.

The places shown in Table 2.23 were visited, in line with what they represent in terms of agricultural production and the agro-processing industry in the Limpopo Valley

Table 2.23 Places visited for the agro- processing industry					
Gaza	 Xai-Xai; Chokwé city Conhane; Chilembene; Lionde; Macia. 				
Inhambane	 Maxixe city Inhambane city 				
Maputo province	3. Palmeira				

6.4 CROPS STUDIED

The criteria followed for selecting crops, the agro-processing of which was the object of the current study were as follows:

- Crops suggested by the study's TORs;
- Crops confirmed statistically as having productive potential that could make agro-processing profitable;
- Crops favoured by agro-climatic conditions for agricultural production within the Valley perimeter;
- Crops that can be processed in the processing units already established within or along the perimeter of the Valley.

Thus the following crops were dealt with in a context of agro-processing:







6.5 POTENTIAL OF THE AGRO-INDUSTRIAL PROCESSING SECTOR

As described above, the Limpopo Valley has a range of characteristics which, added to a series of large scale private and public initiatives, presents an environment that is favourable, and has great potential, for the development of the agricultural sector and for agro-industry. These characteristics and initiatives can be summarised as follows:

- The presence of anchor projects in other sectors of activity, at the start of implementation, or close to this stage: "Corridor Sands"; "Limpopo National Park"; "Massingir Dam".
- The Limpopo Valley is also crossed by two major infrastructure projects which, in the medium to long term, will bring important benefits for the development of the Valley: the high tension power line to Inhambane, and the Pande gas pipeline;





- Proximity to Maputo city and its infrastructures; port, airport, railways, the N4 road to South Africa, public and private services, and the centre of political and administrative power, which is still highly centralised in Mozambique;
- Easy access to the northern and central provinces of Mozambique, to South Africa, to Zimbabwe and to Swaziland;
- Availability in the province of: hydraulic infrastructures; vast areas with irrigation potential (current irrigated area - 50,427 hectares; medium term - 75,800 hectares; long term - 150,000 hectares); water in abundance in the urban areas and the areas with greatest agricultural potential; electricity in the main settlements; fixed and mobile telecommunications; road network in reasonable condition, and with the major stretches tarred; Limpopo Railway in Gaza province functioning.
- Good agro-climatic conditions, which makes it possible to grow more than 40 crops, with strong competitive advantages, duly adapted to the terrain (fruit trees along the coast from Bilene to Inhambane; rice in Chokwe, Xai-Xai and Massingir; vegetables in Chokwe etc.)
- Tradition of high levels of production of a variety of important crops such as vegetables (tomatoes, cabbage, water-melons, lettuce, pumpkins), food crops (groundnuts, sweet potatoes, jugo beans, nhemba beans, maize, cassava, millet), cash crops (rice), fruit trees (cashews, tangerines, mangoes, coconuts, oranges, mafurra oilseeds).
- Some of these crops already have good levels of competitiveness and great potential, notably: Rice, sweet potatoes, nhemba beans, tomatoes, pumpkins, tangerines, coconuts, mangoes, cashews;
- Current levels of livestock production and recent performance that indicate the excellent potential of this sector: Beef cattle (150,000/180,000 head); sheep and goats (over 300,000 head, though the figure oscillates greatly from source to source), and pigs (over 100,000 head);
- Existence of know-how on the part of local businessmen, workers (former workers of the flourishing industry which once existed in the Valley, and on good farms and projects funded by donors or NGOs) and staff in public bodies linked to agriculture (SIREMO; HICEP, INIA; Provincial Directorates).
- Existence of agro-industries that are already operating: the Copra Industry in Maxixe and Inhambane (5 factories producing oil, and one of them undertaking investments to produce laundry soap, toilet soap and grated coconut); meat derivatives industry in Chokwe (5 tonnes a day of boiled and smoked beef and pork products), with a slaughterhouse for 60 cows a day and 50 pigs a day; rice dehusking industry (Orli and Inacio de Sousa, with a capacity of around 4 tonnes an hour of paddy rice).
- Major installed agro-industrial capacity, and ready to function on private initiative, as soon as the raw material exists: <u>Cashew</u> in Xai-Xai





("MOCITA" - 40 tonnes a day), and in Macia ("Macia Castanha de Mocambique" - 4 tonnes a day); <u>Rice</u> in Chibuto (4 tonnes per hour of paddy rice); Seeds (SEMOC - capacity for 20,000 tonnes a year).

- There is a national market for most of the crops and livestock, which in itself can make viable the first agro-industrial units to appear producing for the market, which is currently supplied by South Africa and Swaziland;
- There is a strong potential for exports to South Africa, other neighbouring countries, and other international markets, (making use, in particular, of the commercial agreements with the USA and the EU), of the following raw materials (and of some products processed from them): Rice; coconuts; cashew; sunflower; tomatoes; dried beans; mangoes; pineapples; bananas; grapefruit; tangerines.

6.6 CONSTRAINTS ON THE AGRO-INDUSTRIAL PROCESSING SECTOR

The main constraints which explain the current reduced economic activity are, without any doubt, the following:

- ⇒ Lack of coordination of public policies with a direct or indirect influence on agricultural and agro-industrial activity:
 - Support for agriculture granted late, and allocated according to criteria that are difficult to understand (e.g.: farmers who do not return the money for one campaign, again have access to credit in subsequent campaigns, without returning what they already owe)
 - Water has also been made available late
 - Absence of tax and customs inspection
 - Strong parallel economy which discourages businessmen from going into debt and from restoring their production (this activity even takes on patterns of acceptance and encouragement by the state. There is even an association of the parallel businessmen which the state consults. At the frontier with Swaziland, there are always full of local people paid to cross the border and undertake small purchases for businessmen on the Mozambican side)
 - Poor investment by the state in "R & D", which is a determinant factor for the competitiveness of the agricultural sector;
- ⇒ Lack of tax incentives or reduced interest rates offered by the state in accordance with the performance of economic agents;
- ⇒ Lack of belief in public policies and in the central state actors implementing them. The economic agents do not believe in the





capacity of the state to intervene in managing public policies and making them operational;

- Poor supply of agricultural machinery services: these are scarce and expensive;
- Agricultural inputs not available locally, and on time, and sold by economic agents at grossly inflated prices, which they seem to have fixed among themselves;
- Poor supply of technical services: extensionists, agricultural technicians, consultancy in management and marketing;
- Difficult access to credit (the financial sector refuses to finance agriculture, because of the activity's risk, and because of the impossibility of farmers providing acceptable guarantees), and interest rates that are completely intolerable for any economic activity (about 40%);
- Non-existence or shortage of raw materials;
- ⇒ Poor quality of cashew nuts;
- The difficulties faced by many of the existing industrial units and farmers in the business sector of restoring their productive capacity with new financing,
 - while they are still burdened with debts contracted before the floods of 2000;
- The available labour is poorly qualified, poorly motivated and has lost the feeling that they are "industrial professionals".



6.7 IMPLICATIONS FOR THE SELECTED PROJECTS

Since it is fundamental in the context of agro-processing, for each crop we shall present scenarios for the agricultural potential in the Valley, and we shall follow this by presenting the capacities - installed and current - for processing this crop in the vicinity of the valley. We shall then present the limits of agro-processing imposed by agro-climatic factors. A profound analysis of the critical viability factors will lead to a recommendation on the projects to be adopted for subsequent treatment, seeking to stimulate the flow of investment - domestic



Main Report


and foreign - both for rehabilitation/modernisation, and for entirely new undertakings, with the purpose of exploiting to the full this potential, looking to the domestic market, to the regional market, and even to the international market.

RICE: AGRICULTURAL POTENTIAL VS. AGRO-PROCESSING POTENTIAL: THE VIABILITY OF THE RICE PROCESSING INDUSTRIES

There are four pockets of rice production in the Valley: Chokwe (16,000 ha); Macia (7,000 ha); Xai-Xai (3,000 ha) and Manjacaze (3,000 ha). From the data in this table, one can estimate at 116,000 tonnes/year the potential of rice

production in the Valley, for an available area of about 30,000 hectares, and an of 4 average yield tonnes/ha. According to the data on irrigation potential, it is possible to mobilise at least another 30,000 irrigated hectares in the Massingir lowlands, benefiting from the rehabilitation of the Massingir dam. Thus the potential rice production in the

SEED



Valley could double in a period of 2-3 years.

However, of this enormous potential for rice production, the data for production from the 2000/2001 campaign, even taking into account all the effort made to rehabilitate the irrigation scheme, points to less that 5,500 tonnes, grown on about 2,500 hectares (average yield is 2.3 tonnes per hectare, although there are references to cases where production reached 5-6 tonnes/hectare in the 2001/02 campaign).

From the data on the above table - extracted from the visits, interviews and consultations undertaken - one concludes that the total installed rice dehusking capacity in the perimeter of the Limpopo Valley is about 45,000 tonnes/year. or about 30% of the potential capacity for agricultural production, without including Massingir. However, the dehusking capacity currently used is much less, mainly because:

- **SORGAZA** is completely paralysed. It was fully rehabilitated in 1998, but was submerged during the floods of 2000;
- **The Conhane factory** is completely paralysed. It needs investment for the total rehabilitation of the dehusking line and of the silos;

Main Report



<mark>59</mark>

The Chibuto factory has been paralysed since about 1991, and the current state of its equipment is unknown. It was rehabilitated in the late 1980s, but it can be imagined that it is weak in terms of modern technology. From comparing these two graphs, one may draw the following conclusions:

At current levels of use of the Limpopo Valley's agricultural potential, the rice dehusking units located on the perimeter of the valley - which, as mentioned above, would not absorb even 30% of the potential rice production - currently do not have enough raw material to work at more than 105 of installed capacity.

Technological modernisation should be definitively considered in order, not only to guarantee minimum losses during dehusking, but also to ensure the processing of by-products, extracting the maximum possible value added from the rice.

Box: In the Limpopo Valley, within the - unavoidable and urgent - context of relaunching rice production in a sustainable and competitive manner, there is relevant room for investments in the industries to process rice and its by-products, as long as this processing is undertaken in effective and competitive ways, so as to guarantee the competitiveness of the rice chain.

THE MAIN FOUNDATIONS FOR MAKING A RICE PROCESSING INDUSTRY VIABLE:

OPTIMUM LOCATION: As far as we are concerned, it is not the centres of consumption, but the centres of production of raw material, which are also centres for consumption of by-products, which provide the best location for a rice processing unit;

NECESSARY INFRASTRUCTURES: Without doubt, electrical power is a heavy factor in the profitability of a rice processing industry. Access roads to supply the raw material, and distribute the final product are of great importance in making a rice processing industry viable.

PRODUCTS EXTRACTED FROM RICE PROCESSING: Solid viability studies should precede the decision on investments to be made. The diversity of products to be extracted should be subject to careful assessment in order to guarantee the returns expected by the investors. However, apart from the classical products extracted from rice, there is a greater diversity of other products, some with much greater commercial value.





ITEM	PRODUCT OBTAINED	RAW MATERIAL	%/1Kg HUSKED RICE	APPLICATION	MARKET
1	Whole rice	Husked rice	52%	Human food	SADC
2	Broken rice	Husked rice	15%	Human food/animal food	Mozambican
3	Rice bran	Rice grain	2%	Animal food	Mozambican
4	Oils rice	Rice grain	6%	Human food	International
5	Plaster-broad	Rice straw		Construction and furniture	International
6	Boards	Rice husks	20%	Construction and furniture	International

OPTIMAL SIZE AND TECHNOLOGY: There are several high-yielding technological options in the world. The principle for selecting the technology has to do with the final product one wishes to obtain, that is:

- Two stages of whitening: less refinement of the final quality;
- Three stages of whitening: more refinement of the final quality.

In terms of processing capacity (by which we here mean whitening the rice), there is a vast range, which could province:

- 250 kg/H to 1,000 kg/H, for small diesel-operated units machines for a single passage - at prices which may vary from US\$ 8,000 to US\$ 20,000, depending on how robust the motor and the equipment are;
- 100 to 300 tonnes/day, for major processing industries, at costs which may vary from US\$ 60,000 to over US\$ 1.5 million, depending greatly on the origin of the equipment.

Technically, the greater the processing capacity, the higher the yields tend to be, but also the greater the demand for raw material and for management capacity.





PART III. STRATEGY

PROMOTION OF AGRO-INDUSTRIAL PROCESSING





7 PUBLIC INVESTMENT TO IMPROVE THE CONDITIONS FOR PRIVATE INVESTMENT

The following measures are part of a long term strategy, managed along business lines, less subject to market oscillations, more flexible, and of great national added value, unlike the strategies that rest on short term competitive advantages and on price factors.

- <u>Create a "harvest insurance"</u> in partnership with the relevant entities, place it on the market, but pay part of the re-insurance, or set up a Guarantee Fund, to reduce the cost to the producer;
- Creation of a "Limpopo Valley" Certificate of Origin;
- Set up a <u>Rural Development Company</u> with the following characteristics and objectives:

<u>Characteristics</u> (commercial company; shares held by the state; associations or companies that manage the irrigation systems; associations of peasant farmers; associations of commercial farmers; associations of agro-industrial businesses; Limpopo Valley Corridor; financial institutions; body that represents research; no single shareholder should have a majority of the capital; private management).

<u>Objectives</u> 1. - Create and manage "Limpopo Valley" brands; 2 - Set up and manage a modern laboratory; 3 - Create a "Limpopo Valley" Certificate of Origin", necessary regulations, handle and inspect permanent compliance; 4 - create certification of organic or ecological produce - Set up a GAE, Business Support Office, in take-off and operation, which deals with and provides information on all the bureaucratic aspects, which centralises collection of and research into all manner of information on technologies, markets, prices etc.; 9 - Set up and manage a Professional Training Centre for agriculture and agroindustry; 7 - Provide extension services to peasant farmers and small scale businessmen.

Revenue: Annual registration as the "Limpopo Valley" company; services provided to economic agents; part of the VAT, Corporation Tax and other taxes collected from commercial companies and service providers registered as processing or marketing "Limpopo Valley" products, which would be handed over directly by the taxpayers to this company, based on a specific appendix to tax declarations (e.g.: that they have move than 50% of their business volume with these products).

• <u>To set up an Investment Company</u> with the following objectives and characteristics:

<u>Characteristics</u>: shares held by the previous company (with management control), financial institutions, promotion funds, donors, and quoted on the stock exchange so as to attract all types of national and foreign investors; private management.





<u>Objectives</u>: to finance agriculture and agro-industry at reduced interest rates (in accordance with the strategic priorities; quality of products; excellence in management; type of investments - research, modernisation, improvements in quality, environmental, productive); to carry out viability and credit analysis studies; to place loans at premium.

Revenue: Services and interest

- Set up a "Task Force" to increase the efficiency of customs control
- <u>Set up a "Task Force" to increase the efficiency of inspecting economic</u> <u>activities</u> (to verify registration for tax purposes, permits, licences etc.)
- <u>Concentrate powers in a single member of the Government</u> to clear away bureaucratic obstacles from access and dispatch in the other ministries and public institutes.
- <u>Establish Tax Benefits</u>: Reduce VAT and Corporation Tax rates, and provide exemptions from customs duties for previously listed capital goods or productive factors, in the first 3 years of activity of companies that process or market "Limpopo Valley" products or provide services (hire of machinery; maintenance; suppliers of agricultural chemicals; transporters of merchandise; consultants; auditors; accountants; hotels/restaurants). Set criteria on the basis of strategic priorities, quality of products/services, excellence in management, effective investment.
- The state may, in partnership with the private sector, use the establishment of food reserves, as a way of reducing the financial costs of agro-industry and agriculture (the state acquires and/or receives foreign aid for food security, which will be stored and conserved by the private sector, without costs for the state. The private sector uses these stocks, under rigidly established rules monitored by the state, as a way of not having to invest right at the start in acquiring raw materials and occupying its productive capacity to the full without having to wait for the relaunching of agriculture).
- Investment in "R & D" and in extension services for the peasant sector: Strengthen the budget and human resources of INIA and other bodies linked to R & D, giving them the conditions to play the determinant role in the sustainable development of the Limpopo Valley.
- Strengthen investments in recovering agricultural hydraulic infrastructures
- Education Investment Plan: the existence of professional schools and polytechnic education is essential, but also increase the level of literacy among farmers and the public at large. This is the determinant factor for sustainable economic development.
- Health Investment Plan





• Investment plan for improvements in infrastructures, mainly outside the cities.

8 ANCHOR PROJECTS IDENTIFIED AND DEVELOPED

8.1 ANCHOR PROJECTS IDENTIFIED

Table 3.1 Anchor projects identified				
Sector	Description			
Rice Industry	Recovery of the "Conhane Factory" <u>1st Phase</u> : Promotion; Extension; Processing and storing the rice <u>2nd phase</u> : Production of plasterboards from rice straw; Use of the silos for the country's food reserve.			
Industry of fruit and vegetable juices, concentrates, jams, canned and frozen goods	 <u>1st Phase</u> Agricultural production in partnership with farmers Production of tomato paste Production of concentrates, juices, canned goods, fruit ar vegetable jams <u>2nd Phase</u> Frozen potatoes and mixed vegetables Pre-cooked meals, and canned vegetables and meat 			
Coconut products factory	Integrated production and manufacturing; promotion/partnership, extension, processing of coconuts and derivatives			
Packaging and marketing vegetables, fruit and meat	Extension and promotion Acquisition, selection, washing, calibrating, preparation, packaging, labelling, storage, refrigeration Market with Commercial Agents who buy from the farmer, accompany the respective processing and sell wholesale.			
Cashew processing factory	Two integrated units (production and processing, with mutual shareholdings); Promotion, extension, processing the nuts, production of spirit and wine from the false cashew fruit.			
Animal feed industry	Acquisition of raw material: rice bran with the oil removed; coconut bagasse; maize Processing, Packaging, storage			
Edible oil industry	Acquisition of raw material: Rice bran, soya, dried mafurra seed, maize, Processing by solvent, packaging and storage.			
Seeds Industry	Promotion, extension and processing or rice seeds and others.			
Agricultural Services	Wholesale purchase and marketing of chemical and agro-chemicals, mixing and packaging, services to hire agricultural tools, extension services			
Sector	Description (Opportunities with great potential to be studied more deeply)			
Cattle fattening unit Promotion, extension and intensive fattening, purifying				
Meat Industry	Slaughterhouse, packaged and classified fresh meat, various cattle and pork derivatives			
industry	Factory for milk and dairy products			
Tanning and	Extension and tanning of hides			





button industry	Making butto	ons from hooves				
Pig breeding unit	Intensive cycle"	production	of	pigs	in	"closed

8.2 ANCHOR PROJECTS DEVELOPED

Table 3.2: Anchor projects developed				
DESCRIPTION	TIPOLOGY	PONTO SITUAÇÃO		
Rice Processing factory	Recovery	Ready Pre-feasibility Investors identified		
Vegetable and fruit processing industry (concentrates, juices, frozen goods)	Recovery	Ready pre-feasibility Investors identified		
Coconut processing industry	Creation	Ready pre-feasibility Investors identified		
Vegetable and fruit processing	Creation	Project file Investors identified		
Centre Company to provide services in mechanisation, extension and marketing of productive factors	Creation	Project file		

8.3 MAIN RESULTS OF THE 3 PRE-VIABILITY STUDIES⁵

The three pre-viability studies selected among the identified anchor projects are the following;

- 1) "Rice processing factory: Recovery, modernisation and product diversification of the Conhane factory"
- "Factory for processing tomato paste, canned vegetables, and fruit juice concentrates: Recovery, modernisation and product diversification of the Chilembene factory"





⁵ The basic elements of pre-viability presented here should be deepened through subsequent market studies, and technical and economic viability studies.

3) "Integrated processing factory of coconut derivatives -Construction of a new factory in Inhambane/Maxixe".

9 PRE-VIABILITY ASSESSMENTS FOR THREE PROJECTS

9.1 PROJECT 1: RECOVERY OF THE CONHANE RICE PROCESSING FACTORY

The main reasons for choosing the Conhane rice project as one of the anchor projects for CL agro-industry are the following:

- Optimal location, since this is a zone of intensive rice production, it is easily accessible, and possesses infrastructures such as good roads, and water and electricity supplies;
- Availability of a shareholding structure that brings together a range of stakeholders in the rice chain: Members of the producers' association (AGRIGAZA), Producers and Traders;
- It can play an important role in encouraging rice production, serving as a bridge between the funding agencies and the producers, and absorbing their production;
- With its previously installed capacity of 12,000 tonnes/year, the Conhane factory was already the largest unit of the kind in Chokwe district; once rehabilitated and modernised, it could play a crucial role in processing the rice produced in the region;
- There are already advanced studies for its rehabilitation, including a complete rehabilitation/modernisation project (to 13,550 tonnes/year), including a study on the use of by-products;
- It is one of the productive units that most needs support in terms of access to funding, because of its long paralysis, worsened by the floods of 2000;
- It possesses a complex of silos with a capacity of 10,000 tonnes. These are the only ones in the area, and there is the possibility of storing food reserves there.

SHORT PRESENTATION (for a more detailed presentation see Appendix 2)





Table 3.3. PROJECT 1: Recovery of the Conhane rice processing factory				
Products/ By-products	Strong points	Other important Data		
<u>1st Phase</u> Top grade Indian rice Top grade Aromatic rice Broken rice Rice bran	 Valuing traditional aromatic varieties Introduction of new aromatic varieties highly valued on the international market (similar to "Basmati") High yields per hectare achieved with the strategy proposed Installation of modern Thai technology with a high industrial yield 	Investors interested with studies already done to recover the Conhane Factory, and in a 2nd phase recovery of the Silos for the food reserve, and introduction		
2nd Phase Plasterboards of rice straw for the construction sector	 The agricultural strategy is viable since it is centred on <u>2 areas:</u> Commercial sector: with the capacity to obtain in the short term average yields of 4-6 tonnes per hectare; essentially Indian varieties (more than 4 tonnes/hectare each), reliance on mechanisation and adequate use of agrochemicals; 	making rice straw plasterboards.		
Possible use of by-products: Oil removed from the rice bran	- Family sector and other businesses : producing essentially aromatic varieties (with extension; with promotion, with branding; with less need to obtain price competitiveness, since this is a niche market, and less sensitive to the price factor)			
Livestock feed Boards and blocks made from rice husks	Competitiveness in relation to imported rice and other <u>Mozambican rice, achieved with a reasonable safety margin</u> (although starting from the principle that in terms of agricultural production, the businessmen will have agricultural equipment and agro-chemicals available at more competitive prices, apart from the indispensable extension and promotion, the assumption for the pre-viability study was that it would take five years to obtain yields of 5.3 tonnes per hectare in the commercial sector, and 2.6 tonnes per hectare in the family sector and small businesses).			
	Other potential in order to diversify and value national raw material:			
	Rice oil is highly prized on the marketRice straw plasterboards are highly ecological products			





<mark>68</mark>

COSTS AND BENEFITS

TABLE 3.4. COST AND BENEFITS FOR CONHANE RICE PROCESSING FACTORY			
COSTS	BENEFITS		
• The raw material is acquired from the producer at prices resulting from implementing measures laid down in the "Draft Report" of the Agricultural Sector Diagnosis and Strategy. The assumptions used are perfectly feasible, and in the simulation presented, full achievement of the productivity of the family sector and the small businesses forecast there (4.5 tonnes/hectare) was not taken into consideration, but only 2.6 tonnes/hectare, and only in	• Although the long term strategy should follow a line of differentiating the final product (brand, quality and aromatic variety), with much better margins, it was only considered that the aromatic varieties would start with a weight of 2.5% of the company's sales, and would reach 7.6% in year 5;		
 Since new equipment with current technology will be acquired, obtaining industrial yields at the level of the best world producers (67%) was considered. It was also projected that the factory will start with an 80% efficiency in year one advancing to 90% in year 2 and 95% in the 	• Although all the factors necessary to obtain a quality product were considered in the investment and the costs, sales prices were considered that are competitive with lesser quality imported rice (25% broken)		
 The provision of services, third party suppliers, staff costs, depreciation of equipment have been exhaustively quantified at market prices (including multi-risk insurance, work accidents, stock, 2% maintenance and conservation on the initial value of the investment, advertising and others), as can be noted in the respective tables 	 The capacity of the market to absorb the production of this unit (quantity) is not a problem, if we take the following indicators into account: Mozambique imports more than 180,000 tonnes a year of dehusked rice; South Africa imports more than 530,000 tonnes (year (meetly whitehed)). 		
• The staff costs envisage wages of 150 USD a month for workers and administrative staff, which shows a concern to value this profession, and to obtain motivation, productivity and efficiency - that is it does not try to obtain competitiveness at the cost of factors that are not sustainable in the medium to long term. Also envisaged are contracting 1 General Manager, 1 Financial Manager, 1 Commercial Manager, and 1 Production Manager, with monthly wages of 1,200 to 1,500 USD, and 2 extensionists (1 senior paid 800 USD/month, and 1 junior at 450 USD/month).	 The neighbouring countries import more than 650,000 tonnes/year; The current productive capacity of Mozambique is no higher than 100,000 tonnes/year. The by-products of broken rice and bran are quantified at Mozambican market prices, with a descending evolution deriving from the ever greater competitiveness of agricultural production. Broken rice is a particularly prized by-product on the product product on the product on the product on the product on the product product on the product product on the product product on the product product product on the product product		
• Under the heading of financial costs of operations are envisaged costs derived from the integral promotion of the rice production necessary for the factory (at a rate of 15% on the value of the purchases).	national market. Bran is a by-product that may be increasingly valued with the development of the livestock sector.		





Table 3.5 Rice sale price, October 2002				
	SALES PRICE 1 st grade "Limpopo Valley" Rice			
VARIETY				
	Scenario 1 - Cautious	<u>Scenario 2 – Realistic</u>		
<u>Indian</u>	FOB VIETNAM 25% 25-10-2002 168 USD(1) Year 1: 212 USD/Tonne(3) Year 2/3/4/5: 239 USD/Ton(3)	FOB VIETNAM 25% 25-10-2002 168 USD (1) Year 1: 239 USD/Tonne (4) Year 2: 2/3/4/5: 252 USD/Tonne (3)		
<u>Fragrant/</u> Aromatic	<u>"FOB BASMATI INDIA"</u> <u>25-10-2002</u> <u>680 USD(2)</u> Year 1: 708 USD/Tonne Year 2: 626 USD/Tonne Year 3/4/5: 529 USD/Tonne	POB BASMATIC INDIA (4) 25-10-2002 680 USD (2) Year 1: 708 USD/Tonne Year 2: 626 USD/Tonne Year 3/4/5: 529 USD/Tonne		
Notes: 1. Added cost to the FOB price until reaching the importing wholesaler: 97.5 in the Indian variety 2. Added cost to the FOB price until reaching the importing wholesaler: 149.6 in the aromatic variety 3. In year 1, the product enters the market at 20% below the cost of imported rice, in Year 2 and the following years it is always placed at 10% below. 4. In year 1, the product enters the market at 10% below the cost of imported rice, in Year 2 and the following years it is always placed at 5% below. 5. It has been assumed that international prices will remain stable over the five years of the study (they fall in real terms).				

Table 3.6: Paddy rice – Estimated price paid to the farmer					
VADIETY	PRICE PAID TO THE FARMER (1)				
VARIELT	Scenario 1	Scenario 2			
Indian	ESTIMATED HARVEST PRICE Year 1: 72 USD/Tonne Year 2: 69 USD/Tonne Year 3/4/5: 63 USD/Tonne	<u>ESTIMATED HARVEST PRICE</u> Year 1: 72 USD/Tonne Year 2: 69 USD/Tonne Year 3/4/5: 63 USD/Tonne			
Fragrant/AromaticESTIMATED HARVEST PRICE Year 1: 201 USD/Tonne Year 2: 183 USD/Tonne Year 3/4/5: 152 USD/TonneESTIMATED HARVEST PRICE Year 1: 201 USD/Tonne Year 2: 193 USD/Tonne Year 3/4/5: 152 USD/Tonne		ESTIMATED HARVEST PRICE Year 1: 201 USD/Tonne Year 2: 193 USD/Tonne Year 3/4/5: 152 USD/Tonne			
Note: These prices allow the farmer to obtain the income adequate for sustaining his business (paying market interest rates), after implementation of the measures proposed in the agricultural sector Draft Report, the effects of which in reducing the costs of production will make it possible to increase the profitability, competitiveness and sustainability of the entire harvest.					





SUMMARY OF PRE-VIABILITY INDICATORS

Table 3.7: Summary of pre-viability indicators for Project 1 - Conhane rice processing factory				
	SCENARIO 1 – Cautious			
1	Investment needed	1 322 102\$00 USD		
	Break-even year	Year 3		
Ī	"Break-Even"	2 001 321\$00 USD		
C A	Sales in Break-even year	1 718 140\$00 USD		
Ť	Time to recover investment	59 months		
O	IRR	14,84 %		
S	NPV	53 045\$00 USD		
	SCENARIO 2 – Realistic			
l	Investment needed	1 333 125\$00 USD		
D	Break-even year	Year 3		
I	"Break-Even"	1 646752 983\$00 USD		
C A	Sales in Break-even year	1 797 277\$00 USD		
Ť	Time to recover investment	54 months		
O	IRR	22,97 %		
S	NPV	267 775\$00 USD		

CONCLUSIONS ON PROJECT 1

From analysing the economic and financial indicators of profitability, one notes that the "project for the recovery, modernisation and project diversification of the Conhane rice dehusking factory" is technically, economically and financially viable (in terms of pre-viability).

The precautions taken in the assumptions used, and sensibility analysis made of the project's critical parameters, give it a very reasonable safety margin, and significantly reduce the project risk. For purposes of pre-viability, the net benefits arising from processing of the products in the 2nd phase, which will bring much greater value added to the project, were not taken into account.

These conclusions will be real to the extent that the constraints identified in general terms on the agricultural sector and on agro-industry are overcome. In the Draft Report on the "Diagnosis and Strategy Advocated", suggestions are made for solving a significant part of these constraints in terms of private initiative.





In the investment and costs forecast, measures and the respective resources for ensuring the supply of raw material, which has been one of the main constraints on the factories already established, are safeguarded.

PROJECT 2: CHILEMBENE PROCESSING FACTORY -TOMATOES, TINNED VEGETABLES AND FRUIT JUICE CONCENTRATES

SHORT PRESENTATION (for a more detailed presentation see Appendix 3)

Table 3.8: Project 2 - Chilembene processing factory (short presentation)					
Products/by-products	Strong points	Other Important Data			
 Tomato paste, peeled tomatoes, tomato juice Potatoes and mixed vegetables (frozen) Tinned pre-cooked vegetables (dried or green beans; peas, maize) Juices, concentrates and jams (pineapple, paw-paw, mango, grapefruit, guava, passion fruit, orange) Pre-cooked meals (bean stew, tripe, peas with eggs and 	 Absorbs surplus Adds value to lesser quality products Encourages farmers because it guarantees a market for their agricultural produce Activity is not totally dependent on the tomato harvest, because it relies on diversification It relies on its own "Limpopo Valley" brand Food reserve 	Total recovery of the existing unit (e.g. "Lomaco Factory") Young work force with know-how is still available at the site (chiefs)			

The following, among others, are the reasons that justify the choice of this project as one of the anchor projects for agro-industry in the context of the Limpopo Valley study:

- There is real availability of raw materials in the area of the factory;
- There is potential for diversifying production into: tomato, mango, paw-paw, orange, passion fruit and particularly pineapple juices/concentrates; tinned peas, beans, canned fruit in syrup, etc. This diversification is subject to deeper technical, economic and market studies, not considered in this study;
- The factory may act as a factor stimulating the production of tomatoes and other crops to be processed. It would immediately reduce the vulnerability of the tomato produced in Chokwe to the market for fresh tomatoes, and would guarantee its purchase at competitive prices. The factory can also use the

SEED



tomatoes rejected by the market for fresh tomatoes as raw material for its production;

- Judging from the visit made to the site, the factory infrastructure seems intact;
- A well-designed investment strategy, linked to a solid market study, would have to ensure the technological appropriateness of the factory product, placing it on the national and international market. This may involve strong marketing of its own brand name - "Limpopo Valley", for example - or the adoption of a stronger brand name on the market, in a partnership regime to be defined.
- The relaunching of the factory could re-create about 80 jobs, the maximum number reached in the past.

The general lines of this project are;

- Regardless of the brand name option adopted own brand, or other it seems to us reasonable to include in the project a laboratory for certification of quality and origin. The question of the tutelage, ownership and management of this type of laboratory is a matter to be gone into more deeply, but it would not be restricted to the control and certification of tomatoes, but would extend to other crops and produce processed/produced in the valley.
- Based on the pre-assessment of the viability of the Chilembene factory, guaranteed with the tomato paste, a product already tested and available, advance with attracting potential investors who may be prepared to consider the subsequent stages.
- Based on a market study (funding envisaged in the calculations presented here) on the products of greatest yield that will be processed, either from tomatoes or from other crops, define the optimal products to be processed and those to be extracted and the ideal size of the additional production lines.
- Design of an agricultural component which, using the factory's 600 hectares and other irrigated areas, ensures the interested involvement of the local producers in producing raw material and supplying the factory. This is important to free the factory managers from agricultural management, without putting at risk the flow and the quality of the raw material. The acquisition of the machinery needed to serve all 600 hectares (whether those that are currently the property of the factory, or others), the hiring of 3 extensionists and the financial costs of promotion, are envisaged in the simulations presented.
- Design of the mechanisms for a partnership (shareholding or simply commercial) and for financing the rehabilitation/modernisation of the factory and marketing its produce.
- The project can be rapidly implemented, it has a guaranteed market (Mozambique currently imports more tomato paste than is necessary to be





sold to make the factory viable), it will have a great impact on the economy of the region and of the country (the country needs to create more value added from its own natural riches), and it will generate jobs directly and indirectly (making people stay in the area and improving their standard of living).

COSTS AND BENEFITS

TABLE 3.9 COSTS AND BENEFITS FOR CHILEMBENE TOMATO PROCESSING FACTORY			
COSTS	BENEFITS		
• Since new equipment with current technology will be acquired, obtaining industrial yields at the level of the best world producers (20% paste for each kilo of fresh tomato) was considered. It was also projected that the factory will start with a 90% efficiency in year one, advancing to 95% in year 2, and 100% in the following years, since there are skilled workers who are still in the area who are able to produce efficiently.	• Although the long term strategy should follow a line of differentiating the final product (processing other vegetables and fruits, brand, quality), with much better margins, only the tomato paste product was taken into account, since it is believed that this the product that must guarantee the viability of the factory, since there already exists abundant raw material.		
• The costs of staff (see appended production file), fuel, maintenance and conservation, insurance, depreciation etc include the extensionists necessary for the production on the factory's own land, or other land, of the tomatoes needed	• There is no problem with the capacity of the market to absorb the tomato paste produced by this unit (quantity), if we take the following indicators into account:		
• The provision of services, third party suppliers,	- Mozambique imports more than 10,750 tonnes/year of tomato paste;		
staff costs, depreciation of equipment have been exhaustively quantified at market prices (including multi-risk insurance, work accidents, stock, 2%	 South Africa imports more than 1,560 tonnes/year of tomato paste; 		
maintenance and conservation on the initial value of the investment, advertising and others), as can be noted in the respective tables.	 Angola imports more than 5,900 tonnes/year of tomato paste, with a trend for this figure to increase; 		
• The staff costs envisage wages of 150 USD a month for workers and administrative staff, which	- The SADC countries import more than 11,000 tonnes/year of tomato paste;		
shows a concern to value this profession, and to obtain motivation, productivity and efficiency - that is, it does not try to obtain competitiveness at the cost of factors that are not sustainable in the medium to long term. Also envisaged are contracting 1 General Manager, 1 Financial Manager, 1 Commercial Manager, and 1 Production Manager, with monthly wages of 1,200 to 1,500 USD, and 5 extensionists (1 senior paid 1.200 USD/month, and 4 juniors at 800	- Currently over 30,000 tonnes/year of fresh tomatoes is produced in Gaza, but with average productivity levels of less than 15 tonnes/hectare (the medium and large business sector achieves yields of between 25 and 35 tonnes/hectare, and the most efficient producers in South Africa manage to obtain 60 tonnes/hectare);		
 USD/month). Under the heading of financial costs of operations are envisaged costs derived from the integral promotion of the production of fresh tomatoes needed for the factory (at a rate of 15% on the value of the purchases). 	- The trend towards improved standards of living leads to an increase in per capita consumption of tomato paste (in Mozambique this is currently estimated at around 0.6 kilos/year per capita; in the USA the figure is 3.3 kilos/year per capita);		
	- And the processing capacity in the country is currently "zero".		



Main Report



Table 3.10 Tomato sale price, August 2002					
Droduct	SALES	SALES PRICE			
Product	Scenario 1 – Cautious	Scenario 2 - Realistic			
<u>Canned tomato paste</u> and 5 kilo tins, 210 drums)	<u>(1)</u> <u>(3)</u> Year 1: 810 USD/Tonne <u>(ilo)</u> Year 2 to 5: 818 to 843 USD/Tonne, depending on inflation	(1) Year 1: 840 USD/Tonne Year 2 to 5: 848 to 874 USD/Tonne depending on inflation.			
Fresh Tomato	<u>(2)</u> Year 1: 50 USD/Tonne Year 2 to 5: 51 to 52 USD/Tonne depending on inflation.	(2) Year 1: 45 USD/Tonne Year 2 to 5: 45 to 47 USD/Tonne depending on inflation.			
Notes:	· · · · ·				
 Prices obtained by refe USA and Italy (prices 0 (www.tomatopaste.cc a Prices obtained by refe the sale of fresh tomat savings in terms of the the rotten tomatoes and 	Prices obtained by reference to the prices in the study "Competir", which are in turn based on the publication "Tomato News", prices of the USA and Italy (prices CIF Maputo oscillate between 832 and 900 USD/tonne). The prices from China (a major world producer) and Turkey (www.tomatopaste.cc and www.algy.com/) were also obtained. Prices obtained by reference to the prices in the study "Competir" and the average prices in the two seasons at the "Malanga" market for the sale of fresh tomatoes. In the sales price to the industry, one should take into account savings in the cost of transport and boxing, the savings in terms of the farmer's time, who can thus devote himself to production, price stability, and the purchase of all the produce (only the rotten tomatoes are not accepted).				
 It was considered that inflation. 	It was considered that international prices will remain stable over the five years of the study, evolving only in accordance with dollar inflation.				

SUMMARY OF PRE-VIABILITY INDICATORS

Table 3.11. Summary of pre-viability indicators for Project 2: Chilembene processing factory			
	SCENARIO 1 – Cautious		
I	Investment needed	3,119, 043 USD	
D	Break-even year	Year 3	
L C	"Break-Even"	1,323, 422 USD	
A	Sales in Break-even year	1,784, 767 USD	
T O	Time to recover investment	58 months	
R	IRR	15,82 %	
S	NPV	156,662 USD	
	<u>SCENARIO 2 – Realistic</u>		
I	Investment needed	3,110,442 USD	
D	Break-even year	Year 3	
I C	"Break-Even"	1,221,052 USD	
A	Sales in Break-even year	1,850,869 USD	
T O	Time to recover investment	55 months	
R	IRR	21,01 %	
S	NPV	437,035 USD	



SEED



CONCLUSIONS ON PROJECT 2

From analysing the economic and financial indicators of profitability, one notes that the "project for the recovery modernisation and diversification of the activity of the - (name) tomato processing factory at Chilembene" is technically, economically and financially viable (in terms of pre-viability).

The precautions taken in the assumptions used, and sensibility analysis made of the project's critical parameters, give it a very reasonable safety margin, and significantly reduce the project risk.

For purposes of pre-viability, the net benefits arising from the processing of other products, apart from the tomato paste, where viability is already assured, were not considered: these other products will bring much greater value added to the project (the products have much better commercial margins, and the investment and marginal costs are not very significant).

These conclusions will be real to the extent that the constraints identified in general terms on the agricultural sector and on agro-industry are overcome. In the Draft Report on the "Diagnosis and Strategy Advocated", suggestions are made for solving a significant part of these constraints in terms of private initiative.

In the investment and costs forecast, measures and the respective resources for ensuring the supply of raw material, which has been one of the main constraints on the factories already established in other sectors, are safeguarded.





9.3 PROJECT 3: CONSTRUCTION OF A COCONUT PRODUCTS FACTORY IN INHAMBANE/MAXIXE.

SHORT PRESENTATION (for a more detailed presentation see Appendix 4)

Table 3.12: Project 3 – Construction of a Coconut Products Factoryin Inhambane/Maxixe (short presentation)					
Products/by- products	Strong points	Other important data			
 Crude copra oil Refined copra oil Margarine Bagasse Laundry soap Toilet soap Grated coconut Coconut milk Charcoal Fibre 	 Allows renewal of trees Plant hybrid varieties where the coconuts can be more easily harvested (dwarf palms) Stabilises the market Encourages farmers Allows industry to pay the farmers more Large amount of value added Less vulnerability to a single market 	This may encourage the existing company "Copromol" which is operating but only extracting crude oil and bagasses, 100% for export, to which should be suggested adjustments to guarantee success: create more value added, and integrate the agricultural component in partnership with the family sector.			

Among the various processing units visited and studied, we recommend the construction of an integrated factory of coconut derivatives, to be set up in the Inhambane or Maxixe area, for the following reasons:

• This location seems optimal to use since it is in an area thick with coconut palms (there are no signs of the presence of the lethal yellowing disease present in the Zambezia coconut plantations), and of easy access; a series of infrastructures, such as electricity, are available;

• A shareholding structure that brings together a range of stakeholders in the coconut and copra chain: members of the association of producers, producers and traders;

• It can play an important role in encouraging the planting of coconut palms (new varieties; dwarf palms), serving as a bridge between funding agencies and the producers, and absorbing their production;





• It can play a decisive role as a pilot project (demonstration effect), guaranteeing the creation of more national value added, starting from one of the greatest natural riches of this region, and diversifying the processed products, which have guaranteed markets;

• The production is mostly for export;

• It can be rapidly implemented, it has markets guaranteed, it will have a major impact on the economy of the region and of the country (the country needs to create more added value from its natural riches), it will generate jobs, directly and indirectly (encouraging people to stay in the area, and improving their standard of living).

COSTS AND BENEFITS

	TABLE 3.13 COSTS AND BENEFITS FOR COCONUT PRODUCTS FACTORY IN INHAMBANE			
	COSTS		BENEFITS	
•	The raw material is acquired from the producers at prices that result from the implementation of the measures defined in the "Draft Report" of the Diagnosis and Strategy for the Agricultural Sector (appendix). The assumptions used are attainable, through a greater valuing of	•	Although the long term strategy should follow a line of differentiating the final product (brand, quality, and all the derivatives already mentioned which are found to be profitable), with much better margins, only the processing of copra into crude oil, refined oil and the use of the bagasse by-product were considered.	
	value, with the production of some of the derivatives mentioned.	•	There is no problem with the capacity of the market to absorb the production of this unit (quantity), if we take the following	
•	Although new equipment with current technology will be acquired, industrial yields 50% below the level of the best world producers (66%) were considered. It was also projected that the factory will start with a 90% efficiency in year one,		 indicators into account: Mozambique imports much of the refined oil that it consumes; South Africa already imports 100% of the crude oil produced, over 20,000 	
	advancing to 95% in year 2, and 100% in the following years		tonnes/year; - The current units producing copra oil in	
•	The provision of services, third party suppliers, staff costs, depreciation of equipment have been exhaustively		the Limpopo Valley (five) are unable to meet external demand, for lack of raw material;	
	quantified at market prices (including multi-risk insurance, work accidents, stock, 2% maintenance and conservation on the initial value of the investment, advertising and others), as can be noted in the respective tables.		- The productive capacity of Limpopo Valley copra is higher than 600,000 tonnes/year (at an average of 275 grams of copra per coconut), of which less than 10% goes to the industry;	
•	Under the heading of financial costs of operations are envisaged costs derived from promoting the plantation of new coconut palms (equivalent to 2% on the value of the annual purchases).	•	The bagasse by-product is quantified at national market prices. It should be mentioned that with the development of the livestock sector, copra bagasse will certainly find a large market to be supplied, given its excellent characteristics as animal feed.	





Table 3.14 Coconut Derivatives Sales Price, August 2002				
Dre	oduot	SALES PRICE		
PI	oduci	Scenario 1 - Cautious	Scenario 2 - Realistic	
<u>Crude</u>	<u>oil</u>	(1) Yea 1: 350 USD/Tonne Year 2 to 5: 354 to 364 USD/Tonne depending on inflation.	(1) Year 1: 350 USD/Tonne Year 2 to 5: 354 to 364 USD/Tonne depending on inflation.	
<u>Refine</u>	ed oil	(1) Year 1: 550 USD/Tonne Year 2 to 5: 556 to 572 USD/Tonne depending on inflation.	(1) Year 1: 575 USD/Tonne Year 2 to 5: 581 to 598 USD/Tonne depending on inflation.	
<u>Copra</u>		(2) Year 1: 100 USD/Tonne Year 2 to 5: 101 to 104 USD/Tonne depending on inflation.	(2) Year 1: 95 USD/Tonne Year 2 to 5: 96 to 99 USD/Tonne depending on inflation.	
Notes: 1. 2. 3.	 Prices obtained by reference to the market prices of the industries already operating (100% exports to South Africa), in the case of crude oil, and international market prices for this and for refined oil (June 2002): Crude oil, CIF - duty paid Liverpool, 322 USD/tonne; Refined oil, Ex-Works UK 442 USD/tonne. Prices obtained by reference to the prices currently paid by the industry. These prices of around 85 USD/tonne are low, and in our understanding do not encourage the farmer to sell fresh coconuts. or even to harvest them (shortage of labour to climb the high varieties of trees). Price of copra from the Philippines in June 2002: CIF-Rotterdam, 266.5 USD/tonne. It was considered that international prices will remain stable over the five years of the study, evolving only in accordance with dollar inflation. 			





SUMMARY OF PRE-VIABILITY INDICATORS

Г

Table 3.15: Summary of pre-viability indicators for Project 3 - Integrated Coconut derivatives processing factory in Inhambane/Maxixe						
	SCENARIO 1 – Cautious					
N		3,327,008 USD				
D I C A T O R	Break-even year	Year 3				
	"Break-Even"	1,758,383 USD				
	Sales in Break-even year	2,321,758 USD				
	Time to recover investment	57 months				
	IRR	17.03 %				
S	NPV	245,398 USD				
SCENARIO 2 – Realistic						
I	Investment needed	3,317,469 USD				
D	Break-even year	Year 3				
I	"Break-Even"	1,637,010 USD				
C A	Sales in Break-even year	2,356,473 USD				
Т	Time to recover investment	55 months				
O R	IRR	21.67 %				
S	NPV	517,617 USD				

CONCLUSIONS ON PROJECT 3

From analysing the economic and financial indicators of profitability, presented in the following chapters, one notes that the "project to build an integrated factory of coconut derivatives" is technically, economically and financially viable (in terms of pre-viability).

The precautions taken in the assumptions used, and sensibility analysis made of the project's critical parameters, give it a very reasonable safety margin, and significantly reduce the project risk.

For purposes of pre-viability, the net benefits arising from the coconut derivatives which constitute the diversification of this unit, and the great value added in comparison with those already established (better margins, less dependence on the clients for oil, greater stability, greater national value added) were not considered.





In the investment and costs forecast, measures and the respective resources for ensuring the supply of raw material, which has been one of the main constraints on the factories already established, are safeguarded.





10 BIBLIOGRAPHY

- António Catalão Dinisio- Evolução da Produção Pecuária na República Popular de Moçambique com especial Ênfase para Bovinos de Corte - Instituto de Reprodução e Melhoramento Animal - (Trabalho apresentado no Seminário de Produção Animal – 2-7 de Dezembro 1985) - Ministério de Agricultura/Food and Agriculture Organization os United Nations. Pag.1-39
- Austral Consultoria. 1994. ESTUDO DO SUB-SECTOR PECUÁRIO EM MOCAMBIQUE - Austral Consultoria e projectos, LDA; Louis Berger International, INC, 1994.
- BRL ingéniere (1997). Rehabilitation Project of the Chokwé Irrigation Scheme. Presentation Note. General Coordinator of Integrated Projects. Ministry of Agriculture and Fisheries. Republic of Mozambique.
- BTFPL (1956). Irrigação do Vale do Limpopo. Ministério do Ultramar, Inspecção Geral do Fomento. Brigada Técnica de Fomento e Povoamento do Limpopo.
- De Bono, Edward. 1996. *Serious Creativity: Using the Power of Lateral Thinking to Create New Ideas.* London: HarperCollinsBusiness.
- De Soto, Hernando. 2000. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. London: Bantam Press.
- Dias, J.A.Travassos Santos. 1962. Importância da fauna ungulada selvagem no abastecimento cárneo da Província. (Separata dos Anais dos Serviços de Veterinaria,n.10,1962).
- Direcção dos Serviços de Planeamento e Integração Económica (SPIE). 1973. *IV Plano de Fomento*, Parte III Relatórios Sectoriais, Vol. 1, Tomo 1, Fomento Agrário. Lourenço Marques.
- Direcção Nacional de Pecuária. 1998. Relatório Anual, 1998- Ministério da Agricultura e Desenvolvimento Rural Direcção Nacional de Pecuária. Maputo: Ministério da Agricultura.
- Direcção Nacional de Pecuária. Relatório Anual, 1999- Ministério da Agricultura e Desenvolvimento Rural – Direcção Nacional de Pecuária -República de Moçambique. Maputo: Ministério da Agricultura.
- Direcção Nacional de Pecuária. Relatório Anual, 2000- Ministério da Agricultura e Desenvolvimento Rural – Direcção Nacional de Pecuária -República de Moçambique. Maputo: Ministério da Agricultura.





- Direcção Nacional de Pecuária. Relatório Anual, 2001- Ministério da Agricultura e Desenvolvimento Rural – Direcção Nacional de Pecuária -Serviços Provinciais de Pecuária de Gaza - República de Moçambique. Maputo: Ministério da Agricultura.
- Estratégia de Desenvolvimento Pecuário (Aprovada na 11^ª sessão ordinária do Conselho de Ministros em 29 de Abril de 1997) - Conselho de Ministros - República de Moçambique
- Euroconsult (1982). Report on a Mission to The Limpopo Valley, Mozambique.
- Faculdade de Veterinária. 1998. MANUAL DO CURSO DE RECICLAGEM PARA MÉDICOS VETERINÁRIOS (II EDIÇÃO) – Faculdade de Veterinária/UEM, Projecto de Reabilitação Pecuária no sector Familiar, DINAP. Maputo. Universidade Eduardo Mondlane.
- FDHA (2002). Levantamento de Regadios de Existentes no País–Fase III (Zona Sul).
- Hamela, Hipólito. 2002a. "O que os empresários querem ver resolvido pelo Governo e CTA", in Notícias, Economia e Negócios, 20-11-2002, p. 4-5.
- Hamela, Hipólito. 2002b. "Empresários: o que exigem? Do Governo e CTA", in Notícias, Economia e Negócios, 27-11-2002, p. 7.
- IG Ltd Company. 2000. Executive Report on Strategies in Mozambique, 2000 edition. ICON Group International. http://www.Icongrouponline.com/data/reports_toc
- Instituto Nacional de Estatística (INE). 1999. *Projecções Anuais da População, País Total 1997-2010: Moçambique*, Estudos no. 1. Maputo: INE.
- Instituto Nacional de Estatística (INE). 2001. *Censo Agro-Pecuário 1999-2000: Apresentação Sumária dos Resultados Quadros e Gráficos.* Maputo: INE.
- Instituto Nacional de Investigação Agronómica (INIA). 1994. Zonas Agro-Ecológicas E Sistemas de Produção. Maputo: INIA.
- Louis Berger International. 1994. 1994. Estudo do Sub-sector Pecuário em Moçambique. Maputo: Austral Consultoria e Projectos,LDA.
- Mendes, C. B. Quental. 1974. Produção pecuária bovina Moçambicana. Ind. Moçamb. Lourenço Marques Vol.7 n.9 P.301-334 Set.1974
- Ministério da Agricultura e Desenvolvimento Rural. 2000. Informação Estatística do 2001. Direcção Nacional da Agricultura Provincial. Maputo: Ministério da Agricultura e Desenvolvimento Rural.





- Ministério da Agricultura. 1977. *Breve Monografia Agrária (A Short Monography of Moçambique's Agricultural Sector*. Maputo: Ministerio da Agricoltura.
- Ministério da Agricultura. 1977. BREVE MONOGRAFIA AGRARIA (Short Description of Moçambique's Agricultural Sector. Maputo: Ministerio da Agricultura.
- Ministério da Agricultura. 1983. ELEMENTOS PARA A DETERMINAÇÃO DE INDICADORES NO CAMPO PECUÁRIO PARA O PLANO 1984 DAS PROVINCIAS - Ministério da Agricultura/Direcção Nacional Técnica Agraria. Maputo: Ministério da Agricultura.
- Ministério da Agricultura. 1985. Trabalhos Apresentados no Seminário de Produção Animal (2-7-Dezembro,1985). Food And Agricultural of the United Nations. Maputo: República Popular de Moçambique.
- Mistério da Agricultura. 1985. TRABALHOS APRESENTADOS NO SEMINÁRIO DE PRODUÇÃO ANIMAL (2-7 Dezembro 1985) - Ministério da Agricultura - Food And Agricultural of the United Nations – Maputo: Ministério da Agricultura.
- Morgado, Fernando Pinho. 1983. *Elementos para a Determinação de Indicadores no Campo Pecuário para o Plano 1984 das Províncias*. Direcção Nacional Técnica Agrária. Maputo: Ministério da Agricultura.
- Mungoi, Mário. 1998. "Pastagens Maneiro e Melhoramento", in Manual do Curso de Reciclagem para Médicos Veterinários, Ed. Mário Mungoi, 2ª Edicção. Projecto de Reabilitação Pecuària no sector Familiar/DINAP. Maputo: Universidade Eduardo Mondlane; pp. 128-164.
- Newitt, Malyn. 1995. A History of Mozambique. London: Hurst & Company.
- O'Driscoll, Gerald P., Kim R. Holmes and Mary Anastasia O'Grady. 2002. 2002 Intdex of Economic Freedom. Washington: The Heritage Foundation The Wall Street Journal, <u>http://www.heritage.org/</u>
- OUTLINE FLOOD EMERGENCY LIVESTOCK SUPPORT PROJECT Gaza Province, Mozambique (draft proposal submtitted to ECHO – FE.2000) – VETAID.
- Paisana, Fernando Cardoso e Armando Rosinha. 1972. Inventariação dos problemas relacionados com a protecção da fauna e o seu aproveitamento racional (Anais dos Serviços de Veterinária de Moçambique, n.20/21,1972 (1975) pp.15-121)
- Sir M. MacDonald & Partners (1982). Projecto do Rio dos Elefantes, Margem Direita.
- Sir M. MacDonald & Partners (1983). Projecto do Rio dos Elefantes, Margem Esquerda.



SEED

_ Main Report



- Sogreah and Hidrogest (1993). *National Irrigation Development Master Plan*. Umbeluzi, Incomati, Limpopo, Buzi, and Pungoe Basins. SEHA, Maputo.
- Sogreah and Hidrogest (1996). *Plano Director do Chokwé -anexos*. SEHA, Maputo.
- Southern Mining Corporation Limited. 2001. *Annual Report 2001*. Randburg: Southern Mining Corporation Limited.
- UNCTAD (United Nations Conference on Trade and Development). 2001. An Investment Guide to Mozambique: Oportunities and Conditions. Internet Edition. New York: United Nations.
- UNCTAD (United Nations Conference on Trade and Development). 2002. *The Last Developed Countries Report 2002: Escaping the Poverty Trap.* Geneva: United Nations.
- UNDP (United Nations Development Programme). 1996. *Human Development Report 1996*. New York: UNDP.
- UNDP (United Nations Development Programme). 1999. *Human Development Report 1999*. New York: UNDP.
- UNDP (United Nations Development Programme). 2000. *Mozambique National Human Development Report 1999*. Maputo: UNDP.
- UNDP (United Nations Development Programme). 2002. *Human Development Report 2002*. New York: UNDP.
- UNDP (United Nations Development Programme). 2002. *Mozambique National Human Development Report 2001*. Maputo: UNDP.
- Wethli, Edward. 1995. Estudo do Desenvolvimento Avicola. Maputo: Austral Consultoria e Projectos, Lda.
- World Economic Forum (WEC). 2002. The Africa Competitiveness Report 2000 - 2001: Strengths and Challenges facing the Continent. <u>http://www.weforum.org/pressreleases.nsf/</u>.



85

SEED













APPENDIX 1: TERMS OF REFERENCE

LIMPOPO CORRIDOR SPATIAL DEVELOPMENT INITIATIVE PROMOTING AGRO-INDUSTRIAL PROCESSING

THE BRIEF, THE SERVICES AND TIME SCHEDULE

1. THE BRIEF

Located north of Maputo, the Limpopo Valley is constituted by the Limpopo River Basin and the Limpopo Railway linking Zimbabwe and the Maputo Port. This area was once considered the bread-basket of Mozambique in terms of its agricultural potential. A huge irrigation scheme was established by the portugueses in mid 50's with a goal of settling the Portuguese farmers as a way of effective occupation of the country. Down and upstream the irrigation scheme other developments took place such as raising livestock and medium-scale agro-processing industries. Rice from Limpopo as well as dairy products were being exported to European markets as well as some of the neighbouring countries.

With independence of Mozambique in 1975 most of, if not all, Portuguese farmers left the country and with them all the management institutions for the irrigation scheme. This has created management difficulties to the new Mozambican authorities. The centrally planed economy, that constituted the development strategy of the country, and the two consecutive wars that followed damaged all the production capacity of the Limpopo Valley. Two years ago floods never seen before devastated the whole Limpopo Valley transforming the first highly productive area in place of vulnerable people highly dependent on foreign assistance. The Government of Mozambique with assistance of the Donnor Community has been putting efforts to rehabilitate the Valley and put it back on track of exploring its productive capacity and potential. In a jointeffort with the Government of South Africa, the Government of Mozambique has launched a Spatial Development Initiative for the Limpopo Valley. The objective of this initiative is to assist in unlocking the existing potential in the Valley in order to promote development of the area and induce activities aimed at reducing poverty.

In the area covered by the Limpopo Valley Spatial Development Initiative (L VSDI) there are already some investment initiatives in need of recovery that will largely contribute to the development of the area, as well as there is also potential for new initiatives in agro-processing sector. Some of these initiatives among others are:

In stoppage status Rice peeling Dairy products Grinding Tomato sauce Cashew nuts factories

SEED

Main Report





b) Recovered or in labour

Incomati Valley sugar factories

Sausage factory (transformed into industrial butchery)

Processing seeds

c) Other Initiatives

Coco nut processing

Tangerine and others citrus processing

Other agro-industry products

The Limpopo Valley area has high agricultural potential characterized by good soils, agricultural good practices, availability of water, market, etc.

Under this situation, the central thrust of this study is to design the advisable strategy for re- launching the sector activity, as well as identify and formulate projects that can act as drivers of agricultural development of the area.

2. OBJECTIVES

Therefore the main objectives of this study are:

- To assess the role that agricultural Valley plays and can play in the economy of area as well as at country level.
- To review in detail the agricultural production capacity;
- To review the existing and potential irrigation and associate infrastructure as well as the management capacity;
- To review the agricultural products processing capacity and production technology;
- To develop the possible scenarios and policies that would lead to unleash the agricultural and agro-processing potential;
- To formulate a development concept strategy that will take into account local subsistence farmers and large scale business initiatives; and
- To identify agricultural and agro-processing investment projects to be considered by the private sector and the needs for further public investment to create a favorable investment environment.

3. METHODOLOGY

Considering that there are several studies related to the development of the Limpopo Valley, it is proposed that this study be carried out in three phases, namely: (i) a desk study review; (ii) field assessment and data collection; and (iii) analysis of the information and reporting.

During the process the study team shall contact Governmental entities and individuals, members of the business community investing or interested in investing, especially the ones interested in agricultural and agro-processing production.





4. SCOPE

This study is part of different initiatives and efforts for the development of an investment portfolio for the Limpopo Valley. Therefore, the study shall cross-check other sectoral studies, in order to make sense in a package of investment portfolio to attract investors to an Investment Conference, scheduled for 2002. The study should cover the existing agro-industries in stoppage status and new initiatives in need of re-launching/recovering in Limpopo valley SDI as well as in selected areas covered by Incomati Valley. The focus should be based on priorities defined under the Government of Mozambique Programme, in particular for the

Provinces of Gaza and Maputo taking into consideration the strong need for the development of a private sector in Mozambique.

5. OUTPUTS

As part of a SDI program, the study should attempt to identify the constraints to wealth creation and to put in place processes to remove or alleviate them, thereby unleashing the inherent agricultural and agro-processing potential of the area. The expected three main outputs of the study are: (i) an overall agricultural and agro-processing appraisal report; (ii) a project identification report; and (iii) at least three detailed investment projects at pre-feasibility level.





APPENDIX 2: PRE-VIABILITY STUDY FOR THE CONHANE RICE FACTORY

APPENDIX 3: PRE-VIABILITY STUDY FOR THE CHILEMBENE TOMATO FACTORY

APPENDIX 4: PRE-VIABILITY STUDY FOR THE COCONUT PRODUCTS FACTORY IN INHAMBANE/MAXIXE





APPENDIX 2: PRE-VIABILITY STUDY FOR THE CONHANE RICE FACTORY

LVSDI

AGRI-PROCESSING SECTORIAL STUDIES

PROJECTO 1: REHABILITATION, MODERNISATION AND PRODUCT DIVERSIFICATION OF THE CONHANE RICE DEHUSKING FCTORY

(PRE-FISIBILITY STUDY – Final Report)

<u>SUMMARY</u>

I. SHORT PRESENTATION

II SUMMARY OF THE PRE-VIABILITY INDICATORS

Project Context

- 1. Agricultural sector
- 2. Agro-industrial sector
- 3. Commercial/Marketing sector

III ANALYSIS OF THE FINANCIAL AND ECONOMIC VIABILITY

- 1. Assumptions
- 2. Investment
- 3. Financing Plan
- 4. Income
- 5. Costs

SCENARIOS (CAUTIOUS; REALISTIC)

- 1. Provisional demonstration of results
- 2. Profitability indicators
- 3. Sensibility Analysis
- 4. Economic Indicators
- 5. Provisional Balance-sheet
- 6. Financial Indicators

APPENDICES

SEED

1. Formation of agricultural prices and agro-industry in Chokwe: Their evolution.

- 2. Statistics on prices, production, income, imports, exports.
- 3. Diagnosis and Strategy for the Agricultural Sector
- 4. Diagnosis and Strategy for Agro-Industry

I. BRIEF PRESENTATION

The main reasons for choosing the Conhane rice project as one of the anchor projects for CL agro-industry are the following:

- Optimal location, since this is a zone of intensive rice production, it is easily accessible, and possesses infrastructures such as good roads, and water and electricity supplies;
- Availability of a shareholding structure that brings together a range of stakeholders in the rice chain: Members of the producers' association (AGRIGAZA), Producers and Traders;
- It can play an important role in encouraging rice production, serving as a bridge between the funding agencies and the producers, and absorbing their production;
- With its previously installed capacity of 12,000 tonnes/year, the Conhane factory was already the largest unit of the kind in Chokwe district; once rehabilitated and modernised, it could play a crucial role in processing the rice produced in the region;
- There are already advanced studies for its rehabilitation, including a complete rehabilitation/modernisation project (to 13,550 tonnes/year), including a study on the use of by-products;
- It is one of the productive units that most needs support in terms of access to funding, because of its long paralysis, worsened by the floods of 2000;
- It possesses a complex of silos with a capacity of 10,000 tonnes. These are the only ones in the area, and there is the possibility of storing food reserves there.

The basic pre-viability factors presented should be looked into more deeply through subsequent market studies and technical and economic viability studies.



SEED

PROJECT DESCRIPTION

	_	Products/		Other important
Sector	Description	By-products	Strong points	data
<u>Rice</u> industry	Rehabilitation of the "Conhane Factory"	<u>1st Phase</u> Top grade Indian	Valuing traditional aromatic varieties Introduction of new aromatic	Investors interested
	<u>1ª phase</u>	rice Top grade	varieties highly valued on the	with studies already done
	Promotion	Aromatic rice	international market (similar to	to recover the
	Extension	Broken rice Bice bran	 High yields per hectare achieved 	Conhane Factory and
	Processing and storing	and Phase	with the strategy proposed Installation of modern Thai	in a 2nd
	2nd phase Production of	Zno Pnase Plasterboards of rice straw for the	technology with a high industrial yield	phase recovery of the Silos for
	plasterboards of rice	construction sector	The agricultural strategy is viable	the
	straw	Possible use of by-	since it is centred on 2 areas:	food reserve,
	Use of the silos for the country's food reserve <u>2ª Fase</u> Produção de "Placas propssadas" da palba	Oil removed from the rice bran Livestock feed Boards and blocks made from rice husks	- Commercial sector : with the capacity to obtain in the short term average yields of 4-6 tonnes per hectare; essentially Indian varieties (more than 4 tonnes/hectare each), reliance on mechanisation and adequate use of agro chemicals:	and introduction of the sector making rice straw plasterboards.
	do arroz	Other potential		
	Utilização dos Silos para reserva alimentar do país	in order to diversify and value national raw material: • Rice oil is highly prized on the market • Rice straw plasterboards are highly ecological products	 Family sector and other businesses: producing essentially aromatic varieties (with extension; with promotion, with branding; with less need to obtain price competitiveness, since this is a niche market, and less sensitive to the price factor) Competitiveness in relation to imported rice and other Mozambican rice, achieved with a reasonable safety margin (although starting from the principle that in terms of agricultural production, the businessmen will have agricultural 	



3

SEED

- aw
| available at more competitive prices,
apart from the
indispensable extension and
promotion, the assumption for the
pre-viability study was that it would |
|--|
| take five years to obtain |
| yields of 5.3 tonnes per hectare in |
| the commercial sector, and |
| 2.6 tonnes per hectare in the family |
| sector and small |
| businesses). |
| |





	SCENARIO 1 – Cautious						
l	Investment needed	1 322 102\$00 USD					
	Break-even year	Year 3					
I	"Break-Even"	2 001 321\$00 USD					
C	Sales in Break-even year	1 718 140\$00 USD					
Ť	Pay back period	59 months					
0	IRR	14,84 %					
S	NPV	53 045\$00 USD					
	SCENARIO 2 – Realistic						
I	Investment needed	1 333 125\$00 USD					
N D	Break-even year	Year 3					
I	"Break-Even"	1 646752 983\$00 USD					
C	Sales in Break-even year	1 797 277\$00 USD					
Ť	Pay back period	54 months					
0	IRR	22,97 %					
K S	NPV	267 775\$00 USD					

II. SUMMARY OF PRE-VIABILITY INDICATORS

CONCLUSIONS ON PROJECT 1

From analysing the economic and financial indicators of profitability, one notes that the "project for the recovery, modernisation and project diversification of the Conhane rice dehusking factory" is technically, economically and financially viable (in terms of pre-viability).

The precautions taken in the assumptions used, and sensibility analysis made of the project's critical parameters, give it a very reasonable safety margin, and significantly reduce the project risk. For purposes of pre-viability, the net benefits arising from processing of the products in the 2nd phase, which will bring much greater value added to the project, were not taken into account.

These conclusions will be real to the extent that the constraints identified in general terms on the agricultural sector and on agro-industry are overcome. In the Draft Report on the "Diagnosis and Strategy Advocated", suggestions are made for solving a significant part of these constraints in terms of private initiative.

In the investment and costs forecast, measures and the respective resources for ensuring the supply of raw material, which has been one of the main constraints on the factories already established, are safeguarded.





As already mentioned in the Draft Report on the Diagnosis and Development Strategy for the Agricultural Sector and for Agro-Industry, the viability of the rice harvest in the Limpopo Valley depends, summarily, on the following factors:

1. Improving the existing infrastructures (public initiative)

- Availability and stability in the supply of water for irrigation
- Rehabilitation of the irrigation systems
- Improving access: road and rail systems
- Stability in the supply of energy, and of fixed and mobile telecommunications
- Improvement in the education and health services
- Reducing red tape in the public sector and increasing its efficiency. Create mechanisms for decentralising state decisions and control over all actors, in order to reduce the conditions that lead to the proliferation of vices that divert their behaviour away from the national interest.
- Ensure that public and private economic agents comply with the law as regards tax and customs evasion, and the licensing of activities.
- 2. **Investment in professional training**, for farmers, workers, administrative staff, salespersons and other relevant professionals.
- 3. Investment in research and in extension services
- 4. **Availability of services:** accountancy, legal services, the treatment and availability of data concerning markets (for productive factors, and for primary and manufactured products nationally and internationally), transport of goods, storage, training, recruitment, financial services, etc.

5. Overcome the reluctance of the financial sector to finance agriculture and reduce the interest rates currently charged, which on their own make non-viable any business in this sector (suggestions have been made, notably for the creation by the





7

state of a guarantee fund, which would cover part of the risks of the financial and insurance sectors).

IN SHORT, CREATE THE SO FAR NON-EXISTENT "BUSINESS ENVIRONMENT" WHICH IS INDISPENSABLE FOR THE SUCCESS OF ANY PROJECT.

Agricultural sector

Currently, rice is already produced in the Limpopo Valley, although in small amounts. There are in the farmers business sector, who have good business know-how, with farms of a size mechanisation would be appropriate, with where and interesting yields (from 3 to 6 tonnes per hectare). The water supply is rehabilitated, the national and regional beina market is huae, and the Limpopo Valley has excellent natural, infrastructural and historical conditions for developing the production large of quantities of high quality rice, in a competitive way.

As the Draft Report notes, within the agricultural sector, the following conditions are indispensable to make rice production viable:

- Guarantee the availability and stability of water supplies;
- Encourage the creation of companies that provide services of hiring agricultural machinery and of extension (farmers must be informed and trained to use the machinery correctly), mainly for the business sector, which has to adopt highly mechanised production processes.
- Encourage the creation of companies that purchase agricultural chemicals in large amounts so as to reduce the final unit price, and that undertake the respective extension (farmers must be informed and trained in the proper use of chemicals, since part of the lack of competitiveness results from their incorrect use).
- Gradual alteration of the landholding structure, encouraging the effective use of land, bringing together small holdings, and producing crops appropriate to their characteristics and to the know-how of their owners.
- Encourage introduction into the family sector of aromatic varieties of rice, where the production process is more appropriate to its characteristics, and where lower efficiency in production is not so heavily penalised in the market (the





aromatic varieties are aimed at the medium-high income segment, where it is not the price, but the quality of the product and its image that are the most important factors).

- To encourage the business sector, it is necessary to reduce the weight of the informal economy.
- Encourage agro-industry to promote rice planting, and establish private methods, following market laws, of financing farmers on time, and with interest rates that their activity will bear.
- Encourage the insurance sector to launch "harvest insurance" at tolerable prices.

Agro-industrial sector

As the Draft Report notes, within the agro-industrial sector, the following conditions are indispensable to make rice processing units viable:

- Availability and stability in the supply of raw material
- Quality of the raw material
- Undertake extension, complementary to the state or other specialised agents
- Undertake promotion, complementary to the state or other specialised agents
- Availability of skilled labour (essentially, ability to read; sense of responsibility as regards their role in the organisation; no vices)
- Creation of "Limpopo Valley" brands of Indian and aromatic rice.
- Adding value to the harvest, by obtaining more by-products, such as rice straw (for plasterboards), husks, bran (oil)
- Existence of services for certifying origin
- Investment in marketing: focus on quality and on certification of origin (these market segments are still niches, they have exponential growth rates, and are highly profitable, appropriate for new brands that are entering).





Commercial sector/marketing

This sector is not a block on the development of the rice harvest. There are already agents that supply these services, or if more agents are necessary, the market will ensure that they appear:

- Suppliers of goods transport services;
- Warehouses;
- "Tradings"
- Distributors and retailers;
- Communications, marketing and advertising companies etc.
- Companies which design, develop and produce packaging.

At this level it is important to set up the regulations and create the body that will manage and inspect the Limpopo Valley certificate of origin, to be used as a brand.



III ANALYSIS OF ECONOMIC AND FINANCIAL VIABILITY

1. Assumptions

SCENARIOS

Two scenarios were developed, which are different only in the assumptions concerning the sales price of the final product.

Scenario 1 - Cautious

The sales price adopted was not the price permitted by the costs of production of the rice harvest in Mozambique, but sales prices fixed taking the reference point international by as market prices, for a brand of rice with intermediary valuation on the market (VIETNAM), but not top quality (as a safeguard, it was considered that 25% of the rice would be broken, which is currently the quality level mostly sought after in Mozambique).

As from FOB prices obtained on 25/10/2002 (and these prices have been rather stable in recent months), it was considered that the national industry would manage to place its product at 20% below those prices in Year 1, and at 10% below in the following years, on the national market, or for export to neighbouring countries.

These prices were regarded as fixed over 5 years, and the competitive advantage of Mozambigue would be sustained by the transport, customs difference in and other costs inherent to importing from a non-SADC country located in East Asia.

Scenario 2 - Realistic

The requirement of the differential in Scenario 1 is not very realistic, since as soon as rice processed from national production is competitive, there is no reason why this rice, of better quality than imported rice (which is mostly 25% broken), should still have such a high price differential.

Thus, as from FOB prices obtained on 25/10/2002 (and these prices have been rather stable in recent months), it was considered that





the national industry would manage to place its product at 10% below those prices in Year 1, and at 5% below in the following years, on the national market, or for export to neighbouring countries.

These prices were regarded as fixed over 5 years, and the competitive advantage of Mozambique would be sustained by the difference in transport, customs and other costs inherent to importing from a non-SADC country located in East Asia.

	Rice sale price, October 2002							
	SALES PRICE							
VARI	ЕТҮ	1 st grade "Limpopo Valley" Rice						
	Scenario 1 - Cautious Scenario 2 – Realistic							
<u>Indian</u>		<u>"FOB VIETNAM 25%"</u> <u>25-10-2002</u> <u>168 USD(1)</u> Year 1: 212 USD/Tonne(3) Year 2/3/4/5: 239 USD/Tonne (3)	<u>"FOB VIETNAM 25%"</u> 25-10-2002 168 USD (1) Year 1: 239 USD/Tonne (4) Year 2: 2/3/4/5: 252 USD/Tonne (3)					
<u>Fragran</u> <u>Aromat</u>	nt∕ ic	<u>"FOB BASMATI INDIA"</u> <u>25-10-2002</u> <u>680 USD(2)</u> Year 1: 708 USD/Tonne Year 2: 626 USD/Tonne Year 3/4/5: 529 USD/Tonne	<u>"FOB BASMATI INDIA" (4)</u> 25-10-2002 680 USD (2) Year 1: 708 USD/Tonne Year 2: 626 USD/Tonne Year 3/4/5: 529 USD/Tonne					
 Added cost to the FOB price until reaching the importing wholesaler: 97.5 in the Indian variety Added cost to the FOB price until reaching the importing wholesaler: 149.6 in the aromatic variety In year 1, the product enters the market at 20% below the cost of imported rice, in Year 2 and the following years it is always placed at 10% below. In year 1, the product enters the market at 10% below the cost of imported rice, in Year 2 and the following years it is always placed at 5% below. In been assumed that international prices will remain stable over the five years of the study (they fall in real terms) 								



11

SEED

Paddy rice – Estimated price paid to the farmer							
	PRICE PAID TO THE FARMER (1)						
VARIETY	"Limpopo Val	ley" paddy rice					
	Scenario 1 Scenario 2						
<u>Indian</u>	ESTIMATED HARVEST PRICE Year 1: 72 USD/Tonne Year 2: 69 USD/Tonne Year 3/4/5: 63 USD/Tonne	ESTIMATED HARVEST PRICE Year 1: 72 USD/Tonne Year 2: 69 USD/Tonne Year 3/4/5: 63 USD/Tonne					
Fragrant/AromaticESTIMATED HARVEST PRICE Year 1: 201 USD/Tonne Year 2: 183 USD/Tonne Year 3/4/5: 152 USD/TonneESTIMATED HARVEST PRICE Year 1: 201 USD/Tonne Year 3/4/5: 152 USD/Tonne							
Note: These prices allow the farmer to obtain the income adequate for sustaining his business (paying market interest rates), after implementation of the measures proposed in the agricultural sector Draft Report, the effects of which in reducing the costs of production will make it possible to increase the profitability, competitiveness and sustainability of the entire harvest.							





OTHER GENERAL ASSUMPTIONS

- The investments needed, from buildings/building work, to industrial, transport and administrative equipment, training, permits, marketing, studies, formation, licences and are quantified in detail.
- The technology acquired (Thai) will make it possible to maximise yields from the factory.
- The factory is autonomous in terms of transport.
- The complete payment of all tax obligations (VAT, income tax, corporation tax, social security) has been considered, without any fiscal benefit (this ought to be granted by the state, ensuring that it reverts to the suggested rural development company).
- A "2% surprise factor" on total income is considered, under the heading "other expenses and costs" in the balance sheet.
- A 13% rate of updating Cash flows was used.
- A 1% dollar inflation rate was used as an estimate throughout the period of the study.
- Investment, income and costs are not quantified for the 2nd phase of the project: manufacture of plasterboard from rice straw; boards from rice husks; making profitable use of the silos.

NOTE: Part of the data used was gathered from the Limpopo Valley stakeholders, namely farmers from the business sector, agroindustries (Orly; Sorgaza; Sousa), Inacio de commercial sector, technicians and other staff from public bodies, one of the the Conhane Factory, representatives of the current owners of others, apart from studies and the available Hicep, among secondary information (COMPETIR, the Oryza Site, others).





2. Investment

OVERALL INVESTMENT PLAN

	Unit: dollars
ITEM	1
FIXED TANGIBLE ASSETS	1 140 000\$00
Facility Recovery, Bascule, Compressed Air, Electrical Installation	275 000\$00
Productive Equipment (12.000 Ton./year)	600 000\$00
Racks, Pallet Carrier, Pallet Truck	55 000\$00
1 Heavy Truck (8 Ton.), 2 Vans (3,5 Ton.)	150 000\$00
Administrative Equipment	60 000\$00
	47 500\$00
	2 500\$00
Professional Training Plan Implementation	20 000\$00
Feasibility Study	10 000\$00
Marketing Plan Implementation	12 500\$00
FIXED ASSETS INVESTMENT	1 187 500\$00
INVESTMENT IN WORKING CAPITAL	145 625\$00
TOTAL	1 333 125\$00





INVESTMENT IN WORKING CAPITAL

Unit								
ITEMS	DAYS	1	2	3	4	5		
1. Current Assets	30	39 226\$00	39 618\$00	39 843\$00	40 242\$00	45 403\$00		
2. Clients	30	118 692\$00	142 685\$00	149 773\$00	152 025\$00	152 834\$00		
3. Stocks	30	58 567\$00	63 709\$00	61 944\$00	63 398\$00	63 920\$00		
4. Stocks' Suppliers	30	63 447\$00	64 138\$00	61 797\$00	63 519\$00	63 964\$00		
5. State - Paid VAT - Settled VAT - Credited VAT - Outstanding VAT		4 570500	4 616500	4 620500	4 675\$00	5 627000		
6. Social Security		4 570\$00 2 842\$00	4 818\$00 2 870\$00	4 829\$00 2 876\$00	4 875\$00 2 905\$00	3 575\$00		
7. Net Current Assets Needs		145 625\$00	174 388\$00	182 258\$00	184 565\$00	188 982\$00		
8. Net Current Assets Investment		145 625\$00	28 763\$00	7 870\$00	2 307\$00	4 417\$00		

					Unit:dollars
	1	2	3	4	5
Initial Stocks		58 567\$00	63 709\$00	61 944\$00	63 398\$00
Final Stocks	58 567\$00	63 709\$00	61 944\$00	63 398\$00	63 920\$00
Purchases	761 367\$00	769 655\$00	741 564\$00	762 226\$00	767 567\$00
Purchases of Goods for Resale	702 800\$00	764 512\$00	743 329\$00	760 773\$00	767 045\$00



15

SEED

2. Financial Plan

PROJECT'S FINANCING PLAN

ITEMS	1
1. SOURCES	
<i>Capital and Reserves</i> Equity Supplementary Instalments	333 281\$00 333 281\$00
<i>Debt Capital</i> Bank Loans Partners' Loans	999 844\$00 933 188\$00 66 656\$00
Subsidies Forfeited Funds for Investment Forfeited Funds for PTs	
TOTAL	1 333 125\$00
2. APPLICATIONS	
Fixed Assets Investment Net Current Assets Investment Bank Loans Reimbursement Partners' Loans Reimbursement	1 187 500\$00 145 625\$00
TOTAL	1 333 125\$00





Loan Term	5				
Interest Rate	10,00%	Deferred Period	k	2	
					Unit:dollars
Period	Initial	Amortisation	Interest	Amortisation	Final
	Outstanding Capital				Oustanding Capital
Year 1, 1st semester	933 188\$00		46 659\$00	46 659\$00	933 188\$00
Year 1, 2nd semester	933 188\$00		46 659\$00	46 659\$00	933 188\$00
Year 2, 1st semester	933 188\$00		46 659\$00	46 659\$00	933 188\$00
Year 2, 2nd semester	933 188\$00		46 659\$00	46 659\$00	933 188\$00
Year 3, 1st semester	933 188\$00	155 531\$00	46 659\$00	202 191\$00	777 656\$00
Year 3, 2nd semester	777 656\$00	155 531\$00	38 883\$00	194 414\$00	622 125\$00
Year 4, 1st semester	622 125\$00	155 531\$00	31 106\$00	186 638\$00	466 594\$00
Year 4, 2nd semester	466 594\$00	155 531\$00	23 330\$00	178 861\$00	311 063\$00
Year 5, 1st semester	311 063\$00	155 531\$00	15 553\$00	171 084\$00	155 531\$00
Year 5, 2nd semester	155 531\$00	155 531\$00	7 777\$00	163 308\$00	



3. Benefits

- Although the long term strategy should follow a line of differentiating the final product (brand, quality and aromatic variety), with much better margins, it was only considered that the aromatic varieties would start with a weight of 2.5% of the company's sales, and would reach 7.6% in year 5;
- Although all the factors necessary to obtain a quality product were considered in the investment and the costs, sales prices were considered that are competitive with lesser quality imported rice (25% broken)
- The capacity of the market to absorb the production of this unit (quantity) is not a problem, if we take the following indicators into account:
 - Mozambique imports more than 180,000 tonnes a year of dehusked rice;
 - South Africa imports more than 530,000 tonnes/year (mostly whitened);
 - The neighbouring countries import more than 650,000 tonnes/year;
 - The current productive capacity of Mozambique is no higher than 100,000 tonnes/year.
- The by-products of broken rice and bran are quantified at Mozambican market prices, with a descending evolution deriving from the ever greater competitiveness of agricultural production. Broken rice is a particularly prized by-product on the national market. Bran is a by-product that may be increasingly valued with the development of the livestock sector.

4. <u>Costs</u>

- The raw material is acquired from the producer at prices resulting from implementing measures laid down in the "Draft Report" of the Agricultural Sector Diagnosis and Strategy (see appendix). The assumptions used are perfectly feasible, and in the simulation presented, full achievement of the productivity of the family sector and the small businesses forecast there (4.5 tonnes/hectare) was not taken into consideration, but only 2.6 tonnes/hectare, and only in year five of the project (that is, 6/7 years from now).
- Since new equipment with current technology will be acquired, obtaining industrial yields at the level of the best world producers (67%) was considered. It was also projected that the factory will start with an 80% efficiency in year one, advancing to 90% in year 2, and 95% in the following years.
- The provision of services, third party suppliers, staff costs, depreciation of equipment have been exhaustively quantified at market prices (including multi-risk insurance, work accidents, stock, 2% maintenance and





19

- The staff costs envisage wages of 150 USD a month for workers and administrative staff, which shows a concern to value this profession, and to obtain motivation, productivity and efficiency that is it does not try to obtain competitiveness at the cost of factors that are not sustainable in the medium to long term. Also envisaged are contracting 1 General Manager, 1 Financial Manager, 1 Commercial Manager, and 1 Production Manager, with monthly wages of 1,200 to 1,500 USD, and 2 extensionists (1 senior paid 800 USD/month, and 1 junior at 450 USD/month).
- Under the heading of financial costs of operations are envisaged costs derived from the integral promotion of the rice production necessary for the factory (at a rate of 15% on the value of the purchases).

ALL THE REMAINING ASSUMPTIONS AND RESPECTIVE TABLES ARE PRESENTED BELOW IN RELATION TO THE 2 SCENARIOS USED



SCENARIO 1 - CAUTIOUS

1. **Profit**

SEED

INSTALLED AND USED PRODUCTIVE CAPACITY

SERVICES/PRODUCTS	1	2	3	4	5
Installed Productive Capacity (Ton.Hour)	6	6	6	6	6
Efficiency Rate	80%	90%	95%	95%	95%
Shifts:	8	8	8	8	8
 	0	0	0	0	Ū
Daily total of Hours/Machinery (H/M)	8	8	8	8	8
No. of working days/ Year	242	242	242	242	242
TOTAL	9293	10454	11035	11035	11035

PROCESSED VARIETIES STRUCTURE

SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	97,5%	96,3%	94,8%	93,0%	92,4%
1st "Fragrant" Whitened Rice	2,5%	3,7%	5,2%	7,0%	7,6%
TOTAL	100%	100%	100%	100%	100%



MONTHLY QUANTITIES (Ton. / whitened)

SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	415	478	497	488	484
1st "Fragrant" Whitened Rice	10	17	25	33	36
"Indica" Broken rice	91	84	87	86	85
"Fragrant" Broken rice	3	5	8	11	12
Bran	39	44	46	46	46
TOTAL	558	628	663	663	664

UNIT PRICE (USD/TON)

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	212\$00	239\$00	239\$00	239\$00	239\$00
1st "Fragrant" Whitened Rice	708\$00	626\$00	529\$00	529\$00	529\$00
"Indica" Broken rice	120\$00	114\$00	104\$00	104\$00	104\$00
"Fragrant" Broken rice	120\$00	114\$00	104\$00	104\$00	104\$00
Bran	35\$00	33\$00	30\$00	30\$00	30\$00
TOTAL					

MONTHLY PROVISIONAL PROFITS

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	88 188\$00	114 295\$00	118 706\$00	116 494\$00	115 698\$00
1st "Fragrant" Whitened Rice	6 858\$00	10 376\$00	13 177\$00	17 645\$00	19 252\$00
"Indica" Broken rice	10 873\$00	9 592\$00	9 057\$00	8 888\$00	8 827\$00
"Fragrant" Broken rice	395\$00	620\$00	846\$00	1 133\$00	1 236\$00
Bran	1 355\$00	1 452\$00	1 393\$00	1 393\$00	1 393\$00
TOTAL	107 669\$00	136 335\$00	143 178\$00	145 553\$00	146 407\$00

ANNUAL PROVISIONAL PROFITS

SEED

ANNOALT NOTIONALT NOTITO					
					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	1 058 256\$00	1 371 543\$00	1 424 467\$00	1 397 923\$00	1 388 378\$00
1st "Fragrant" Whitened Rice	82 297\$00	124 517\$00	158 121\$00	211 742\$00	231 022\$00
"Indica" Broken rice	130 471\$00	115 106\$00	108 679\$00	106 654\$00	105 926\$00
"Fragrant" Broken rice	4 739\$00	7 434\$00	10 152\$00	13 595\$00	14 833\$00
Bran	16 262\$00	17 424\$00	16 720\$00	16 720\$00	16 720\$00
TOTAL	1 292 026\$00	1 636 024\$00	1 718 140\$00	1 746 634\$00	1 756 879\$00



2. <u>Costs</u>

PURCHASES: QUANTITIES (Ton.)

					Unit: Ton.
SERVICES/PRODUCTS	1	2	3	4	5
"Indica" Paddy Rice "Fragrant" Paddy Rice	755 19	839 32	872 48	855 64	850 70
TOTAL	774	871	920	920	920

UNIT COST (\$/Ton.)

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
"Indica" Paddy Rice	72\$00	69\$00	63\$00	63\$00	63\$00
"Fragrant" Paddy Rice	201\$00	183\$00	152\$00	152\$00	152\$00
TOTAL	273\$00	252\$00	215\$00	215\$00	215\$00

MONTHLY PURCHASES OF GOODS FOR RESALE

	LOALL				Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
"Indica" Paddy Rice "Fragrant" Paddy Rice	54 677\$00 3 889\$00	57 886\$00 5 823\$00	54 654\$00 7 290\$00	53 636\$00 9 762\$00	53 270\$00 10 651\$00
TOTAL	58 567\$00	63 709\$00	61 944\$00	63 398\$00	63 920\$00

ANNUAL PURCHASES OF GOODS FOR RESALE

	UNEL				Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
"Indica" Paddy Rice "Fragrant" Paddy Rice	656 130\$00 46 671\$00	694 631\$00 69 881\$00	655 850\$00 87 479\$00	643 629\$00 117 144\$00	639 235\$00 127 810\$00
TOTAL	702 800\$00	764 512\$00	743 329\$00	760 773\$00	767 045\$00





MONTHLY EXTERNAL CHARGES FOR SERVICES

	SERVICES				Unit:dollars
ECS	1	2	3	4	5
Subcontracts					
Electricity	1 105\$00	1 116\$00	1 128\$00	1 139\$00	1 150\$00
Fuels	585\$00	591\$00	597\$00	603\$00	609\$00
Water	176\$00	177\$00	179\$00	181\$00	183\$00
Fast weathering tools and utensiles	117\$00	118\$00	119\$00	121\$00	122\$00
Packages (1 and 50 kg sacks)	7 464\$00	7 538\$00	7 614\$00	7 690\$00	7 767\$00
Office Supplies	117\$00	118\$00	119\$00	121\$00	122\$00
Rents and hirings					
Communication	234\$00	236\$00	239\$00	241\$00	244\$00
Accountancy postage	351\$00	355\$00	358\$00	362\$00	365\$00
Insurance	1 453\$00	1 467\$00	1 482\$00	1 497\$00	1 512\$00
Dislocations and stays	150\$00	152\$00	153\$00	155\$00	156\$00
Fees and commissions	200\$00	202\$00	204\$00	206\$00	208\$00
Maintenance and Repair	2 223\$00	2 245\$00	2 268\$00	2 290\$00	2 313\$00
Publicity and propaganda	585\$00	591\$00	597\$00	603\$00	609\$00
Cleaning, hygene and comfort	117\$00	118\$00	119\$00	121\$00	122\$00
Other ECSs	585\$00	591\$00	597\$00	603\$00	609\$00
TOTAL	15 462\$00	15 616\$00	15 772\$00	15 930\$00	16 089\$00

ANNUAL ECS

					Unit:dollars
ECS	1	2	3	4	5
Subcontracts					
Electricity	13 265\$00	13 397\$00	13 531\$00	13 667\$00	13 803\$00
Fuels	7 020\$00	7 090\$00	7 161\$00	7 233\$00	7 305\$00
Water	2 106\$00	2 127\$00	2 148\$00	2 170\$00	2 192\$00
Fast weathering tools and utensiles	1 404\$00	1 418\$00	1 432\$00	1 447\$00	1 461\$00
Packages (1 and 50 kg sacks)	89 565\$00	90 461\$00	91 365\$00	92 279\$00	93 202\$00
Office Supplies	1 404\$00	1 418\$00	1 432\$00	1 447\$00	1 461\$00
Rents and hirings					
Communication	2 808\$00	2 836\$00	2 864\$00	2 893\$00	2 922\$00
Accountancy postage	4 212\$00	4 254\$00	4 297\$00	4 340\$00	4 383\$00
Insurance	17 435\$00	17 609\$00	17 785\$00	17 963\$00	18 142\$00
Dislocations and stays	1 800\$00	1 818\$00	1 836\$00	1 855\$00	1 873\$00
Fees and commissions	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Maintenance and Repair	26 676\$00	26 943\$00	27 212\$00	27 484\$00	27 759\$00
Publicity and propaganda	7 020\$00	7 090\$00	7 161\$00	7 233\$00	7 305\$00
Cleaning, hygene and comfort	1 404\$00	1 418\$00	1 432\$00	1 447\$00	1 461\$00
Other ECSs	7 020\$00	7 090\$00	7 161\$00	7 233\$00	7 305\$00
TOTAL	185 538\$00	187 394\$00	189 268\$00	191 160\$00	193 072\$00



MONTHLY COSTS WITH STAFF

					Unit:dollars
STAFF	1	2	3	4	5
GM+CM+FM+PM	5 304\$00	5 357\$00	5 411\$00	5 465\$00	5 519\$00
- Fees	5 100\$00	5 151\$00	5 203\$00	5 255\$00	5 307\$00
- Chargers	204\$00	206\$00	208\$00	210\$00	212\$00
100 Workers+2Extens.	16 900\$00	17 069\$00	17 069\$00	17 240\$00	21 765\$00
- Fees	16 250\$00	16 413\$00	16 413\$00	16 577\$00	20 928\$00
- Expenses	650\$00	657\$00	657\$00	663\$00	837\$00
Adminitrative Staff(10)	1 560\$00	1 576\$00	1 591\$00	1 607\$00	2 029\$00
- Fees	1 500\$00	1 515\$00	1 530\$00	1 545\$00	1 951\$00
- Expenses	60\$00	61\$00	61\$00	62\$00	78\$00
TOTAL	23 764\$00	24 002\$00	24 071\$00	24 312\$00	29 314\$00

ANNUAL COSTS WITH STAFF

					Unit:dollars
STAFF	1	2	3	4	5
GM+CM+FM+PM	63 648\$00	64 284\$00	64 927\$00	65 577\$00	66 232\$00
- Fees	61 200\$00	61 812\$00	62 430\$00	63 054\$00	63 685\$00
- Chargers	2 448\$00	2 472\$00	2 497\$00	2 522\$00	2 547\$00
100 Workers+2Extens.	202 800\$00	204 828\$00	204 828\$00	206 876\$00	261 181\$00
- Fees	195 000\$00	196 950\$00	196 950\$00	198 920\$00	251 136\$00
- Expenses	7 800\$00	7 878\$00	7 878\$00	7 957\$00	10 045\$00
Adminitrative Staff(10)	18 720\$00	18 907\$00	19 096\$00	19 287\$00	24 350\$00
- Fees	18 000\$00	18 180\$00	18 362\$00	18 545\$00	23 414\$00
- Expenses	720\$00	727\$00	734\$00	742\$00	937\$00
TOTAL	285 168\$00	288 020\$00	288 852\$00	291 740\$00	351 764\$00

MONTHLY Income Tax

SEED

						Unit:dollars
Rate	STAFF	1	2	3	4	5
20,00%	GM+CM+FM+PM	1 020\$00	1 030\$00	1 041\$00	1 051\$00	1 061\$00
10,00%	100 Workers+2Extens.	1 625\$00	1 641\$00	1 641\$00	1 658\$00	2 093\$00
10,00%	Adminitrative Staff(10)	150\$00	152\$00	153\$00	155\$00	195\$00
	Total	2 795\$00	2 823\$00	2 835\$00	2 863\$00	3 349\$00

INSTITUTO NACIONAL SEGURANÇA SOCIAL

						Unit:dollars
Rate	STAFF	1	2	3	4	5
3,00%	GM+CM+FM+PM	153\$00	155\$00	156\$00	158\$00	159\$00
3,00%	100 Workers+2Extens.	488\$00	492\$00	492\$00	497\$00	628\$00
3,00%	Adminitrative Staff(10)	45\$00	45\$00	46\$00	46\$00	59\$00
	Total	686\$00	692\$00	694\$00	701\$00	846\$00



DEPRECIATION TABLE

DESIGNATION	VALUE	DEPRECIATION	1	2	3	4	5
		RATE					
I - FIXED PHYSICAL ASSETS							
Facility Recovery, Bascule, Compressed Air,							
Electrical Installation	275 000\$00	4,00%	11 000\$00	11 000\$00	11 000\$00	11 000\$00	11 000\$00
Productive Equipment (12.000 Ton./year)	600 000\$00	12,50%	75 000\$00	75 000\$00	75 000\$00	75 000\$00	75 000\$00
Racks, Pallet Carrier, Pallet Truck	55 000\$00	12,50%	6 875\$00	6 875\$00	6 875\$00	6 875\$00	6 875\$00
1 Heavy Truck (8 Ton.), 2 Vans (3,5 Ton.)	150 000\$00	25,00%	37 500\$00	37 500\$00	37 500\$00	37 500\$00	
Administrative Equipment	60 000\$00	20,00%	12 000\$00	12 000\$00	12 000\$00	12 000\$00	12 000\$00
II - FIXED NON PHYSICAL ASSETS							
Licences, Charters	2 500\$00	33,33%	833\$00	833\$00	833\$00		
Company Constitution	2 500\$00	33,33%	833\$00	833\$00	833\$00		
Professional Training Plan Implementation	20 000\$00	33,33%	6 667\$00	6 667\$00	6 667\$00		
Feasibility Study	10 000\$00	33,33%	3 333\$00	3 333\$00	3 333\$00		
Marketing Plan Implementation	12 500\$00	33,33%	4 167\$00	4 167\$00	4 167\$00		
TOTAL (I+II)	1 187 500\$00		158 208\$00	158 208\$00	158 208\$00	142 375\$00	104 875\$00



3. Provisional Operational Account of the projected company

PREVISIONAL OPERATIONAL ACCOUNT OF THE PROJECT

Unit:					
ITEMS	1	2	3	4	5
1.Net Sales 1.1.Internal Market 1.2.External Market	1 292 026\$00 1 292 026\$00	1 636 024\$00 1 636 024\$00	1 718 140\$00 1 718 140\$00	1 746 634\$00 1 746 634\$00	1 756 879\$00 1 756 879\$00
2.Other Profits 2.1.Services Rendered 2.2.Other					
3.Output Variation					
4.Total	1 292 026\$00	1 636 024\$00	1 718 140\$00	1 746 634\$00	1 756 879\$00
5.Cost of the Consumed National Stocks 6.Cost of the Consumed Imported Stocks 7.Subcontracts	702 800\$00	764 512\$00	743 329\$00	760 773\$00	767 045\$00
8.Other External Charges for Services 8.1.Electricity/Water/Fuels 8.2.Rent	185 538\$00 22 391\$00	187 394\$00 22 615\$00	189 268\$00 22 841\$00	191 160\$00 23 069\$00	193 072\$00 23 300\$00
8.3.Communications 8.4.Insurance	2 808\$00 17 435\$00	2 836\$00 17 609\$00	2 864\$00 17 785\$00	2 893\$00 17 963\$00	2 922\$00 18 142\$00
8.6.Publicity and Propaganda 8.5. Various External Charges for Services	7 020\$00 133 485\$00	7 090\$00 134 820\$00	7 161\$00 136 168\$00	7 233\$00 137 530\$00	7 305\$00 138 905\$00
9.Taxes 9.1.Direct	129\$00	164\$00	172\$00	175\$00	176\$00
9.2.Indirect 10.Costs with Staff 11.Others Cost and Expenses	285 168\$00 25 841\$00	288 020\$00 32 720\$00	288 852\$00 34 363\$00	291 740\$00 34 933\$00	351 764\$00 35 138\$00
12.Depreciation and Reinsertion 13.Provisions	158 208\$00	158 208\$00	158 208\$00	142 375\$00	104 875\$00
14.Total	1 357 685\$00	1 431 018\$00	1 414 191\$00	1 421 155\$00	1 452 069\$00
15.Operational Profit of the Exercise	- 65 659\$00	205 006\$00	303 948\$00	325 478\$00	304 810\$00
16.Financial Costs 16.1.of Operational Nature 16.2.of Financing Nature	146 757\$00 54 210\$00 92 547\$00	149 886\$00 57 338\$00 92 547\$00	140 585\$00 55 750\$00 84 835\$00	111 044\$00 57 058\$00 53 986\$00	80 665\$00 57 528\$00 23 137\$00
18.Profit Previous to Taxes 19.Provisions for Taxes on Profits	- 212 416\$00	55 120\$00	163 364\$00 2 124\$00	214 435\$00 75 052\$00	224 145\$00 78 451\$00
20.Net Profit	- 212 416\$00	55 120\$00	161 240\$00	139 382\$00	145 694\$00





4. Indicators of profitability

PROJECT CASH-FLOWS

SEED

					Unit:dollars
ITEMS	1	2	3	4	5
Total Annual Investment (1)	1 322 102\$00	33 437\$00	7 625\$00		
Investment Residual Value (2)					641 289\$00
Operational Cash-Flow (3)	38 339\$00	305 876\$00	404 283\$00	335 743\$00	273 706\$00
Cash-Flow Previous to the Project (4)					
Project's Cash-Flow (3+2-1-4)	-1 283 763\$00	272 439\$00	396 658\$00	335 743\$00	914 995\$00
Present Value of Operational CF	33 929\$00	305 876\$00	404 283\$00	335 743\$00	273 706\$00
Present Value of CF	-1 136 073\$00	213 360\$00	274 904\$00	205 918\$00	496 623\$00
NPV	54 731\$00				
Accumulated CF	-1 136 073\$00	- 922 713\$00	- 647 809\$00	- 441 892\$00	54 731\$00
IRP	12	12	12	12	11

PROJECT FINANCIAL INDICATORS

Net Present Value of the Project (NPV)	54 731\$00
Internal Rentability Rate (IRR)	14,90%
Profitability Index (PI)	113,98%
Investment Recovery Period (IRP) - Months	59



5. Sensitivity analysis

SENSITIVITY ANALYSIS

					Unit:dollars				
	Calculated		CRITICAL PARAMETERS CONSIDERED						
Variation	Indicator	Sale	Cost	Investment	Sales				
		Price	Level	Cost	Level				
-10%	V.A.L.	- 484 298\$00	413 258\$00	123 925\$00	- 161 907\$00				
	T.I.R.	-0,9%	26,6%	17,2%	8,1%				
-5%	V.A.L.	- 215 315\$00	239 256\$00	92 789\$00	- 49 296\$00				
	T.I.R.	6,6%	20,6%	16,0%	11,5%				
10%	V.A.L.	486 732\$00	- 387 585\$00	- 19 366\$00	236 589\$00				
	T.I.R.	29,0%	1,9%	12,5%	20,4%				
5%	V.A.L.	276 606\$00	- 167 678\$00	21 975\$00	149 120\$00				
	T.I.R.	21,8%	8,0%	13,6%	17,6%				





6. Economic Indicators

COMPANY COSTS' STRUCTURE

ITEMS	1	2	3	4	5
Total Profits	1 292 026\$00	1 636 024\$00	1 718 140\$00	1 746 634\$00	1 756 879\$00
Consumed Stocks	54,40%	46,73%	43,26%	43,56%	43,66%
Subcontracts					
ECSs	14,36%	11,45%	11,02%	10,94%	10,99%
Taxes	0,01%	0,01%	0,01%	0,01%	0,01%
Costs with Staff	22,07%	17,60%	16,81%	16,70%	20,02%
Other Costs and Expenses	2,00%	2,00%	2,00%	2,00%	2,00%
Depreciation and Reinsertion Provisions	12,24%	9,67%	9,21%	8,15%	5,97%
Provisions					
Financial Costs of Operational Nature	4,20%	3,50%	3,24%	3,27%	3,27%
Financial Costs of Financing Nature	7,16%	5,66%	4,94%	3,09%	1,32%
Net Profit	-16,44%	3,37%	9,38%	7,98%	8,29%



29

COMPANY'S GROSS SALES MARGIN

SEED

ITEMS	1	2	3	4	5
Sales	1 292 026\$00	1 636 024\$00	1 718 140\$00	1 746 634\$00	1 756 879\$00
Purchases of Goods for Resale	702 800\$00	764 512\$00	743 329\$00	760 773\$00	767 045\$00
Gross Margin	45,60%	53,27%	56,74%	56,44%	56,34%



COMPANY'S BREAK EVEN POINT

ITEM	1	2	3	4	5
Sales Volume	1 292 026\$00	1 636 024\$00	1 718 140\$00	1 746 634\$00	1 756 879\$00
Variable Costs	897 690\$00	970 592\$00	950 629\$00	971 124\$00	979 254\$00
Margin	394 336\$00	665 432\$00	767 511\$00	775 510\$00	777 625\$00
Margin (%)	30,52%	40,67%	44,67%	44,40%	44,26%
Fixed Costs	606 752\$00	610 312\$00	604 147\$00	561 076\$00	553 480\$00
Break Even point	1 987 999\$00	1 500 506\$00	1 352 435\$00	1 263 676\$00	1 250 470\$00
Safety Margin	-53,87%	8,28%	21,28%	27,65%	28,82%



30

GROSS VALUE ADDED (GVA) AND COMPANY'S PRODUCTIVITY

ITEM	1	2	3	4	5	
Costs with Staff	285 168\$00	288 020\$00	288 852\$00	291 740\$00	351 764\$00	
Financial Costs	146 757\$00	149 886\$00	140 585\$00	111 044\$00	80 665\$00	
Depreciation	158 208\$00	158 208\$00	158 208\$00	142 375\$00	104 875\$00	
Net Profit	- 212 416\$00	55 120\$00	161 240\$00	139 382\$00	145 694\$00	
GVA	377 717\$00	651 234\$00	748 885\$00	684 541\$00	682 998\$00	
No. of workers	116	116	116	116	116	
Employees Total Productivity	3 256\$00	5 614\$00	6 456\$00	5 901\$00	5 888\$00	
Assets Total Productivity	31,46%	52,67%	68,77%	68,83%	81,57%	

COMPANY'S ECONOMIC RATIOS

ITEM	1	2	3	4	5
Operational Released Resources	38 339\$00	305 876\$00	404 283\$00	335 743\$00	273 706\$00
Equity Profitability	-179,85%	31,82%	48,21%	29,41%	23,52%
Sales Gross Profitability	45,60%	53,27%	56,74%	56,44%	56,34%
Sales Net Profitability	-16,44%	3,37%	9,51%	12,28%	12,76%
Sales Operational Profitability	2,97%	18,70%	23,53%	19,22%	15,58%
Assets Economic Profitability	3,19%	24,74%	37,12%	33,76%	32,69%
Assets Profitability	-5,47%	16,58%	27,91%	32,72%	36,40%



7. Forecast balance sheet

ITEMS	1	2	3	4	5	
ASSETS						
1.Gross Fixed Assets	1 187 500\$00	1 187 500\$00	1 187 500\$00	1 187 500\$00	1 187 500\$00	
1.1.Non - Physical	47 500\$00	47 500\$00	47 500\$00	47 500\$00	47 500\$00	
1.2.Physical	1 140 000\$00	1 140 000\$00	1 140 000\$00	1 140 000\$00	1 140 000\$00	
1.3.Financial						
2.Depreciation and Reinsertion	158 208\$00	316 417\$00	474 625\$00	617 000\$00	721 875\$00	
3.Mid and Long Term Current Assets						
4.Stocks	58 567\$00	63 709\$00	61 944\$00	63 398\$00	63 920\$00	
5.Short Term Current Assets	107 669\$00	136 335\$00	143 178\$00	145 553\$00	146 407\$00	
5.1.Clients	107 669\$00	136 335\$00	143 178\$00	145 553\$00	146 407\$00	
5.2. Other Deptors	E 040000	405 202000	170 004000	245 4 49 00	101 220000	
5.Bank Deposits/Cash/Negotionable Assets	5 018200	165 302\$00	170 984\$00	215 148\$00	161 326\$00	
7. Frepayments and Delened income	1 200 54500	1 226 42000	1 000 001000	004 500\$00	927 279400	
0. TOTAL ASSELS	1 200 545300	1 230 430300	1 000 901900	994 599300	031 210300	
9.Capital	330 525\$00	330 525\$00	330 525\$00	330 525\$00	330 525\$00	
11 Deserves / Upenpropriated Earned Surplus		212 41600	157 206000	2 044\$00	142 22700	
12 Net Profit	- 212 /16\$00	55 120\$00	161 240\$00	130 382\$00	145 527 \$00	
13 Interim Dividends	- 212 410000	33 120000	101 240000	100 002000	140 004000	
14.Total Equity	118 109\$00	173 229\$00	334 470\$00	473 852\$00	619 547\$00	
LIABILITIES						
15.Provisions for Risks and Costs						
16.Mid and Long Term Debts	991 576\$00	991 576\$00	683 086\$00	374 596\$00	66 105\$00	
16.1.Bank Loans	925 471\$00	925 471\$00	616 981\$00	308 490\$00		
16.2.Partners' Loans	66 105\$00	66 105\$00	66 105\$00	66 105\$00	66 105\$00	
16.3.Other Debts						
17.Short Term Debt	90 859\$00	71 624\$00	71 426\$00	146 151\$00	151 627\$00	
17.1.Bank Loans	20 000\$00					
17.2.Suppliers	63 447\$00	64 138\$00	61 797\$00	63 519\$00	63 964\$00	
17.3.Public Statal Sector	7 412\$00	7 486\$00	9 629\$00	82 632\$00	87 663\$00	
17.4. Uther Debts						
	4 000 400000	4 000 000000	754 540000	500 747600	047 700000	
19.1 OTAL LIADILITIES	1 082 436\$00	1 063 200\$00	754 512\$00	520 /4/\$00	217 /32\$00	
20.Total Liabilities+ Equity	1 200 545\$00	1 236 430\$00	1 088 981\$00	994 599\$00	837 278\$00	

FORECAST BALANCE SHEET



31

SEED

- ay

8. Financial Indicators

COMPANY'S FINANCIAL RATIOS

ITEMS	1	2	3	4	5
Debt	10,91%	16,29%	44,33%	90,99%	284,55%
Debt Recovery Period	-18,66	4,65	2,14	1,33	0,26
Liability Average Cost	13,56%	14,10%	18,63%	21,32%	37,05%
Financial Autonomy	9,84%	14,01%	30,71%	47,64%	74,00%
Solvency	10,91%	16,29%	44,33%	90,99%	284,55%





32

COMPANY'S LIQUIDITY RATIOS

RÚBRICA	1	2	3	4	5
General Liquidity	1,88	5,10	5,27	2,90	2,45
Reduced Liquidity	1,24	4,21	4,40	2,47	2,03
Immediate Liquidity	0,06	2,31	2,39	1,47	1,06



OTHER COMPANY INDICATORS

ITEMS	1	2	3	4	5
Average Receiving Period (days)	30	30	30	30	30
Average Payment Period (days)	33	31	30	30	30
Assets Rotation	107,62%	132,32%	157,77%	175,61%	209,83%
Stocks Rotation (days)	30	30	30	30	30
Costs with Staff/ Sales	22,07%	17,60%	16,81%	16,70%	20,02%
Wage Productivity	132,45%	226,11%	259,26%	234,64%	194,16%
Share of Fixed Assets Covered by Equity	9,95%	14,59%	28,17%	39,90%	52,17%



COMPANY SCHEMATIC BALANCE

					Unit:dollars
RÚBRICA	1	2	3	4	5
Permanent Capital	1 109 686\$00	1 164 806\$00	1 017 555\$00	848 448\$00	685 652\$00
Net Fixed Assets	1 029 292\$00	871 083\$00	712 875\$00	570 500\$00	465 625\$00
Net Current Assets	80 394\$00	293 722\$00	304 680\$00	277 948\$00	220 027\$00
Cyclical Needs	166 235\$00	200 045\$00	205 122\$00	208 951\$00	210 327\$00
Cyclical Resources	70 859\$00	71 624\$00	71 426\$00	146 151\$00	151 627\$00
Net Current Assets Needs	95 376\$00	128 421\$00	133 696\$00	62 799\$00	58 700\$00
Active Treasury Passive Treasury	5 018\$00 20 000\$00	165 302\$00	170 984\$00	215 148\$00	161 326\$00
Treasury	- 14 982\$00	165 302\$00	170 984\$00	215 148\$00	161 326\$00
Treasury Control	\$00	\$00			





33

Appendix 2

SEED

- 44

SCENARIO 2 - REALISTISC

NOTE: Only the altered tables are shown

1. Benefits

MONTHLY QUANTITIES (Ton. / whitened)

SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	415	478	497	488	484
1st "Fragrant" Whitened Rice	10	17	25	33	36
"Indica" Broken rice	91	84	87	86	85
"Fragrant" Broken rice	3	5	8	11	12
Bran	39	44	46	46	46
TOTAL	558	628	663	663	664
UNIT PRICE (USD/TON)					orne.donaro
SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	239\$00	252\$00	252\$00	252\$00	252\$00
1st "Fragrant" Whitened Rice	708\$00	626\$00	529\$00	529\$00	529\$00
"Indica" Broken rice	120\$00	114\$00	104\$00	104\$00	104\$00
"Freesewart" Dreken vies	120000	114000	104\$00	104\$00	104\$00
Fragrant Broken rice	12000	11400	10400	10400	10400

MONTHLY PROVISIONAL PROFITS

TOTAL

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	99 211\$00	120 645\$00	125 300\$00	122 965\$00	122 126\$00
1st "Fragrant" Whitened Rice	6 858\$00	10 376\$00	13 177\$00	17 645\$00	19 252\$00
"Indica" Broken rice	10 873\$00	9 592\$00	9 057\$00	8 888\$00	8 827\$00
"Fragrant" Broken rice	395\$00	620\$00	846\$00	1 133\$00	1 236\$00
Bran	1 355\$00	1 452\$00	1 393\$00	1 393\$00	1 393\$00
TOTAL	118 692\$00	142 685\$00	149 773\$00	152 025\$00	152 834\$00

ANNUAL PROVISIONAL PROFITS

					Unit.uoliars
SERVICES/PRODUCTS	1	2	3	4	5
1st "Indica" Whitened Rice	1 190 538\$00	1 447 740\$00	1 503 604\$00	1 475 585\$00	1 465 511\$00
1st "Fragrant" Whitened Rice	82 297\$00	124 517\$00	158 121\$00	211 742\$00	231 022\$00
"Indica" Broken rice	130 471\$00	115 106\$00	108 679\$00	106 654\$00	105 926\$00
"Fragrant" Broken rice	4 739\$00	7 434\$00	10 152\$00	13 595\$00	14 833\$00
Bran	16 262\$00	17 424\$00	16 720\$00	16 720\$00	16 720\$00
TOTAL PROFITS	1 424 308\$00	1 712 221\$00	1 797 277\$00	1 824 296\$00	1 834 011\$00





2. <u>Costs</u>

SEED

Note: There are no significant alterations, since only the assumptions about the sales price of the final product have been changed.

3. Provisional operational account of the projected company

PREVISIONAL OPERATIONAL ACCOUNT OF THE PROJECT

					Unit:dollars
ITEMS	1	2	3	4	5
1.Net Sales	1 424 308\$00	1 712 221\$00	1 797 277\$00	1 824 296\$00	1 834 011\$00
1.1.Internal Market	1 424 308\$00	1 712 221\$00	1 797 277\$00	1 824 296\$00	1 834 011\$00
1.2.External Market					
2.Other Profits					
2.1.Services Rendered					
2.2.Other					
3.Output Variation					
4.Total	1 424 308\$00	1 712 221\$00	1 797 277\$00	1 824 296\$00	1 834 011\$00
5.Cost of the Consumed National Stocks	702 800\$00	764 512\$00	743 329\$00	760 773\$00	767 045\$00
6.Cost of the Consumed Imported Stocks					
7.Subcontracts					
8. Other External Charges for Services	185 538\$00	187 394\$00	189 268\$00	191 160\$00	193 072\$00
8.1.Electricity/Water/Fuels	22 391\$00	22 615\$00	22 841\$00	23 069\$00	23 300\$00
8.2.Rent					
8.3.Communications	2 808\$00	2 836\$00	2 864\$00	2 893\$00	2 922\$00
8.4.Insurance	17 435\$00	17 609\$00	17 785\$00	17 963\$00	18 142\$00
8.5.Commissions	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
8.6.Publicity and Propaganda	7 020\$00	7 090\$00	7 161\$00	7 233\$00	7 305\$00
8.5. Various External Charges for Services	133 485\$00	134 820\$00	136 168\$00	137 530\$00	138 905\$00
9.Taxes	142\$00	171\$00	180\$00	182\$00	183\$00
9.1.Direct					
9.2.Indirect	142\$00	171\$00	180\$00	182\$00	183\$00
10.Costs with Staff	285 168\$00	288 020\$00	288 852\$00	291 740\$00	351 764\$00
11.Others Cost and Expenses	28 486\$00	34 244\$00	35 946\$00	36 486\$00	36 680\$00
12.Depreciation and Reinsertion	158 208\$00	158 208\$00	158 208\$00	142 375\$00	104 875\$00
14.Total	1 360 344\$00	1 432 550\$00	1 415 782\$00	1 422 716\$00	1 453 619\$00
15.Operational Profit of the Exercise	63 964\$00	279 671\$00	381 495\$00	401 580\$00	380 392\$00
16.Financial Costs	146 029\$00	150 657\$00	141 292\$00	111 494\$00	80 858\$00
16.1.of Operational Nature	52 710\$00	57 338\$00	55 750\$00	57 058\$00	57 528\$00
16.2.of Financing Nature	93 319\$00	93 319\$00	85 542\$00	54 436\$00	23 330\$00
17.Extraordinary Costs and Losses					
18.Profit Previous to Taxes	- 82 065\$00	129 014\$00	240 203\$00	290 086\$00	299 534\$00
19. Provisions for Taxes on Profits		16 432\$00	84 071\$00	101 530\$00	104 837\$00
20.Net Profit	- 82 065\$00	112 582\$00	156 132\$00	188 556\$00	194 697\$00



4. Indicators of Profitability

PROJECT CASH-FLOWS

SEED

					Unit:dollars
ITEMS	1	2	3	4	5
Total Annual Investment (1)	1 333 125\$00	28 763\$00	7 870\$00		
Investment Residual Value (2)					647 883\$00
Operational Cash-Flow (3)	169 462\$00	364 109\$00	399 882\$00	385 367\$00	322 902\$00
Cash-Flow Previous to the Project (4)					
Project's Cash-Flow (3+2-1-4)	-1 163 663\$00	335 346\$00	392 012\$00	385 367\$00	970 785\$00
Present Value of Operational CF	149 967\$00	364 109\$00	399 882\$00	385 367\$00	322 902\$00
Present Value of CF	-1 029 790\$00	262 625\$00	271 684\$00	236 353\$00	526 903\$00
NPV	267 775\$00				
Accumulated CF	-1 029 790\$00	- 767 165\$00	- 495 481\$00	- 259 128\$00	267 775\$00
IRP	12	12	12	12	6

PROJECT FINANCIAL INDICATORS

Net Present Value of the Project (NPV)	267 775\$00
Internal Rentability Rate (IRR)	22,97%
Profitability Index (PI)	136,61%
Investment Recovery Period (IRP) - Mor	54



5. Sensitivity Analysis

SENSITIVITY ANALYSIS

					Unit:dollars
	Calculated	CRI	TICAL PARAM	ETERS CONS	IDERED
Variation	Indicator	Sale	Cost	Investment	Sales
		Price	Level	Cost	Level
-10%	NPV	- 207 220\$00	647 036\$00	362 806\$00	104 670\$00
	IRR	6,7%	35,6%	26,1%	16,4%
-5%	NPV	76 691\$00	475 593\$00	332 604\$00	204 372\$00
	IRR	15,4%	29,2%	24,5%	19,7%
10%	NPV	743 562\$00	- 79 711\$00	241 878\$00	497 280\$00
	IRR	39,1%	10,6%	20,3%	29,7%
5%	NPV	524 197\$00	126 275\$00	272 200\$00	399 841\$00
	IRR	30,9%	17,0%	21,6%	26,3%

6. Economic Indicators

COMPANY COSTS' STRUCTURE

ITEMS	1	2	3	4	5
Total Profits	1 424 308\$00	1 712 221\$00	1 797 277\$00	1 824 296\$00	1 834 011\$00
Consumed Stocks	49,34%	44,65%	41,36%	41,70%	41,82%
Subcontracts					
ECSs	13,03%	10,94%	10,53%	10,48%	10,53%
Taxes	0,01%	0,01%	0,01%	0,01%	0,01%
Costs with Staff	20,02%	16,82%	16,07%	15,99%	19,18%
Other Costs and Expenses	2,00%	2,00%	2,00%	2,00%	2,00%
Depreciation and Reinsertion Provisions	11,11%	9,24%	8,80%	7,80%	5,72%
Provisions					
Financial Costs of Operational Nature	3,70%	3,35%	3,10%	3,13%	3,14%
Financial Costs of Financing Nature	6,55%	5,45%	4,76%	2,98%	1,27%
Net Profit	-5,76%	6,58%	8,69%	10,34%	10,62%



COMPANY'S GROSS SALES MARGIN

ITEMS	1	2	3	4	5
Sales	1 424 308\$00	1 712 221\$00	1 797 277\$00	1 824 296\$00	1 834 011\$00
Purchases of Goods for Resale	702 800\$00	764 512\$00	743 329\$00	760 773\$00	767 045\$00
Gross Margin	50,66%	55,35%	58,64%	58,30%	58,18%







COMPANY'S BREAK EVEN POINT

ITEM	1	2	3	4	5
Sales Volume	1 424 308\$00	1 712 221\$00	1 797 277\$00	1 824 296\$00	1 834 011\$00
Variable Costs	898 849\$00	972 123\$00	952 219\$00	972 685\$00	980 804\$00
Margin	525 459\$00	740 097\$00	845 057\$00	851 612\$00	853 207\$00
Margin (%)	36,89%	43,22%	47,02%	46,68%	46,52%
Fixed Costs	607 524\$00	611 084\$00	604 854\$00	561 526\$00	553 673\$00
Break Even point	1 646 752\$00	1 413 746\$00	1 286 411\$00	1 202 883\$00	1 190 148\$00
Safety Margin	-15,62%	17,43%	28,42%	34,06%	35,11%



GROSS VALUE ADDED (GVA) AND COMPANY'S PRODUCTIVITY

ITEM	1	2	3	4	5
Costs with Staff	285 168\$00	288 020\$00	288 852\$00	291 740\$00	351 764\$00
Financial Costs	146 029\$00	150 657\$00	141 292\$00	111 494\$00	80 858\$00
Depreciation	158 208\$00	158 208\$00	158 208\$00	142 375\$00	104 875\$00
Net Profit	- 82 065\$00	112 582\$00	156 132\$00	188 556\$00	194 697\$00
GVA	507 340\$00	709 467\$00	744 484\$00	734 165\$00	732 194\$00
No. of workers	116	116	116	116	116
Employees Total Productivity	4 374\$00	6 116\$00	6 418\$00	6 329\$00	6 312\$00
Assets Total Productivity	38,38%	51,22%	57,47%	61,58%	67,72%

COMPANY'S ECONOMIC RATIOS

ITEM	1	2	3	4	5
Operational Released Resources	169 462\$00	364 109\$00	399 882\$00	385 367\$00	322 902\$00
Equity Profitability	-32,67%	30,95%	30,03%	26,61%	21,56%
Sales Gross Profitability	50,66%	55,35%	58,64%	58,30%	58,18%
Sales Net Profitability	-5,76%	7,53%	13,36%	15,90%	16,33%
Sales Operational Profitability	11,90%	21,27%	22,25%	21,12%	17,61%
Assets Economic Profitability	12,82%	26,29%	30,87%	32,32%	29,87%
Assets Profitability	4,84%	20,19%	29,45%	33,68%	35,18%



6. Forecast Balance Sheet

FORECAST BALANCE SHEET

SEED

- aw

					Unit:dollars
ITEMS	1	2	3	4	5
ASSETS					
1.Gross Fixed Assets	1 187 500\$00	1 187 500\$00	1 187 500\$00	1 187 500\$00	1 187 500\$00
1.1.Non - Physical	47 500\$00	47 500\$00	47 500\$00	47 500\$00	47 500\$00
1.2.Physical	1 140 000\$00	1 140 000\$00	1 140 000\$00	1 140 000\$00	1 140 000\$00
1.3.Financial					
2.Depreciation and Reinsertion	158 208\$00	316 417\$00	474 625\$00	617 000\$00	721 875\$00
3.Mid and Long Term Current Assets					
4.Stocks	58 567\$00	63 709\$00	61 944\$00	63 398\$00	63 920\$00
5.Short Term Current Assets	118 692\$00	142 685\$00	149 773\$00	152 025\$00	152 834\$00
5.1.Clients	118 692\$00	142 685\$00	149 773\$00	152 025\$00	152 834\$00
5.2.Other Debtors					
6.Bank Deposits/Cash/Negotionable Assets	115 369\$00	307 564\$00	370 836\$00	406 255\$00	398 816\$00
7.Prepayments and Deferred Income					
8.Total Assets	1 321 920\$00	1 385 042\$00	1 295 428\$00	1 192 178\$00	1 081 196\$00
EQUITY					
9.Capital	333 281\$00	333 281\$00	333 281\$00	333 281\$00	333 281\$00
10.Suplementary Instalments					
11.Reserves / Unappropriated Earned Surplus		- 82 065\$00	30 517\$00	186 649\$00	375 205\$00
12.Net Profit	- 82 065\$00	112 582\$00	156 132\$00	188 556\$00	194 697\$00
13.Interim Dividends					
14.Total Equity	251 217\$00	363 798\$00	519 930\$00	708 486\$00	903 183\$00
LIABILITIES					
15. Provisions for Risks and Costs					
16.Mid and Long Term Debts	999 844\$00	933 188\$00	622 125\$00	311 063\$00	
16.1.Bank Loans	933 188\$00	933 188\$00	622 125\$00	311 063\$00	
16.2.Partners' Loans	66 656\$00				
16.3.Other Debts					
17.Short Term Debt	70 859\$00	88 056\$00	153 373\$00	172 629\$00	178 013\$00
17.1.Bank Loans					
17.2.Suppliers	63 447\$00	64 138\$00	61 797\$00	63 519\$00	63 964\$00
17.3.Public Statal Sector	7 412\$00	23 918\$00	91 576\$00	109 110\$00	114 049\$00
17.4. Other Debts					
18. Prepayments and Deterred Income					
19.Total Liabilities	1 070 703\$00	1 021 244\$00	775 498\$00	483 692\$00	178 013\$00
20.Total Liabilities+ Equity	1 321 920\$00	1 385 042\$00	1 295 428\$00	1 192 178\$00	1 081 196\$00


7. Financial Indicators

COMPANY'S FINANCIAL RATIOS

ITEMS	1	2	3	4	5
Debt	81,00%	73,73%	59,86%	40,57%	16,46%
Debt Recovery Period	13,13	3,45	1,98	0,94	
Liability Average Cost	13,64%	14,75%	18,22%	23,05%	45,42%
Financial Autonomy	19,00%	26,27%	40,14%	59,43%	83,54%
Solvency	23,46%	35,62%	67,04%	146,47%	507,37%





40

COMPANY'S LIQUIDITY RATIOS

RÚBRICA	1	2	3	4	5
General Liquidity	4,13	5,84	3,80	3,60	3,46
Reduced Liquidity	3,30	5,11	3,39	3,23	3,10
Immediate Liquidity	1,63	3,49	2,42	2,35	2,24



OTHER COMPANY INDICATORS

ITEMS	1	2	3	4	5
Average Receiving Period (days)	30	30	30	30	30
Average Payment Period (days)	33	31	30	30	30
Assets Rotation	107,75%	123,62%	138,74%	153,02%	169,63%
Stocks Rotation (days)	30	30	30	30	30
Costs with Staff/ Sales	20,02%	16,82%	16,07%	15,99%	19,18%
Wage Productivity	177,91%	246,33%	257,74%	251,65%	208,15%
Share of Fixed Assets Covered by Equity	21,16%	30,64%	43,78%	59,66%	76,06%



COMPANY SCHEMATIC BALANCE

					Unit:dollars
RÚBRICA	1	2	3	4	5
Permanent Capital	1 251 061\$00	1 296 986\$00	1 142 055\$00	1 019 548\$00	903 183\$00
Net Fixed Assets	1 029 292\$00	871 083\$00	712 875\$00	570 500\$00	465 625\$00
Net Current Assets	221 769\$00	425 903\$00	429 180\$00	449 048\$00	437 558\$00
Cyclical Needs	177 259\$00	206 394\$00	211 717\$00	215 422\$00	216 755\$00
Cyclical Resources	70 859\$00	88 056\$00	153 373\$00	172 629\$00	178 013\$00
Net Current Assets Needs	106 400\$00	118 338\$00	58 344\$00	42 793\$00	38 742\$00
Active Treasury Passive Treasury	115 369\$00	307 564\$00	370 836\$00	406 255\$00	398 816\$00
Treasury	115 369\$00	307 564\$00	370 836\$00	406 255\$00	398 816\$00
Treasury Control					

41





SEED

-ay

Appendices

Formation of agricultural and agro-industrial prices (with 1. implementation of the strategy defined for the agricultural sector). Their evolution.

Year 1

MOZAMBIQUE VIETNAM Cost Differential (usd7na) Cost Differential (usd7na) Production TorNA a 1 Add5 Dis. Unit Cost (usd7na) Unit Cost (usd7na)<					-						
Obs. Unit Costs Obs. Unit Costs Obs. Unit Costs Obs. Obs. <thobs.< th=""><th></th><th></th><th></th><th>MOZAMBIQU</th><th><u>E</u></th><th></th><th></th><th>VIETNAM</th><th></th><th>Cost D</th><th>offerential</th></thobs.<>				MOZAMBIQU	<u>E</u>			VIETNAM		Cost D	offerential
Entrepreneurial Sector Household Sector (Usbr Int)		Obs.		Unit	Costs		Obs.	Unit	Unit Cost	(Vietnam/	Mz.Ent.Sector)
Production Ton/HA = 1.5 3.5 3.5 1. Mechanical Ploughing (usdHa) (Ton. paddy) (UsdHa) (Ton.			Entrenrer	eurial Sector	House	ehold Sector		(uso/Ha)	(usa/ron.)	(usa/Ton.)	(% S/ IVIOÇ.)
Production (usdHa) (Ton. paddy) (usdHa)			Ton/HA =	4	Ton/HA =	1.5			3.5		
I. Mechanical Poughing (100 / 127)	Production		(usd/Ha)	(Ton, paddy)	(usd/Ha)	(Ton, paddy)		(Ton, pag	ddy)		
2. Section 2. Section 2. Section 3.3 3.7 10.6 4.3 10.6 3. Fertilizer (increat/PK) 88 24.6 113.2 77.5.5 41 11.7 12.9 5.2 4.2 4. Herbickides 13 3.1 11.2.2 77.5.5 41 11.7 12.9 5.2 4.2 7.5 14 4.0 0.0	1. Mechanical Ploughing		51	12.7	18.0	12.0		(0.0	-12.7	-100.0%
a Fertilizer (urea+MPK) 58 24.6 113.2 75.5 41 11.7 1-12.9 52.9 4 Herbiolos 13 3.1 12.5 8.3 111 31 0.0 0.0 5. Water (ringator) 10 2.5 10.0 6.7 14 4.0 15 600 6. Packaging materials 2 0.5 2.0 1.3 0.0 0.5 7 1.4 4.0 0.5 0.0	2 Seed		25	6.3	12.5	8.3		37	10.6	43	69.1%
a Herbiddes 13 31 125 8.3 11 31 0.0 0 5: Water (ringson) 10 2.5 12.0 6.7 14 4.0 15 60 6: Packaging materials 2 0.5 2.0.0 1.3 10 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.0 5.7 3.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.8 38.9 2.9.4 39.0 7.5 58.0 3.8.7 128 36.9 2.9.4 39.0 7.5 58.0 3.8.7 128 30.0 2.8 30.0 2.8 30.0 2.8 30.0 2.8 30.0 2.8 30.0 2.8 30.0 2.8 30.0 2.9 7.2 30.0 0.0	3 Fertilizer (urea+NPK)		98	24.6	113.2	75.5		41	11 7	-12.9	-52.4%
S. Water (mathem) 10 2.5 10.0 6.7 14 4.0 0.5 6.0 6. Packaging materials 7 1.8 0.0 6.0 0.0	4 Herbicides		13	21,0	12.5	8.3		11	3.1	.2,0	0.6%
n Packaging materials 1 2 2 3 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	5 Water (irrigation)		10	2.5	10.0	67		14	4.0	15	60.0%
0.1 0.2 0.3 2.5 1.3 0.0 0.3 1.0 0.0 0.3 1.0 <th1.0< th=""> <th1.0< th=""> <th1.0< th=""></th1.0<></th1.0<></th1.0<>	6. Packaging materials		10	2,5	10,0	1.2		14	4,0	-0.5	-100.0%
1. Transportation 1 1 1 0 0 0 1 20 0 1 23 1	7 Machanical Harvest		2 7	0,3	2,0	1,3		20	5.7	-0,5	217.5%
3. Labula 30 7.5 30.0 35.7 12.9 30.9 23.8 330.1 10. Financial Costs 0.0% 0 0.0 0 0.0% 12.0% 0 0.0% 22.7 30 20.1 10.0% 4.2 12.0 4.8 65.1 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 12.0% 10.0% 12.0% 10.0% 12.0% 10.0% 12.0% 10.0% 12.0% 10.0% 12.0% 10.0% 12.0% 10.0% 12.0% 10.0% 12.0%			20	1,0	59.0	20,0		120	3,7	20.4	217,37
a ransportation 2.2 0.0% 2.0 3.0.0 2.1 6.00 2.1 6.00 2.1 6.00 2.1 6.00 2.1 6.00 2.1 6.00 2.1 6.00 2.1 6.00 0.00 <	0. Labour		30	7,5	36,0	30,7		129	30,9	29,4	391,4%
Inc. Friancial Costs 0,0% 0 0,0% 0 0,0% 0 0,0% 21 0,0% 0,0% 0 <	10 Financial Costs	0.0%	2.5	0,3	43,0	30,0		24	30,0	23,0	300,07
11. rades 0 0 0 0,0% 0 0,0% 0 0,0% 0 0,0% 0 0,0% 0 0,0% 0 0,0% 0 0,0% 0 0,0% 0 0,0% 0 0,0% 42 1,20 4,8 65; Paddy Rice Sale Price 200 7,2 30 20,1 10,0% 42 12,0 4,8 65; Transformation Cost 7,2 30 20,0 315 12,00 4,76 65; 2. Transformation Losses (nome) 5,0% 35 0,00 5,0% 4,0 5,0% 4,0 5,0% 4,0 10,0% 42 10,0% 42,0 0,0	10. Fillalicial Costs	0,0%	0	0,0	0	0,0	0.0%	21	6,0	6,0	-
12. Protect 10,0% 2.9 7.2 30 20,1 10,0% 4.2 12,0 4.8 65, Transformation 250 72,4 200,9 315 120,0 47,6 65, Transformation Cost 12,0 47,6 65, 68,0 -10,0 -55,0 3. Packaging materials 55,0% 59,3 50,0% 20,9 50,0% 4,0 0,0 0,0 3. Packaging materials 5,0% 35 0,0 5,0% 35 0,0 <	11. Taxes	40.00/	0	0,0	0	0,0	0,0%	0	0,0	0,0	05.70
Pack Procession Case Price Ca	12. Flolit (1) Beddy Bigg Sale Brieg	10,0%	29	7,2	30	20,1	10,0%	42	12,0	4,0	65,7%
I. Transformation Cost (101: Nulled) (101: Nulled) <th< td=""><td>Transformation</td><td>_</td><td>230</td><td>12,4</td><td>(Top Millor</td><td>200,3</td><td></td><td>(Top Mil</td><td>120,0</td><td>47,0</td><td>03,7 /</td></th<>	Transformation	_	230	12,4	(Top Millor	200,3		(Top Mil	120,0	47,0	03,7 /
1. Transformation Loses (ncome) 55,0% 18,0 18,0 18,0 18,0 10,0 -30,0 2. Transformation Loses (ncome) 55,0% 59,3 50,0% 200,9 50,0% 120,0 60,8 102,1 3. Packaging materials 4,0 4,0 4,0 4,0 0,0 0,0 4. Bran Sales Revenue 5,0% 35 0,0 5,0% 0,0 120,0 0,0 0,0 5. Growen Rice Sales Revenue 12,0% 120 0,0 17,0% 0,0 120,0 0,0 0,0 6. Transportation 50,0% 7,1 15,0% 16,7 15,0% -20,0% 7,9 0,8 11,1 8. Taxes 35,0% 64,5 35,0% 17,3,2 0,0% 0,0 -64,5 -100,0 9. Other Costs and Losses (2) 5,0% 7,5 5,0% 10,0% 25,6 10,0% 68,7 10,0% 29,7 4,1 15,5 Final Sale Price (to the wholesaler) (PrMoc) 25,10-2002 18,0 Cit Maputo 60 740,0 740,0 45,7 17,1	1 Transformation Open			40.0	(TOH. WINEC	1)		(101.101	leu)	40.0	55.00
2. Trainstormation 35,0% 35,0% 20,0% 20,0% 120,0 00,0 102,1 3. Packaging materials 4,0 4,0 4,0 4,0 4,0 4,0 4,0 0,0	Transformation Cost Transformation Lesses (income)	EE 00/		18,0	E0.09/	18,0	E0.0%/		8,0	-10,0	-55,6%
3. Packaging materials 4.0 4.0 4.0 0.0 0.0 0.0 4. Bran Sales Revenue 5.0% 35 0.0 5.0% 0.0 5.0% 0.0	2. Transionnation Losses (income)	55,0%		59,5	50,0%	200,9	50,0%		120,0	00,8	102,5%
4. Brain Sates Revenue 5,0% 33 0.0 5,0% 0.0 5,0% 33 0.0	A Deep Color Development	5.00/	05	4,0	F 00/	4,0	F 00/	05	4,0	0,0	0,0%
b) Droken Role Sales Revenue 12,0% 12,0% 12,0% 0,0 17,0% 12,0 0,0 1,1 0,0 0,0 1,1 1,5 1,1 1,5 1,1 </td <td>4. Brah Sales Revenue</td> <td>5,0%</td> <td>30</td> <td>0,0</td> <td>5,0%</td> <td>0,0</td> <td>5,0%</td> <td>35</td> <td>0,0</td> <td>0,0</td> <td>0,0%</td>	4. Brah Sales Revenue	5,0%	30	0,0	5,0%	0,0	5,0%	35	0,0	0,0	0,0%
0. Transportation 5.0 5.0 5.0 7.0 2.0 4.0 7. Financial Costs (USD fee for net current assets) 15.0% 7.1 15.0% 16.7 15.0% -20.0% 7.9 0.8 11,1 8. Taxes 35.0% 64.5 35.0% 16.7 15.0% -20.0% 0.0 -64.5 -100,0 9. Other Costs and Losses (2) 10.0% 25.6 10.0% 68.7 10.0% 29.7 4,1 15.7 Final Sale Price (to the wholesaler) (PrMoc) 263.3 708.5 309.0 45.7 17.9 FOB Price Vietnam: 25% 25-10-2002 168.0 Basmati* 25-10-2003 680,0 Cif Maputo 60 228.0 Cif Maputo 60 740,0 9,0 Harbour Costs 9,0 Harbour Costs 5,5 5,5 5,5 5,5 Financial Costs (usd) 15% 60 dias 6,4 (usd) 15% 60 dias 20,1 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 5 Warehouse Entrance Price (Print - PrMoc) 829.6 SAFETY MARGIN (Print - PrMoc) <td>5. Broken Rice Sales Revenue</td> <td>12,0%</td> <td>120</td> <td>0,0</td> <td>17,0%</td> <td>0,0</td> <td>17,0%</td> <td>120</td> <td>0,0</td> <td>0,0</td> <td>0,0%</td>	5. Broken Rice Sales Revenue	12,0%	120	0,0	17,0%	0,0	17,0%	120	0,0	0,0	0,0%
7. Prinancial Costs (USD fee for net current assets) 15,0% 7,1 15,0% 15,0% -20,0% 7,9 0,8 11,1 8. Taxes 35,0% 64,5 35,0% 173,2 0,0% 12,4 4,9 65,1 9. Other Costs and Losses (2) 5,0% 7,5 5,0% 21,0 5,0% 12,4 4,9 65,1 10. Profit 10,0% 25,6 10,0% 68,7 10,0% 29,7 4,1 15,5 Final Sale Price (to the wholesaler) (PrMoc) 263,3 708,5 309,0 45,7 17,7 FOB Price Vietnam: 25% 25-10-2002 168,0 "Basmati" 25-10-2003 680,0 Cif Maputo 60 248,0 Cif Maputo 60 740,0 Harbour Costs 9,0 Harbour Costs 9,0 7,50 55,5 15% 60 dias 20,1 Financial Costs (usd) 15% 60 dias 6,4 (usd) 15% 60 dias 20,1 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse Entrance Price (Print) 829,6 15% 5 15% 60 dias 5,1	6. Transportation	15.00/		5,0	15 00/	5,0	45.00/	00.00/	7,0	2,0	40,0%
8. 1285 35,0% 05,1% 10,2% 0,0% 0,0 -100,0% -100,0% 12,4 4,9 65, 10. Profit 10,0% 25,6 10,0% 68,7 10,0% 29,7 4,1 15,5 Final Sale Price (to the wholesaler) (PrMoc) 263,3 708,5 309,0 45,7 17,7 FOB Price Vietnam: 25% 25-10-2002 168,0 "Basmati" 25-10-2003 680,0 Cif Maputo 60 228,0 Cif Maputo 60 740,0 Harbour Costs 9,0 Harbour Costs 9,0 Harbour Costs 9,0 Import Fees 7,50% 17,1 Import Fees 15% 60 dias 64,4 115% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse Entrance Price (PrInt - PrMoc) 829,5 5 Warehouse Entrance Price (PrInt) NORMAL USD 2,2 USD 12,1 SAFETY MARGIN (Print - PrMoc) 829,5 47,0 47,0 12,1 47,0 Varehouse Entrance Price (Print - PrMoc) 829,5 5 13% 64,1 15% 12,1	7. Financial Costs (USD ree for net current assets)	15,0%		7,1	15,0%	10,7	15,0%	-20,0%	7,9	0,8	11,8%
9. Unter Costs and Losses (2) 5.0% 7.5 5.0% 21.0 5.0% 12.4 4.9 86. 10. Profit 10. Profit 10.0% 25.6 10.0% 68.7 10.0% 29.7 4.1 15. Final Sale Price (to the wholesaler) (PrMoc) 263.3 708.5 309.0 45.7 17. FOB Price Vietnam: 25% 25-10-2002 168.0 "Basmati" 25-10-2008 680.0 740.0 Gf Maputo 60 228.0 Cif Maputo 60 740.0 Harbour Costs 9.0 Harbour Costs 7.50% 17.1 "Import Fees 7.50% 17.1 "Import Fees 7.50% 17.1 "Import Fees 5.55" 50% 17.1 "Import Fees 5.55" 10.0 "Import	8. Taxes	35,0%		64,5	35,0%	173,2	0,0%		0,0	-64,5	-100,0%
10. Profit 10.0% 25.6 10.0% 68.7 10.0% 29.7 4,1 15.5 Final Sale Price (to the wholesaler) (PrMoc) 253.3 708.5 309.0 45.7 17.7 FOB Price Vietnam: 25% 25-10-2002 168.0 FOB Price India: 25-10-2008 680.0 60 740.0 Gif Maputo 60 248.0 Cif Maputo 60 740.0 9.0 Harbour Costs 9.0 17.1 Import Fees 9.0 55.5 5	9. Other Costs and Losses (2)	5,0%		7,5	5,0%	21,0	5,0%		12,4	4,9	65,7%
Final Sale Price (to the wholesaler) (PrMoc) 263,3 708,5 309,0 45,7 17, FOB Price Vietnam: 25% 25-10-2002 168,0 "Basmati" 25-10-2003 680,0 Cif Maputo 60 228,0 Cif Maputo 60 740,0 Harbour Costs 9,0 Harbour Costs 9,0 Harbour Fees 7,50% Financial Costs (usd) 15% 60 dias 6,4 (usd) 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse Entrance Price (Print - PrMoc) 829,6 329,0 SAFETY MARGIN (Print - PrMoc) NORMAL USD 2,2 AROMATIC % 0,8	10. Protit	10,0%		25,6	10,0%	68,7	10,0%		29,7	4,1	15,9%
FOB Price Vietnam: 25% 25-10-2002 168.0 FOB Price India: Basmati* 25-10-2003 680.0 Cif Maputo 60 228.0 Cif Maputo 60 740.0 Harbour Costs 9.0 Harbour Costs 9.0 Financial Costs 9.0 Import Fees 7,50% 17,1 Financial Costs 9.0 7,50 Financial Costs (usd) 15% 60 dias 6.4 (usd) 15% 60 dias 20.1 Transportation Harbour-Warehouse 5 Warehouse Entrance Price (Print) 829.6 5 SAFETY MARGIN (Print - PrMoc) NORMAL USD 2.2 AROMATIC %	Final Sale Price (to the wholesaler) (PrMoc)			263,3		708,5			309,0	45,7	17,4%
FOB Price Vietnam: 25% 25-10-2002 168.0 FOB Price India: 25-10-2003 680.0 Cif Maputo 60 228.0 Cif Maputo 60 740.0 Harbour Costs 9.0 Harbour Costs 9.0 Harbour Costs 9.0 Inport Fees 7,50% 17,1 Import Fees 7,50% 9.0 Financial Costs (usd) 15% 60 dias 6,4 Transportation 15% 60 dias 25,5 Warehouse 5 Warehouse 5 Warehouse Entrance Price (Print - PriMoc) 829.6 SAFETY MARGIN (Print - PriMoc) NORMAL VSD 2,2 USD 121,1 (competitivinees) % 0,8% AROMATIC % 17,1%				^							
FOB Price Vietnam: 25% 25-10-2002 188,0 POB Price Vietnam: 25-10-2003 680,0 Cif Maputo 60 228,0 Cif Maputo 60 740,0 Harbour Costs 9,0 Harbour Cests 9,0 Harbour Cests 9,0 Import Fees 7,50% 17,1 Financial Cests 9,0 Transportation Financial Costs (usd) 15% 60 dias 6,4 (usd) 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse Entrance Price (Print - PrMoc) 829,6 SAFETY MARGIN (Print - PrMoc) NORMAL USD 2,2 Warehouse Entrance Price (Print - PrMoc) 829,6 SAFETY MARGIN (Print - PrMoc) % 0,8% AROMATIC % 17,1%						EOP Briss India					
Flore Finde Vietnam: 23 % 25-10-2002 168 0 Destination 25-10-2003 680,00 Ciff Mapuito 60 228,0 Ciff Mapuito 60 740,0 Harbour Costs 9,0 Harbour Costs 7,50% 17,1 Import Fees 9,0 Financial Costs (usd) 15% 60 dias 6,4 (usd) 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse 5 Warehouse 5 Warehouse 5 Warehouse 5 Warehouse 5 15% SAFETY MARGIN (Print - Pridoc) NORMAL USD 2,2 AROMATIC % 12,1	EOB Brice Vietnem: 25%	05 40 0000		400.0		"Beometi"	05 40 0000		000.0		
Cir Mapulo 60 228.0 Cir Mapulo 60 740,0 Harbour Costs 9,0 Harbour Costs 9,0 Harbour Costs 9,0 Import Fees 7,50% 17,1 Import Fees 9,0 Financial Costs (usd) 15% 60 dias 6,4 15% 60 dias 15% 60 dias 228,5 Transportation Harbour-Warehouse 5 Warehouse Entrance Price (Print) 829,6 SAFETY MARGIN (Print - PriMoc) NORMAL USD 2,2 AROMATIC % AROMATIC % 0,8% AROMATIC % 17,1%	FOB Price vietnam: 25%	25-10-2002		168,0		Basmati	25-10-2008		680,0		
Harbour Costs 9,0 Harbour Costs 9,0 Import Fees 7,50% 17,1 Import Fees 7,50 Financial Costs (usd) 15% 60 dias 6,4 (usd) 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse 15% 60 dias 20,1 Warehouse Entrance Price (Print) USD 265,5 Warehouse Entrance Price (Print - PrMoc) 829,6 SAFETY MARGIN (Print - PrMoc) NORMAL USD 2,2 AROMATIC % 4	Cif Maputo	60		228,0		Cir Maputo	60		740,0		
Import Fees 7,50% 17,1 Import Fees 7,501 55,5 Financial Costs (usd) 15% 60 dias 6,4 Financial Costs 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse 15% 60 dias 20,1 Warehouse Entrance Price (Print) USD 265,5 Warehouse Entrance Price (Print - PrMoc) 829,6 SAFETY MARGIN (Print - PrMoc) (competitivinees) NORMAL VSD 2,2 USD 121,1	Harbour Costs			9,0		Harbour Costs	a	romatic	9,0		
Financial Costs (usd) 15% 60 dias 6,4 Financial Costs (usd) 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 15% 60 dias 20,1 Warehouse Entrance Price (Print) USD 265,5 Warehouse Entrance Price (Print - PrMoc) 829,6 SAFETY MARGIN (Print - PrMoc) NORMAL USD 2,2 USD 121,1 (competitivinees) % 0,8% AROMATIC % 17,1%	Import Fees	7,50%		17,1		Import Fees	7,50		55,5		
Financial Costs (usd) 15% 60 dias 6,4 (usd) 15% 60 dias 20,1 Transportation Harbour-Warehouse 5 Warehouse 5 5 Warehouse Entrance Price (Print) USD 265,5 Warehouse Entrance Price (Print - PriMoc) (competitiviness) 829,6 SAFETY MARGIN (Print - PriMoc) NORMAL USD 2,2 USD 121,1 (competitiviness) % 0,8% AROMATIC % 17,1%						Financial Costs					
Transportation Harbour-Warehouse USD 265.5 Warehouse Entrance Price (Print - PrMoc) 829.6 SAFETY MARGIN (Print - PrMoc) (competitiviness) NORMAL USD 2,2 USD 121.1	Financial Costs (usd)	15%	60 dias	6,4		(usd)	15%	60 dias	20,1		
Transportation Harbour-Warehouse V Harbour- Warehouse 5 Warehouse 5 Warehouse Entrance Price (Print) USD 265.5 Warehouse Entrance Price (Print - PrMoc) 829.6 SAFETY MARGIN (Print - PrMoc) NORMAL USD 2,2 USD 121.1 (competitiviness) % 0,8% AROMATIC % 17,1%				L		Transportation			\mathbf{A}		
Transportation Harbour-Warehouse 5 Warehouse 5 Warehouse Entrance Price (Print) USD 265.5 Warehouse Entrance Price (Print - PrMoc) 829.6 SAFETY MARGIN (Print - PrMoc) NORMAL USD 2,2 USD 121,1 (competitiviness) % 0,8% AROMATIC % 17,1%				•		Harbour-					
Warehouse Entrance Price (Print) USD 265.5 Warehouse Entrance Price (Print - PriMoc) 829.6 SAFETY MARGIN (Print - PriMoc) NORMAL USD 2.2 USD 121,1 (competitiviness) % 0.8% AROMATIC % 17,1%	Transportation Harbour-Warehouse			5		Warehouse			5		
SAFETY MARGIN (Print - PrMoc) NORMAL USD 2,2 USD 121,1 (competitiviness) % 0,8% AROMATIC % 17,1%	Warehouse Entrance Price (Print)		USD	265.5		Warehouse Entra	ance Price (P	rint - PrMoc)	829.6]	
(competitiviness) % 0,8% AROMATIC % 17,1%	SAFETY MARGIN (Print - PrMoc)	NORMAL	USD	2,2				USD	121,1		
	(competitiviness)		%	0,8%		AROMA	TIC	%	17,1%		

OBSERVACÕES:

 OBSERVAÇÕES:

 1 - Source: Study Competir, Agrimo w/ my own and Mr. Castro's adjustments www.oryza.com

 2 - Check Uhit Costs with the Team

 3 - Measures have been introduced in order to reduce: agrochemical costs, sements; Machinery Cost; Labour Cost; income taxes.

 4 - The 66% (Aactory income is the one obtained in the Asian countries, assuming that similar modern technology is adopted by the Conhane Factory, and it may reach 70%.

 5 - The following are not contemplated: 2nd Rice Harvest; transplant; effects of the "chemical" project of quantity acquisition; Madagascar technology (reaching 8/10 Ton./Ha).

 6 - The following are not contemplated yet: effects from the State compensations for the use of the Silos as Food Stock; State interest borus; proteccionist customs measures.

 7 - The Household Sector should bet on the aromatic varieties, which tecnologies - resourcing less to herbice and machinery and with less income/Ha - are, in this case, compatible with the market Valorisation, which can even triple.

 8 - The gains from sub-products - food oil from the husk; boards produced from the rice straws - exploitation are not contemplated.

 (1) - Assuming that the household farmers obtain ther" "profit" through their labour remuneration, this one already contemplated.

 (2) - This item includes administrative, management and commercial costs, as well as "unexplainable" product losses.



YEAR 5

RICE CHAIN VALUE, MOZAMBIQUE - VIETNAM

			MOZAMBIQU	E			VIETNAM		Diferenç	a de Custos
	Obs.		Unit	Costs		Obs.	Unit	Unit Cost	(Vietname	p/ Moc.S.Emp.)
							(usd/Ha)	(usd/Ton.)	(usd/Ton.)	(% s/ Moc.)
		Entrenre	neurial Sector	Hous	ehold Sector		(uou/riu)	(464/1611.)	(464/1611)	(70 0/11109.)
		Ten/HA -	E 2	Ton/HA -	26			2.5		
			J,J		2,0		(=	3,5		
Production		(usd/Ha)	(Ton. paddy)	(usd/Ha)	(Ton. paddy)		(Ton. pad	ady)		
1. Mechanical Ploughing		51	9,5	18,0	6,9			0,0	-9,5	-100,0%
2. Seed		25	4,7	12,5	4,8		37	10,6	5,9	125,6%
Fertilizer (urea+NPK)		98	18.4	113.2	43.3		41	11.7	-6.7	-36.5%
4 Herbicides		13	23	12.5	4.8		11	31	0.8	34.2%
5 Water (irrigation)		10	1.0	10.0	2.0		14	4.0	2,1	112.49/
6. Dookaging motoriala		10	1,5	10,0	0,0		14	4,0	2,1	100.09/
0. Packaging materials		2	0,4	2,0	0,0			0,0	-0,4	-100,0%
7. Mechanical Harvest			1,3	0,0	0,0		20	5,7	4,4	323,5%
8. Labour		30	5,6	58,0	22,2		129	36,9	31,2	555,6%
9. Transportation		25	4,7	45,0	17,2			17,2	12,5	267,5%
10. Financial Costs	0,0%	0	0,0	0	0,0		21	6,0	6,0	#DIV/0!
11. Taxes		0	0.0	0	0.0	0.0%	0	0.0	0.0	#DIV/0!
12. Profit (1)	10.0%	29	5.4	30	11.5	10.0%	37	10.6	5.2	94.9%
Paddy Rice Sale Price	.,	290	54.3		115.3		310	105.8	51.5	94.9%
		200	01,0		110,0		0.0		01,0	01,07
Transformation				(Ton. Mille	4)		(Ton. Mil	led)		
1. Transformation Cost			18,0		18,0			8,0	-10,0	-55,6%
Transformation Losses (income)	57,0%		41,0	52,0%	106,4	66,0%		54,5	13,6	33,1%
3. Packaging materials			4.0		4.0			4.0	0.0	0.0%
4. Bran Sales Revenue	5.0%	26	0.0	5.0%	0.0	5.0%	26.23638987	0.0	0.0	0.0%
5 Broken Rice Sales Revenue	10.0%	20	0,0	17.0%	0,0	17.0%	80 05333671	0,0	0,0	0.0%
6. Transportation	10,078	50	0,0	17,076	0,0	17,078	03,33333071	0,0	0,0	10,0%
	45.00/	I	5,0	45.000	5,0	15.00/		7,0	2,0	40,0%
7. Financial Costs (USD fee for net current assets)	15,0%		5,7	15,0%	10,3	15,0%	-20,0%	7,1	1,3	23,5%
8. Taxes	35,0%		49,8	35,0%	100,7	0,0%		0,0	-49,8	-100,0%
9. Other Costs and Losses (2)	5,0%		5,7	5,0%	12,0	5,0%		8,4	2,8	48,6%
10. Profit	10,0%		19,7	10,0%	40,0	10,0%		20,7	1,0	4,9%
Final Sale Price (to the wholesaler) (PrMoc)			203,1		411,7			215,5	12,4	6,1%
			≜		~	7				
					Preço FOB					
FOB Price Vietnam: 25%	25-10-2002		168,0		Índia: "Basmati"	25-10-2002		680,0		
Cif Maputo	60		228,0		Cif Maputo	60		740,0		
					Encargos					
Harbour Costs			9.0		Portuários	a	romático	9.0		
			5,0		Tortuarios Toxos do			5,0		
launa de France	7.500/		47.4		I axas ue	7 500				
Import Fees	7,50%		17,1		Пропаção	7,50%		55,5		
					Encargos					
Financial Costs (usd)	15%	60 dias	6,4		Financeiros(usd)	15%	60 dias	20,1		
			↓		I ransporte Porto-			*		
Transportation Harbour-Warehouse			5		Armazém			5		
Warehouse Entrance Price (PrInt)		USD	265,5		Preço à entrada	no Armazém	(PrInt - PrMoc)	829,6		
SAFETY MARGIN (Print - PrMoc)	NORMAL	USD	62,3				USD	417,9		
(competitiviness)		%	30,7%		AROMÁT	rico	%	101,5%		
Natao										
A Course Otatio Coursetia Amine and Mark										
1 - Source: Study Competir, Agrimo w/ my own and wr. C	astro's adjustm	ents www.ory	za.com							
2 - Check Unit Costs with the Team										
3 - Measures have been introduced in order to reduce: a	prochemical cos	ts, sements;	Machinery Cost; I	_abour Cost;	income taxes.					
4 - The 66% factory income is the one obtained in the As	ian countries, as	suming that :	similar modern te	chnology is a	adopted by the Con	hane Factory,	and it may reach 70	0%.		
5 - The following are not contemplated: 2nd Rice Harves	t; transplant; effe	ects of the "cl	nemical" project o	f quantity ac	quisition; Madagase	car technology	(reaching 8/10 To	n./Ha).		
6 - The following are not contemplated yet: effects from the	he State compe	nsations for t	he use of the Silo	s as Food St	ock; State interest I	oonus; protect	cionist customs mea	asures.		
7 - The Household Sector should bet on the aromatic va	ieties, which tec	nologies - res	sourcing less to h	erbice and m	achinery and with I	ess income/H	a - are, in this case,	compatible v	ith the marke	t Valorisation,
which can even triple.		0	5							,
8 - The gains from sub-products - food oil from the busk	boards produce	d from the riv	e straws - evoloit	ation are not	contemplated					
 Accuming that the household formare obtain their "r 	rofit" through the	a lobour rom	unoration this or	a already or	ntomplated.					
(1) - Assuming that the household ranners obtain their p	commoreigl		uneration, trils of	e aneauy co	mempiateu.					
	000	··· ··· · · · · · · · · · · · · · · ·								
(2) - This item includes administrative, management and	commercial cos	as, as well as	unexplainable		-3.					
	commercial cos	is, as well as	unexplainable	JIOUUCLIOSS						

SEED



	CURRENT	SITUATION Y	EAR 2001/02		EXPLORED AREA INCREASE FORECAST				Exploring	
		Area	Area	1		Unit: Heo	ctares			Rate
District	Name of the Field	Built	Explored	River	1	2	3	4	5	
Massingir	3° Congresso	100	10	Elefantes	15	22	30	37	44	44%
Chókwè	25 de Setembro	400	0	Limpopo	80	119	159	198	237	59%
Chókwè	Gandlaze	90	45	Limpopo	67	90	90	90	90	100%
	Estação Agrária									
Chókwè	Chókwè	60	35	Limpopo	52	60	60	60	60	100%
Chókwè	Kotamo	350	0	Limpopo	70	104	139	173	208	59%
Chókwè	Marrambadjane	300	120	Limpopo	179	267	300	300	300	100%
Chókwè	Chalacuane	300	0	Limpopo	60	89	119	148	178	59%
Chókwè	Eduardo Mondlane	30000	7500	Limpopo	11184	16678	22171	27665	30000	100%
	Matuba -				1					
Chókwè	Macarretane	2834	300	Limpopo	447	667	887	1107	1326	47%
Chókwè	Izac Malulegue	538	69	Limpopo	103	153	204	255	305	57%
	Manuel Borges									
Guilá	Medeiros	19	0	Limpopo	4	6	8	9	11	59%
	Victor Manuel									-
Guilá	pereira	260	0	Limpopo	52	78	103	129	154	59%
Guilá	7 de Abril	100	0	Limpopo	20	30	40	49	59	59%
Chibuto	Malehice	25	25	Limpopo	25	25	25	25	25	100%
	Eduardo Dias				-	-	-	-	-	
Chibuto	Capela	90	0	Limpopo	18	27	36	45	53	59%
Chibuto	Ex-Mineiros	250	0	Limpopo	50	75	99	124	148	59%
Chibuto	Maniquenique	60	35	l impopo	52	60	60	60	60	100%
Chibuto	Mondiane	350	0	l impopo	70	104	139	173	208	59%
	Int. Proj.		-		-	-		-		
Chibuto	Macalawane	1400	0	Limpopo	280	418	555	693	830	59%
ormouto	Vale do			Linpers						
Maniacaze	Manguenhane	350	211	Inharrime	315	350	350	350	350	100%
Manjacaze	Baixa do Banze	500	75	Inharrime	112	167	222	277	332	66%
Bilene	Macia	8000	300	Incomati	447	667	887	1107	1326	17%
Diferie	Poneia,		000	meenaa			00.	1.0.		
	Chimbonhanine e									
Xai-Xai	Magula	2970	0	Limpopo	594	886	1178	1469	1761	59%
	TOTAL	50323	8825		14297	21143	27861	34545	38071	76%

2. Price, Production, Yields, Import and Export Statistics Calculation of the Paddy Rice Produced Quantities in the Limpopo Valley"Arroz Paddy"





Total Land Structure (Ha)

	1	2	3	4	5
Household Sector (%)	95,0%	85,5%	77,0%	69,3%	62,3%
No. of HA Explored	13.582	18.078	21.439	23.924	23.730
Entrepreneurial Sector (%)	5,0%	14,5%	23,1%	30,7%	37,7%
No. of HA Explored	715	3.066	6.422	10.621	14.342
Total -	14.297	21.143	27.861	34.545	38.071

Private Sector: > 5 hectares; Household Sector: < 5 hectares

Land Structure of the Rice Production (Ha)

	1	2	3	4	5
Household Sector (%)	50,0%	50,0%	50,0%	50,0%	50,0%
No. of HA Explored	6.791	9.039	10.719	11.962	11.865
Entrepreneurial Sector (%)	50,0%	50,0%	50,0%	50,0%	50,0%
No. of HA Explored	357	1.533	3.211	5.310	7.171
Total -	7.149	10.572	13.930	17.273	19.036

Rice Income per Unit (Ton./Ha)

	1	2	3	4	5
Household Sector (var.%)		10,0%	20,0%	20,0%	10,0%
N.º Ton./Ha	1,5	1,7	2,0	2,4	2,6
Entrepreneurial Sector (var.%	()	5,0%	10,0%	10,0%	5,0%
N.º Ton./Ha	4	4,2	4,6	5,1	5,3

Private Sector: > 5 ha; Household Sector: < 5 ha

Total Rice Income (Ton.)

	1	2	3	4	5
Household Sector (%)	10.187	14.914	21.224	28.422	31.010
(% no total)	87,7%	69,8%	58,9%	51,3%	44,8%
Entrepreneurial Sector (%)	1.430	6.438	14.835	26.988	38.264
(% no total)	12,3%	30,2%	41,1%	48,7%	55,2%
Total -	11.616	21.352	36.059	55.410	69.274

Private Sector: > 5 ha; Household Sector: < 5 ha



Asia								
Thailand		Vietnam						
100%B	\$ 193	5%DP	\$ 187					
5%	\$ 187	5%	\$ 185					
10%	\$ 183	10%	\$ 180					
15%	\$ 180	15%	\$ 174					
25%	\$ 175	25%	\$ 170					
35%	\$ 168	India						
Jasmine	\$ 328	Basmati	\$ 680-705					
PB 100% Sortexed	\$ 202	PR 106 PB 5%	\$ 178					
A1 Super	\$ 157	PR 106 5%	\$ 178					
Pakistan		PR 106 25%	\$ 138					
15%	\$ 167	Pant 4 25%	\$ N/A					
20%	\$ 164	1001 25%	\$ N/A					
25%	\$ 161							





European Prices								
Thailand			Basis - C+F Rotterdam					
Broken A1 Super		\$ 190	190 US\$ PMT in Bulk					
Loonzain 100% Grade E	3	\$ 232	US\$ PMT in Bulk					
Pb Loonzain 100% sorte	ex	\$ 250	US\$ PMT in Bulk					
White Rice 100% Grade	B	\$ 263	US\$ PMT in 25Kg PP bags	Containerized				
Fragrant Brokens A1 ex	tra super	\$ 280	US\$ PMT in 25Kg PP bags,	Containerized				
Fragrant Loozain		\$ 380	US\$ PMT in bulk, containerized					
USA			Basis - C+F Rotterdam					
Regular Brown	2/4/75	\$ 8.50	US\$ per 100lbs					
Pb Brown	1/4/88	\$ 9.50	US\$ per 100lbs					
Italy			Basis - FCA Vercelli Area					
Indica 5%		Eur 434	Euro PMT in bulk					
Round Grain 5%		Eur 430	Euro PMT in bulk	Surcharge for 25Kg PP bags				
Arborio 5%		Eur 610	Euro PMT in bulk	Euro 15/ Ton				
Indica Pb 5% Sortex		Eur 490	Euro PMT in bulk	ro PMT in bulk				

South America							
Uruguay	Basis		Price US\$				
Milled Rice 5%	PMT, Bagged	- FOB Montevideo	\$ 250-255				
Milled Rice10%	PMT, Bagged	- FOB Montevideo	\$ 243-248				
Milled Rice15%	PMT, Bagged	- FOB Montevideo	\$ 235-240				
Rough Rice	PMT, Bulk	- FOB Montevideo	\$ NQ				
Brown Rice	PMT, Bulk	- FOB Montevideo	\$ NQ				
Parboiled	PMT, Bulk	- FOB Montevideo	\$ 245-250				
Argentina	Basis		Price US\$				
Milled Rice 5%	PMT, Bagged	- FOB CDU	\$ 255-260				
Milled Rice 10%	PMT, Bagged	- FOB CDU	\$ 249-254				
Milled Rice 15%	PMT, Bagged	- FOB CDU	\$ 240-245				
Rough Rice	PMT, Bulk	- FOB CDU	\$ 140-145				



SEED

- av

Brown Rice	PMT, Bulk - FOB CDU	\$ NQ
Parboiled	PMT, Bulk - FOB CDU	\$ NQ
Guyana	Basis	Price US\$
Milled Rice 10%	PMT, Bagged - FOB	\$
Surinam	Basis	Price US\$
Milled Rice 10%	PMT, Bagged - FOB	\$





Mercosur							
Uruguay	Basis		Price US\$				
Milled Rice 10%	PMT, Bagged	- C+F Jaguarao	\$ 225-230				
Brown Rice	PMT, Bulk	- C+F Jaguarao	\$ 170-175				
Argentina	Basis		Price US\$				
Milled Rice 10%	PMT, Bagged	- C+F Uruguaiana	\$ 222-227				
Rough Rice	PMT, Bulk	- C+F Uruguaiana	\$ 125-130				
Polished Rice 15%	PMT, Bagged	- C+F Santiago	\$ 258-263				

USA Southern								
Rough Long Grain		Milled Long Grain						
CIF NOLA	\$ 4.30-4.50	Fas Lake Charles	\$ 8.65-8.75					
Arkansas	\$ 3.55-3.85	Arkansas	\$ 8.20-8.30					
Louisiana	\$ 3.55-3.85	Louisiana	\$ 8.20-8.30					
Texas	\$ 3.55-3.85	Texas	\$ 8.20-8.30					
Mississippi	\$ 3.55-3.85	Mississippi	\$ 8.20-8.30					
Missouri	\$ 3.55-3.85	Missouri	\$ 8.20-8.30					
Laredo	\$ 110-120	Brewers						
Dlvd barge terml	\$ 3.90-4.10	Arkansas	\$ 6.00-6.25					
Rough Medium Grain		Louisiana	\$ 6.00-6.25					
Arkansas	\$ 5.10-5.30	Texas	\$ 6.00-6.25					
Louisiana	\$ 5.10-5.30	Mississippi	\$ 6.00-6.25					
CIF NOLA	\$ 5.75-5.95	Missouri	\$ 6.00-6.25					
Dlvd barge terml	\$ 5.35-5.55							
Brown Long Grain		Parboiled Milled						
CIF NOLA	\$ 7.60-7.80	CIF NOLA	\$ 10.60					
CIF Rotterdam	\$ 8.30-8.70	FOB Mill	\$ 9.85					
	USA Cal	lifornia						

Rough Calrose

SEED

Milled Calrose



California	\$ 7.40-7.60	California	\$ 12.35-12.55
exspout SAC	\$ 7.40-7.60	exspout SAC	\$ 12.35-12.55
All prices in 100 lbs, FO	B basis. Except CIF	<u>Global Cash Prices</u>	

IMPORTAÇÕS DE ARROZ NA SADC- 1996 / 2000

Rice		Impo	orts - Qty	' (Mt)			Impo	rts - Val (1	000\$)		Price (USD/TON)				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Angola	42,5	24	39,6	31	57,5	15	7,2	15	6,6	8,5	353	300	379	213	148
Botswana	13,087	11,823	11,225	11,043	19,239	18,483	16,585	18,058	17,734	28,426	1.412	1.403	1.609	1.606	1.478
Congo, Dem Republic of	39,142	56,535	55,762	54,923	9,108	22,06	22,737	23,807	23,197	3,197	564	402	427	422	351
Lesotho	3	3	3	3	3	1,2	1,2	1,2	1,2	1,2	400	400	400	400	400
Malawi	700	980	855	856	861	344	365	222	223	229	491	372	260	261	266
Mauritius	88,558	65,445	62,392	83,236	75,66	37,389	24,813	21,239	30,559	25,181	422	379	340	367	333
Mozambique	53,3	44,8	48,7	34	70	21	13,2	16,5	10,3	21,2	394	295	339	303	303
Namibia	184,264	192,78	243,223	330,772	250	72,6	74,5	84,7	89,37	86	394	386	348	270	344
Seychelles	5,639	5,801	4,851	4,1	6,406	4,823	4,738	4,202	3,5	5,664	855	817	866	854	884
South Africa	482,333	580,18	519,636	515,234	523,356	163,754	170,445	150,805	140,052	135,799	340	294	290	272	259
Swaziland	10	8,818	9,651	11,586	13,087	4	4,419	5,206	6,546	6,141	400	501	539	565	469
Tanzania, United Rep of	52	98,213	108,5	46,7	103,5	19	24,605	30,4	12	18	365	251	280	257	174
Zambia	13,153	7,074	6,3	6,6	3,35	3,16	4,282	2,57	2,08	1,14	240	605	408	315	340
Zimbabwe	16,948	32,988	34,097	22,194	16,464	8,983	11,714	15,791	8,741	7,282	530	355	463	394	442
SADC	1703,92	2111,46	2001,94	2010,39	2011,67	735,452	745,438	611,478	574,879	576,73	376	349	344	311	295
Taxa de Crescimento Anual(%)		23,9%	-5,2%	0,4%	0,1%		1,4%	-18,0%	-6,0%	0,3%		-7,2%	-1,5%	-9,7%	-5,2%





Import Trade Matrix

Import Trade Matrix			
Country	South Africa, Republic of		
Commodity	Rice, Milled		
Time period	Jan-Dec	Units:	Metric tons
Imports for:	2001		2002
U.S.	50400	U.S.	
Others		Others	
Thailand	342625		
India	79490		
Uruguay	33907		
United Kingdom	10706		
Vietnam	5815		
Australia	1763		
			_
Total for Others	474306		0
Others not Listed	7264		
Grand Total	531970		0

Export Trade			
Country	South Africa, Republic of		
Commodity	Rice, Milled		
Time period	Jan-Dec	Units:	Metric tons
Exports for:	2001		2002
U.S.		U.S.	
Others		Others	
Zambia	5845		
Zimbabwe	2329		
Congo	1690		
Mozambique	670		
Total for Others	10534		0
Others not Listed	966		
Grand Total	11500		0

SEED

- 44



Rice, Paddy	Year								
Production (Mt)	1996	1997	1998	1999	2000	2001			
World	568,850,119	<u>577,117,513</u>	<u>579,089,706</u>	609,914,541	600,638,089	<u>592,831,326</u>			
Angola	20,00	20,50	21,00	16,00	16,00	16,00			
Australia	965,63	1,254,610	1,390,000	1,101,000	1,753,000	1,239,000			
Bangladesh	28,184,000	28,152,000	29,709,000	34,427,000	37,442,000	39,112,000			
Brazil	8,643,803	8,351,665	7,716,090	11,709,700	11,089,800	10,207,200			
Cambodia	3,458,000	3,414,917	3,509,871	4,040,900	4,026,092	4,099,016			
China	197,032,897	202,771,843	200,571,557	200,403,308	189,814,060	181,514,992			
Congo, Dem Republic	347,95	322,10	362,66	350,00	337,80	326,03			
Congo, Republic of	1,14	980,00	979,00	1,27	1,30	1,35			
Egypt	4,895,388	5,480,010	4,474,110	5,816,960	6,000,490	5,700,000			
Guinea-Bissau	120,21	99,94	87,20	80,30	104,10	100,00			
India	122,500,000	123,700,000	129,115,104	134,212,704	129,444,000	131,900,000			
Indonesia	51,101,504	49,377,056	49,236,700	50,866,388	51,898,000	50,096,000			
Japan	12,930,000	12,531,000	11,200,000	11,468,800	11,863,000	11,320,000			
Korea, Dem People's F	1,426,000	1,527,000	2,307,000	2,343,000	1,690,000	2,060,200			
Korea, Republic of	7,121,421	7,312,096	6,779,290	7,032,757	7,124,773	7,316,216			
Madagascar	2,500,000	2,558,000	2,447,000	2,637,000	2,300,000	2,300,000			
Malawi	72,63	65,69	68,68	92,11	98,68	98,00			
Malaysia	2,228,489	2,119,615	1,944,240	2,036,641	2,195,000	2,215,000			
Mauritania	66,75	80,94	101,90	51,88	76,20	80,00			
Mozambique	139,00	180,22	191,00	186,19	151,39	166,95			
Nigeria	3,122,000	3,268,000	3,275,000	3,277,000	3,298,000	3,298,000			
Pakistan	6,457,200	6,499,500	7,011,400	7,733,417	7,204,620	6,750,000			
Peru	1,203,168	1,459,830	1,548,780	1,955,030	1,892,100	2,018,500			
Philippines	11,283,570	11,268,000	8,554,000	11,786,600	12,389,400	12,954,900			
South Africa	3,00	3,00	3,00	2,90	3,00	3,00			
Sri Lanka	2,061,520	2,239,370	2,692,340	2,868,000	2,859,000	2,868,000			
Swaziland	265,00	411,00	105,00	100,00	170,00	170,00			
Tanzania, United Rep	733,80	550,80	810,80	506,20	508,00	514,00			
Thailand	22,331,600	23,580,100	22,999,000	24,172,000	25,608,000	25,200,000			
Uganda	82,00	80,00	90,00	95,00	109,00	114,00			
United States of Ameri	7,783,604	8,300,697	8,364,200	9,343,954	8,657,810	9,663,560			
Uruguay	973,50	1,023,800	949,80	1,328,200	1,209,100	1,030,200			
Viet Nam	26,396,700	27,523,900	29,145,500	31,393,800	32,529,500	31,925,400			
Zambia	13,30	12,47	6,40	14,70	8,84	10,00			
Zimbabwe	400,00	400,00	400,00	400,00	400,00	400,00			





Rice, Paddy	Year								
Yield (Hg/Ha)	1996	1997	1998	1999	2000	2001			
World	<u>3,79</u>	<u>3,82</u>	<u>3,82</u>	<u>3,89</u>	<u>3,90</u>	<u>3,91</u>			
Angola	0,87	0,89	0,88	0,80	0,80	0,80			
Argentina	5,10	5,37	4,78	5,73	4,78	5,68			
Australia	7,07	7,65	9,93	9,18	12,09	9,53			
Azerbaijan, Republic o	3,69	4,61	4,80	4,44	5,00	5,66			
Brazil	2,66	2,73	2,52	3,07	3,03	3,24			
China	6,21	6,31	6,35	6,33	6,26	6,35			
Chile	4,77	3,63	3,91	4,15	5,24	5,02			
Colombia	4,08	4,64	4,71	4,80	4,80	4,91			
Egypt	8,29	8,42	8,64	8,88	9,10	8,77			
Greece	7,49	7,21	8,05	7,22	7,41	7,74			
Guinea-Bissau	1,84	1,67	1,45	1,18	1,49	1,82			
India	2,82	2,85	2,88	2,98	2,89	2,96			
Indonesia	4,42	4,43	4,20	4,25	4,40	4,25			
Japan	6,54	6,42	6,22	6,41	6,70	6,66			
Korea, Republic of	6,79	6,95	6,42	6,60	6,75	6,93			
Madagascar	2,19	2,17	2,03	2,15	1,91	1,91			
Mozambique	0,97	1,09	1,06	1,00	0,96	0,96			
Pakistan	2,87	2,80	2,89	3,07	3,03	3,00			
Peru	5,72	6,12	5,76	6,27	6,59	6,73			
Philippines	2,86	2,93	2,70	2,95	3,07	3,19			
Portugal	6,09	5,75	5,99	5,99	5,99	6,29			
South Africa	2,31	2,31	2,31	2,23	2,31	2,31			
Spain	6,98	6,83	7,07	7,54	6,93	7,84			
Sri Lanka	3,12	3,25	3,51	3,28	3,44	3,37			
Swaziland	4,65	5,14	7,00	6,67	3,40	3,40			
Tanzania, United Rep	1,53	1,25	1,65	1,07	1,03	1,28			
Thailand	2,41	2,38	2,42	2,42	2,62	2,57			
Uganda	1,41	1,33	1,41	1,40	1,51	1,50			
United States of Ameri	6,86	6,61	6,35	6,57	7,04	7,21			
Uruguay	6,47	6,58	5,27	6,38	6,38	6,70			
Viet Nam	3,77	3,88	3,96	4,10	4,24	4,26			
Zambia	1,34	1,00	0,71	0,91	0,84	0,91			
Zimbabwe	2,00	2,00	2,00	2,00	2,00	2,00			



Appendix 3: Pre-viability Study for the Chilembene Tomato Factory

LVSDI

AGRI-PROCESSING SECTORIAL STUDIES

PROJECTO 1: REHABILITATION, MODERNISATION AND DIVERSIFICATION OF THE CHILEMBENE TOMATO PROCESSING FACTORY

(PRE-VIABILITY STUDY – Final Report)

<u>SUMMARY</u>

I. SHORT PRESENTATION

II SUMMARY OF THE PRE-VIABILITY INDICATORS

III PROJECT CONTEXT

- 1. Agricultural sector
- 2. Agro-Industrial sector
- 3. Commercial/Marketing Sector

IV ANALYSIS OF ECONOMIC AND FINANCIAL VIABILITY

- 1. Assumptions
- 2. Investment
- 3. Financing Plan
- 4. Income
- 5. Costs

SCENARIOS (2)

- 1. Provisional demonstration of results
- 2. Profitability indicators
- 3. Sensibility Analysis
- 4. Economic Indicators
- 5. Provisional Balance-sheet
- 6. Financial Indicators

APPENDICES

- 1. Technology, technical equipment, technical coefficients, and others.
- 2. Statistics on prices, production, income, imports, exports.
- 3. Diagnosis and Strategy for the Agricultural Sector
- 4. Diagnosis and Strategy for Agro-Industry



I. SHORT PRESENTATION

The following, among others, are the reasons that justify the choice of this project as one of the anchor projects for agro-industry in the context of the Limpopo Valley study:

- There is real availability of raw materials in the area of the factory;
- There is potential for diversifying production into: tomato, mango, paw-paw, orange, passion fruit and particularly pineapple juices/concentrates; tinned peas, beans, canned fruit in syrup, etc. This diversification is subject to deeper technical, economic and market studies, not considered in this study;
- The factory may act as a factor stimulating the production of tomatoes and other crops to be processed. It would immediately reduce the vulnerability of the tomato produced in Chokwe to the market for fresh tomatoes, and would guarantee its purchase at competitive prices. The factory can also use the tomatoes rejected by the market for fresh tomatoes as raw material for its production;
- Judging from the visit made to the site, the factory infrastructure seems intact:
- A well-designed investment strategy, linked to a solid market study, would have to ensure the technological appropriateness of the factory product, placing it on the national and international market. This may involve strong marketing of its own brand name - "Limpopo Valley", for example - or the adoption of a stronger brand name on the market, in a partnership regime to be defined.
- The relaunching of the factory could re-create about 80 jobs, the maximum number reached in the past.

The general lines of this project are:

- Regardless of the brand name option adopted own brand, or other it seems to us reasonable to include in the project a laboratory for certification of quality and origin. The question of the tutelage, ownership and management of this type of laboratory is a matter to be gone into more deeply, but it would not be restricted to the control and certification of tomatoes, but would extend to other crops and produce processed/produced in the valley.
- Based on the pre-assessment of the viability of the Chilembene factory, guaranteed with the tomato paste, a product already tested and available,





advance with attracting potential investors who may be prepared to consider the subsequent stages.

- Based on a market study (funding envisaged in the calculations presented here) on the products of greatest yield that will be processed, either from tomatoes or from other crops defines the optimal products to be processed and those to be extracted and the ideal size of the additional production lines.
- Design of an agricultural component which, using the factory's 600 hectares and other irrigated areas, ensures the interested involvement of the local producers in producing raw material and supplying the factory. This is important to free the factory managers from agricultural management, without putting at risk the flow and the quality of the raw material. The acquisition of the machinery needed to serve all 600 hectares (whether those that are currently the property of the factory, or others), the hiring of 3 extensionists and the financial costs of promotion, are envisaged in the simulations presented.
- Design of the mechanisms for a partnership (shareholding or simply commercial) and for financing the rehabilitation/modernisation of the factory and marketing its produce.
- The project can be rapidly implemented, it has a guaranteed market (Mozambique currently imports more tomato paste than is necessary to be sold to make the factory viable), it will have a great impact on the economy of the region and of the country (the country needs to create more value added from its own natural riches), and it will generate jobs directly and indirectly (making people stay in the area and improving their standard of living).

The basic pre-viability factors presented should be looked into more deeply through subsequent market studies and technical and economic viability studies. This investment is considered in the Overall Investment Plan.



PROJECT DESCRIPTION

Sector	Description	Products/by-products	Strong points	Other Important
				Data
Industry of juices, concentrates, jams, preserves and frozen fruit and vegetables	1st phaseAgriculturalproduction inpartnership with thefarmersProduction oftomato pasteProduction ofconcentrates, juices,tinned foods, fruit andvegetable jams2nd phaseFrozen potatoesand mixed vegetablesPre-cooked mealsand tinned vegetables	 Tomato paste, peeled tomatoes, tomato juice Potatoes and mixed vegetables (frozen) Tinned pre-cooked vegetables (dried or green beans; peas, maize) Juices, concentrates and jams (pineapple, paw-paw, mango, grapefruit, guava, passion fruit, orange) Pre-cooked meals (bean stew, tripe, peas with eggs and sausages etc) 	 Absorbs surplus Adds value to lesser quality products Encourages farmers because it guarantees a market for their agricultural produce Activity is not totally dependent on the tomato harvest, because it relies on diversification It relies on its own "Limpopo Valley" brand Food reserve 	Total recovery of the existing unit (e.g. "Lomaco Factory") Young work force with know- how is still available at the site (chiefs)

II. SUMMARY OF PRE-VIABILITY INDICATORS

Summary of pre-viability indicators for Project 2: Chilembene processing factory					
	SCENARIO 1 – Cautious				
I	Investment needed	3,119, 043 USD			
D	Break-even year	Year 3			
I C	"Break-Even"	1,323, 422 USD			
Ă	Sales in Break-even year	1,784, 767 USD			
T O	Pay back time	58 months			
R	IRR	15,82 %			
3	NPV	156,662 USD			
	SCENARIO 2 – Realistic				
I	Investment needed	3,110,442 USD			
D	Break-even year	Year 3			
I C	"Break-Even"	1,221,052 USD			
Ă	Sales in Break-even year	1,850,869 USD			
0	Pay back time	55 months			
R	IRR	21,01 %			
3	NPV	437,035 USD			



CONCLUSIONS:

From analysing the economic and financial indicators of profitability, one notes that the "project for the recovery modernisation and diversification of the activity of the - (name) tomato processing factory at Chilembene" is technically, economically and financially viable (in terms of pre-viability).

The precautions taken in the assumptions used, and sensibility analysis made of the project's critical parameters, give it a very reasonable safety margin, and significantly reduce the project risk.

For purposes of pre-viability, the net benefits arising from the processing of other products, apart from the tomato paste, where viability is already assured, were not considered: these other products will bring much greater value added to the project (the products have much better commercial margins, and the investment and marginal costs are not very significant).

These conclusions will be real to the extent that the constraints identified in general terms on the agricultural sector and on agro-industry are overcome. In the Draft Report on the "Diagnosis and Strategy Advocated", suggestions are made for solving a significant part of these constraints in terms of private initiative.

In the investment and costs forecast, measures and the respective resources for ensuring the supply of raw material, which has been one of the main constraints on the factories already established in other sectors, are safeguarded.



III CONTEXT

As already mentioned in the Draft Report on the Diagnosis and Development Strategy for the Agricultural Sector and for Agro-Industry, the viability of the tomato harvest in the Limpopo Valley depends, summarily, on the following factors:

1. Improving the existing infrastructures (public initiative)

- Availability and stability in the supply of water for irrigation
- Rehabilitation of the irrigation systems
- Improving access: road and rail systems
- Stability in the supply of energy, and of fixed and mobile telecommunications
- Improvement in the education and health services

Reducing red tape in the public sector and increasing its efficiency. Create • mechanisms for decentralising state decisions control over all in order to reduce the conditions and actors, that lead the proliferation of vices that divert their to behaviour away from the national interest.

• Ensure that public and private economic agents comply with the law as regards tax and customs evasion, and the licensing of activities.

- **2. Investment in professional training**, for farmers, workers, administrative staff, salespersons and other relevant professionals.
- 3. Investment in research and in extension services
- 4. Availability of services accountancy, legal services. the treatment and availability of data concerning markets (for productive factors, and for primary and manufactured products internationally), and transport nationally of goods, storage, training, recruitment, financial services, etc.
- 5. Overcome the reluctance of the financial sector to finance agriculture and reduce the interest rates currently charged, which on their own make non-viable any business in this sector (suggestions have been made, notably for the creation by the state of a guarantee fund, which would cover part of the risks of the financial and insurance sectors).

IN SHORT, CREATE THE SO FAR NON-EXISTENT "BUSINESS ENVIRONMENT" WHICH IS INDISPENSABLE FOR THE SUCCESS OF ANY PROJECT.





Currently a large quantity of tomatoes are produced in the Limpopo Valley (of a variety appropriate for industrial processing - intensely coloured tomatoes, with a high concentration of solids, and which ripen uniformly SO as to These require one, or at most two, harvests). tomatoes are not fully absorbed by the Gaza and Maputo market. There are farmers commercial sector with good know-how of in the the business. whose farms are of an appropriate size for mechanisation, and with interesting yields per hectare (from 20 tonnes per hectare). is being restored, the national Water supply and regional market excellent the is huge, and Limpopo Valley has natural, infrastructural and historical conditions for developing the production of tomatoes, in large quantities, and in a competitive manner.

In addition to tomatoes, some other vegetables and fruits with a good potential produced in Limpopo for processing are the Valley, albeit in smaller namely beans, mangoes, amounts paw-paws, fruit pineapples, among others. passion and

As the Draft Report notes, within the agricultural sector. the following conditions indispensable viable are to make the production of tomatoes and of other crops mentioned above, or which could easily be produced if there was guaranteed absorption (through industrial processing):

- Guarantee the availability and stability of water supplies;
- Encourage the creation of companies that provide services of hiring agricultural machinery and of extension (farmers must be informed and trained machinery correctly), to use the mainly for adopt mechanised the business sector, which has to highly production processes.
- Encourage the creation of companies that purchase agricultural chemicals in large amounts so as to reduce the final the respective extension unit price, and that undertake (farmers must be informed and trained in the proper use of chemicals, part of the lack of competitiveness results from their since incorrect use).
- Gradual alteration of the landholding structure, encouraging bringing the effective use of land, together smallholdings, and producina crops appropriate to their characteristics and to the know-how of their owners.
- introduction into the commercial family Encourage and sector of varieties appropriate to their final destination (normal or high quality fresh tomatoes, or industrial tomatoes).
- To encourage the business sector, it is necessary to reduce the weight of the informal economy.

Appendix 3





- Encourage agro-industry to promote planting, and establish private methods, market of financing following laws, farmers on time, and with interest rates that their activity will bear.
- Encourage the insurance sector to launch "harvest insurance" at tolerable prices.
- Ensure the marketing of excess production of tomatoes and of other vegetables and fruits, well lesser quality as as of produce, for consumption fresh.

7. Agro-industrial sector

As the Draft Report notes, within the agro-industrial sector, the following conditions are indispensable to make viable the processing of tomatoes, and of other vegetables and fruits to be studied:

- Availability and stability in the supply of raw material
- Quality of the raw material
- Undertake extension, complementary to the state or other specialised agents
- Undertake promotion, complementary to the state or other specialised agents
- Availability of skilled labour (essentially, ability to read; sense of responsibility as regards their role in the organisation; no vices)
- Creation of "Limpopo Valley" brands of fresh tomato, tomato paste, tomato . juice, and the other vegetables and fruits to be processed.
- Existence of services for certifying origin
- Investment in marketing: focus quality and on on certification of origin (these market segments are still niches, they have exponential growth rates, and are highly profitable, appropriate for new brands that are entering).

8. Commercial sector/marketing

This sector is not a block on the development of the tomato harvest. There are already that supply these agents services, or if more agents are necessary, the market will ensure that they appear:

- Suppliers of goods transport services;
- Warehouses;
- "Tradings"

SEED

- Distributors and retailers;
- Communications, marketing and advertising companies etc.



Companies which design, develop and produce packaging.

At this level it is IMPORTANT to set up the regulations and create the body that will manage and inspect the LIMPOPO VALLEY CERTIFICATE OF ORIGIN, to be used as a BRAND.

III ANALYSIS OF ECONOMIC AND FINANCIAL VIABILITY

1. Assumptions

SCENARIOS

Two scenarios were developed, which are different as to the assumptions concerning the sales price of tomato paste, and the purchase price of fresh tomatoes.

Tomato price, August 2002						
SALES and AQUISITION PRICES						
Product	Scenario 1 – Cautious	Scenario 2 - Realistic				
	(1)	(1)				
Canned tomato paste	Year 1: 810 USD/Tonne	Year 1: 840 USD/Tonne				
(3 and 5 kilo tins, 210	Year 2 to 5: 818 to 843	Year 2 to 5: 848 to 874				
<u>kilo drums)</u>	USD/Tonne, depending on	USD/Tonne depending on				
	inflation	inflation.				
	(2)	(2)				
<u>Fresh Tomato</u>	Year 1: 50 USD/Tonne	Year 1: 45 USD/Tonne				
	Year 2 to 5: 51 to 52	Year 2 to 5: 45 to 47				
	USD/Tonne depending on	USD/Tonne depending on				
	inflation.	inflation.				
Notos:	USD/Tonne depending on inflation.	USD/Tonne depending on inflation.				

Notes:

- Prices obtained by reference to the prices in the study "Competir", which are in turn based on the 1. publication "Tomato News", prices of the USA and Italy (prices CIF Maputo oscillate between 832 and 900 USD/tonne). The prices from China (a major world producer) and Turkey (www.tomatopaste.cc and www.algy.com/...) were also obtained.
- 2. Prices obtained by reference to the prices in the study "Competir" and the average prices in the two seasons at the "Malanga" market for the sale of fresh tomatoes. In the sales price to the industry, one should take into account savings in the cost of transport and boxing, the savings in terms of the farmer's time, who can thus devote himself to production, price stability, and the purchase of all the produce (only the rotten tomatoes are not accepted).
- 3. It was considered that international prices will remain stable over the five years of the study, evolving only in accordance with dollar inflation.





OTHER GENERAL ASSUMPTIONS

- The investments needed, from buildings/building work, to industrial equipment, agricultural equipment to produce the and/or necessarv amounts of fresh tomatoes (own equipment providing services to farmers), transport and administrative equipment, training, marketing, studies, formation, licences and permits, are quantified in detail.
- The technology acquired (Italian) will make it possible to maximise yields from the factory.
- buildings, The investment in infrastructures, transport and other areas, already envisage an increase specific of in lines production (for other vegetables fruits), depending the or on market. viabilitv and technical studies to be undertaken (for example, for about 35,000 USD, the factory could also produce tomato juice).
- The factory is autonomous in terms of transport.
- 30% The following financial structure was considered: own 70% capital or the equivalent, and bank funding. А market interest rate (10%) was considered, without any improvement.
- The complete payment of obligations (VAT, income all tax corporation tax, tax, social security) has been considered, without any fiscal benefit (this ought to be granted by the state, ensuring that it reverts to the suggested rural development company).
- A "2% surprise factor" on total income is considered, under the heading "other expenses and costs" in the balance sheet.
- A 13% rate of updating Cash flows was used.
- A 1% dollar inflation rate was used as an estimate throughout the period of the study.
- Investment, income and costs are not quantified for the diversification of the factory, potential which should be really since there is not such verified, a great vulnerability nor SO competitive a market as for tomato paste.

NOTE: Part of the data used was gathered from the Limpopo Valley stakeholders, farmers from the business namely sector, agroindustry (in the Chilembene factory itself), commercial sector, technicians and other staff from public bodies, Hicep, among and from studies the available secondary others. apart information (COMPETIR, Tomato News, others).





2. Investment

OVERALL INVESTMENT PLAN

	(Unit: USD)
ITEM	1
PHYSICAL FIXED ASSETS (see annexe 1)	
PHYSICAL FIXED ASSETS	2 675 000\$00
Buildings and Annexes	580 000\$00
Industrial equipment (2,500 Kg/hour)	1 500 000\$00
Transport equipment	295 000\$00
Agricultural Extension equipment	300 000\$00
NON-PHYSICAL FIXED ASSETS	37 500\$00
Licences, permits	2 500\$00
Constitution of the company	2 500\$00
Implementation of the professional training plan	15 000\$00
Viability study	7 500\$00
Implementation of the marketing plan	10 000\$00
INVESTMENT IN FIXED ASSETS	2 712 500\$00
INVESTMENT IN WORKING CAPITAL	397 942\$00
TOTAL	3 110 442\$00



		Unit.: USD
ITEMS	DAYS	1
1. Cash in hand	30	30 690\$00
2. Clients	30	136 080\$00
3. Stocks	30	36 450\$00
4. Suppliers of stocks	30	78 975\$00
 5. Estado 5. State VAT supported VAT liquidated VAT on credit VAT to pay Income tax 6. Social security 		555 046\$00 277 603\$00 277 443\$00 2 414\$00 1 332\$00
7. Working capital requirements		397 942\$00
8. Investment in working capital		397 942\$00

WORKING CAPITAL REQUIREMENTS

	1	2	3	4	5
Initial stocks Final Stocks Purchases	36 450\$00	36 450\$00 77 720\$00	77 720\$00 82 628\$00	82 628\$00 83 454\$00	83 454\$00 84 289\$00
	473 850\$00	507 587\$00	500 677\$00	501 553\$00	506 568\$00
CMV	437 400\$00	466 317\$00	495 769\$00	500 726\$00	505 734\$00



3. Financial plan

PROJECT FINANCING PLAN

	Unit: USD
ITEM	1
1. ORIGINS	
Equity Capital Supplementary provisions <u>Other capital</u> Bank loans Shareholder loans <u>Subsidy</u> (Not considered in this study, but it's important to ensure the quickly implementation)	777 610\$00 777 610\$00 2 332 831\$00 2 177 309\$00 155 522\$00
TOTAL	3 110 442\$00
2. APLICATIONS Investment in fixed capital Investment in working capital requirements	2 712 500\$00 397 942\$00
TOTAL	3 110 442\$00



Loan Term	5				
Interest Rate	10,00%	Deferred Period		2	
					Unit:dollars
Period	Initial	Amortisation	Interest	Amortisation	Final
	Outstanding Capital			+ Interest	Oustanding Capital
Year 1, 1st semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 1, 2nd semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 2, 1st semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 2, 2nd semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 3, 1st semester	2 177 309\$00	362 885\$00	108 865\$00	471 750\$00	1 814 424\$00
Year 3, 2nd semester	1 814 424\$00	362 885\$00	90 721\$00	453 606\$00	1 451 539\$00
Year 4, 1st semester	1 451 539\$00	362 885\$00	72 577\$00	435 462\$00	1 088 655\$00
Year 4, 2nd semester	1 088 655\$00	362 885\$00	54 433\$00	417 318\$00	725 770\$00
Year 5, 1st semester	725 770\$00	362 885\$00	36 288\$00	399 173\$00	362 885\$00
Year 5, 2nd semester	362 885\$00	362 885\$00	18 144\$00	381 029\$00	



- Although the long term strategy should follow a line of differentiating the final product (processing other vegetables and fruits, brand, quality), with much better margins, only the tomato paste product was taken into account, since it is believed that this the product that must guarantee the viability of the factory, since there already exists abundant raw material.
- There is no problem with the capacity of the market to absorb the tomato paste produced by this unit (quantity), if we take the following indicators into account:
 - Mozambique imports more than 10,750 tonnes/year of tomato paste;
 - South Africa imports more than 1,560 tonnes/year of tomato paste;
 - Angola imports more than 5,900 tonnes/year of tomato paste, with a trend for this figure to increase;
 - The SADC countries import more than 11,000 tonnes/year of tomato paste;
 - Currently over 30,000 tonnes/year of fresh tomatoes is produced in Gaza, but with average productivity levels of less than 15 tonnes/hectare (the medium and large business sector achieves yields of between 25 and 35 tonnes/hectare, and the most efficient producers in South Africa manage to obtain 60 tonnes/hectare);
 - The trend towards improved standards of living leads to an increase in per capita consumption of tomato paste (in Mozambique this is currently estimated at around 0.6 kilos/year per capita; in the USA the figure is 3.3 kilos/year per capita);
 - And the processing capacity in the country is currently "zero".

4. <u>Costs</u>

- Since new equipment with current technology will be acquired, obtaining industrial yields at the level of the best world producers (20% paste for each kilo of fresh tomato) was considered. It was also projected that the factory will start with a 90% efficiency in year one, advancing to 95% in year 2, and 100% in the following years, since there are skilled workers who are still in the area who are able to produce efficiently.
- The costs of staff (see appended production file), fuel, maintenance and conservation, insurance, depreciation etc include the extensionists necessary for the production on the factory's own land, or other land, of the tomatoes needed.
- The provision of services, third party suppliers, staff costs, depreciation of equipment have been exhaustively quantified at market prices (including multi-risk insurance, work accidents, stock, 2% maintenance and



conservation on the initial value of the investment, advertising and others), as can be noted in the respective tables.

- The staff costs envisage wages of 150 USD a month for workers and administrative staff, which shows a concern to value this profession, and to obtain motivation, productivity and efficiency - that is, it does not try to obtain competitiveness at the cost of factors that are not sustainable in the medium to long term. Also envisaged are contracting 1 General Manager, 1 Financial Manager, 1 Commercial Manager, and 1 Production Manager, with monthly wages of 1,200 to 1,500 USD, and 5 extensionists (1 senior paid 1.200 USD/month, and 4 juniors at 800 USD/month).
- Under the heading of financial costs of operations are envisaged costs derived from the integral promotion of the production of fresh tomatoes needed for the factory (at a rate of 15% on the value of the purchases).

ALL THE REMAINING ASSUMPTIONS AND RESPECTIVE TABLES ARE PRESENTED BELOW IN RELATION TO THE 2 SCENARIOS USED.





SCENARIO 1 - CAUTIOUS

1. Income

INSTALLED AND USED PRODUCTIVE CAPACITY

SERVICES/PRODUCTS	1	2	3	4	5
Installed Productive Capacity (Ton.Hour/fresh					
tomato)	2,5	2,5	2,5	2,5	2,5
Efficiency Rate	90%	95%	100%	100%	100%
Shifts:					
1	8	8	8	8	8
II	8	8	8	8	8
III	8	8	8	8	8
Daily total of Hours/Machinery (H/M)	24	24	24	24	24
No. of working days/ Year	180	180	180	180	180
TOTAL (Ton. / processed fresh tomato) -	9720	10260	10800	10800	10800
TOTAL (Ton./processed tomato paste) -	1944	2052	2160	2160	2160

UNIT PRICE (USD/TON)

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Packaged tomato paste	810\$00	818\$00	826\$00	835\$00	843\$00
TOTAL					

MONTHLY PROVISIONAL PROFITS

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Packaged tomato paste	262 440\$00	279 790\$00	297 461\$00	300 436\$00	303 440\$00
TOTAL	262 440\$00	279 790\$00	297 461\$00	300 436\$00	303 440\$00

ANNUAL PROVISIONAL PROFITS

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Packaged tomato paste	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00
TOTAL	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00



2. <u>Costs</u>

PURCHASES: QUANTITIES

					Unid.: Ton.
RAW MATERIALS	1	2	3	4	5
Fresh tomato	1620	1710	1800	1800	1800
TOTAL	1.620	1.710	1.800	1.800	1.800

UNIT COST (\$/Ton.)

					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Fresh tomato	50\$00	51\$00	51\$00	52\$00	52\$00
TOTAL	50\$00	51\$00	51\$00	52\$00	52\$00

MONTHLY PURCHASES OF RAW MATERIALS

RAW MATERIALS	1	2	3	4	5		
Fresh tomato	81 000\$00	86 355\$00	91 809\$00	92 727\$00	93 654\$00		
TOTAL	81 000\$00	86 355\$00	91 809\$00	92 727\$00	93 654\$00		

ANNUAL PURCHASES OF RAW MATERIALS

					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Fresh tomato	486 000\$00	518 130\$00	550 854\$00	556 363\$00	561 926\$00
TOTAL	486 000\$00	518 130\$00	550 854\$00	556 363\$00	561 926\$00

MONTHLY EXTERNAL CHARGES FOR SERVICES

					Unit:dollars
ECS	1	2	3	4	5
Sub-contracts					
Electricity	1 500\$00	1 500\$00	1 500\$00	1 500\$00	1 500\$00
Fuels	2 567\$00	2 592\$00	2 618\$00	2 644\$00	2 671\$00
Water	1 000\$00	1 010\$00	1 020\$00	1 030\$00	1 041\$00
Fast weathering tools and utensiles	250\$00	253\$00	255\$00	258\$00	260\$00
Pakages (latas de 3 kg e 5kg)	8 100\$00	8 181\$00	8 263\$00	8 345\$00	8 429\$00
Office Supplies	375\$00	379\$00	383\$00	386\$00	390\$00
Chemical products and others	1 408\$00	1 422\$00	1 437\$00	1 451\$00	1 466\$00
Communication	200\$00	202\$00	204\$00	206\$00	208\$00
Accountancy postage	300\$00	303\$00	306\$00	309\$00	312\$00
Insurance	2 544\$00	2 570\$00	2 595\$00	2 621\$00	2 648\$00
Travel and accommodation	1 000\$00	1 010\$00	1 020\$00	1 030\$00	1 041\$00
Fees and commissions	200\$00	202\$00	204\$00	206\$00	208\$00
Maintenance and Repair	4 458\$00	4 503\$00	4 548\$00	4 593\$00	4 639\$00
Advertising and publicity	250\$00	253\$00	255\$00	258\$00	260\$00
Cleaning, hygiene and comfort	100\$00	101\$00	102\$00	103\$00	104\$00
Other ECSs	500\$00	505\$00	510\$00	515\$00	520\$00
TOTAL	24 753\$00	24 985\$00	25 220\$00	25 457\$00	25 697\$00



ANNUAL ECS

					Unit:dollars
	1	2	3	4	5
Sub-contracts					
Electricity	11 700\$00	11 700\$00	11 700\$00	11 700\$00	11 700\$00
Fuels	20 020\$00	20 220\$00	20 422\$00	20 627\$00	20 833\$00
Water	7 800\$00	7 878\$00	7 957\$00	8 036\$00	8 117\$00
Fast weathering tools and utensiles	1 950\$00	1 970\$00	1 989\$00	2 009\$00	2 029\$00
Pakages (latas de 3 kg e 5kg)	48 600\$00	49 086\$00	49 577\$00	50 073\$00	50 573\$00
Office Supplies	2 925\$00	2 954\$00	2 984\$00	3 014\$00	3 044\$00
Chemical products and others	10 985\$00	11 095\$00	11 206\$00	11 318\$00	11 431\$00
Communication	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Accountancy postage	3 600\$00	3 636\$00	3 672\$00	3 709\$00	3 746\$00
Insurance	30 531\$00	30 836\$00	31 144\$00	31 456\$00	31 770\$00
Travel and accommodation	12 000\$00	12 120\$00	12 241\$00	12 364\$00	12 487\$00
Fees and commissions	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Maintenance and Repair	34 775\$00	35 123\$00	35 474\$00	35 829\$00	36 187\$00
Advertising and publicity	3 000\$00	3 030\$00	3 060\$00	3 091\$00	3 122\$00
Cleaning, hygiene and comfort	780\$00	788\$00	796\$00	804\$00	812\$00
Other ECSs	3 900\$00	3 939\$00	3 978\$00	4 018\$00	4 058\$00
TOTAL	197 366\$00	199 222\$00	201 097\$00	202 991\$00	204 904\$00

MONTHLY COSTS WITH STAFF

					Unit:dollars
STAFF	1	2	3	4	5
GM+CM+FM+PM - Fees - Chargers - Meal Allowance	5 304\$00 5 100\$00 204\$00	5 357\$00 5 151\$00 206\$00	5 411\$00 5 203\$00 208\$00	5 465\$00 5 255\$00 210\$00	5 519\$00 5 307\$00 212\$00
Workers - Fees - Expenses - Meal Allowance	6 848\$00 6 585\$00 263\$00	6 917\$00 6 651\$00 266\$00	6 986\$00 6 717\$00 269\$00	7 056\$00 6 785\$00 271\$00	7 126\$00 6 852\$00 274\$00
Adminitrative Staff - Fees - Expenses - Meal Allowance	2 813\$00 2 705\$00 108\$00	2 841\$00 2 732\$00 109\$00	2 870\$00 2 759\$00 110\$00	2 898\$00 2 787\$00 111\$00	2 927\$00 2 815\$00 113\$00
TOTAL	14 966\$00	15 115\$00	15 266\$00	15 419\$00	15 573\$00



ANNUAL COSTS WITH STAFF

					Unit:dollars
STAFF	1	2	3	4	5
GM+CM+FM+PM - Fees - Chargers - Meal Allowance	63 648\$00 61 200\$00 2 448\$00	64 284\$00 61 812\$00 2 472\$00	64 927\$00 62 430\$00 2 497\$00	65 577\$00 63 054\$00 2 522\$00	66 232\$00 63 685\$00 2 547\$00
Workers - Fees - Expenses - Meal Allowance	73 631\$00 70 470\$00 3 161\$00	74 453\$00 71 260\$00 3 192\$00	75 283\$00 72 058\$00 3 224\$00	76 121\$00 72 864\$00 3 257\$00	76 968\$00 73 679\$00 3 289\$00
Adminitrative Staff - Fees - Expenses - Meal Allowance	33 758\$00 32 460\$00 1 298\$00	34 096\$00 32 785\$00 1 311\$00	34 437\$00 33 112\$00 1 324\$00	34 781\$00 33 444\$00 1 338\$00	35 129\$00 33 778\$00 1 351\$00
TOTAL	171 037\$00	172 833\$00	174 647\$00	176 479\$00	178 329\$00

MONTHLY Income Tax

						Unit:dollars
Rate	STAFF	1	2	3	4	5
20,00%	GM+CM+FM+PM	1 020\$00	1 030\$00	1 041\$00	1 051\$00	1 061\$00
10,00%	Workers	659\$00	665\$00	672\$00	678\$00	685\$00
10,00%	Adminitrative Staff	271\$00	273\$00	276\$00	279\$00	281\$00
	Total	1 949\$00	1 968\$00	1 988\$00	2 008\$00	2 028\$00

SOCIAL SECURITY

						Unit:dollars
Rate	STAFF	1	2	3	4	5
3,00%	GM+CM+FM+PM	153\$00	155\$00	156\$00	158\$00	159\$00
3,00%	Workers	198\$00	200\$00	202\$00	204\$00	206\$00
3,00%	Adminitrative Staff	81\$00	82\$00	83\$00	84\$00	84\$00
	Total	432\$00	436\$00	440\$00	445\$00	449\$00

INVESTEMENT DEPRECIATION TABLE

DESIGNATION	VALUE	DEPRECIATION	1	2	3	4	5
		RATE					
I - FIXED PHYSICAL ASSETS Buildings and Annexes Industrial equipment (2,500 Kg/hour) Transport equipment Agricultural Extension equipment	580 000\$00 1 500 000\$00 295 000\$00 300 000\$00	4,00% 12,50% 20,00% 12,50%	23 200\$00 187 500\$00 59 000\$00 37 500\$00	23 200\$00 187 500\$00 59 000\$00 37 500\$00	23 200\$00 187 500\$00 59 000\$00 37 500\$00	23 200\$00 187 500\$00 59 000\$00 37 500\$00	23 200\$00 187 500\$00 59 000\$00
II - FIXED NON PHYSICAL ASSETS Licences, Charters Company Constitution Professional Training Plan Implementation Feasibility Study Marketing Plan Implementation	2 500\$00 2 500\$00 15 000\$00 7 500\$00 10 000\$00	33,33% 33,33% 33,33% 33,33% 33,33%	833\$00 833\$00 5 000\$00 2 500\$00 3 333\$00	833\$00 833\$00 5 000\$00 2 500\$00 3 333\$00	833\$00 833\$00 5 000\$00 2 500\$00 3 333\$00		
TOTAL (I+II)	2 712 500\$00		319 700\$00	319 700\$00	319 700\$00	307 200\$00	269 700\$00





INVESTMENT IN WORKING CAPITAL

						Unit:dollars
ITEMS	DAYS	1	2	3	4	5
1. Current Assets	30	30 700\$00	62 009\$00	62 624\$00	63 245\$00	63 872\$00
2. Clients	30	131 220\$00	139 895\$00	148 731\$00	150 218\$00	151 720\$00
3. Stocks	30	40 500\$00	43 178\$00	45 905\$00	46 364\$00	46 827\$00
4. Stocks' Suppliers	30	87 750\$00	93 998\$00	92 718\$00	92 880\$00	93 809\$00
5. State - Paid VAT - Settled VAT - Credited VAT - Outstanding VAT - Income Tax		563 308\$00 267 689\$00 295 619\$00 2 414\$00	108 693\$00 285 386\$00 118 926\$00 2 438\$00	114 457\$00 303 410\$00 70 028\$00 2 462\$00	115 595\$00 306 444\$00 190 849\$00 2 487\$00	116 745\$00 309 509\$00 192 764\$00 2 511\$00
6. Social Security		1 332\$00	1 346\$00	1 359\$00	1 373\$00	1 387\$00
7. Net Current Assets Needs		406 543\$00	266 227\$00	90 692\$00	- 27 762\$00	- 28 051\$00
8. Net Current Assets Investment		406 543\$00	- 140 316\$00	- 175 535\$00	- 90 692\$00	

	1	2	3	4	5
Initial Stocks		40 500\$00	86 355\$00	91 809\$00	92 727\$00
Final Stocks	40 500\$00	86 355\$00	91 809\$00	92 727\$00	93 654\$00
Purchases	526 500\$00	563 985\$00	556 308\$00	557 281\$00	562 853\$00
Purchases of Goods for Resale	486 000\$00	518 130\$00	550 854\$00	556 363\$00	561 926\$00

Loan Term	5					
Interest Rate	10,00% Deferred Period			2		
	Unit:dollars					
Period	Initial	Amortisation	Interest	Amortisation	Final	
	Outstanding Capital			+ Interest	Oustanding Capital	
Year 1, 1st semester	2 183 330\$00		109 167\$00	109 167\$00	2 183 330\$00	
Year 1, 2nd semester	2 183 330\$00		109 167\$00	109 167\$00	2 183 330\$00	
Year 2, 1st semester	2 183 330\$00		109 167\$00	109 167\$00	2 183 330\$00	
Year 2, 2nd semester	2 183 330\$00		109 167\$00	109 167\$00	2 183 330\$00	
Year 3, 1st semester	2 183 330\$00	363 888\$00	109 167\$00	473 055\$00	1 819 442\$00	
Year 3, 2nd semester	1 819 442\$00	363 888\$00	90 972\$00	454 860\$00	1 455 554\$00	
Year 4, 1st semester	1 455 554\$00	363 888\$00	72 778\$00	436 666\$00	1 091 665\$00	
Year 4, 2nd semester	1 091 665\$00	363 888\$00	54 583\$00	418 472\$00	727 777\$00	
Year 5, 1st semester	727 777\$00	363 888\$00	36 389\$00	400 277\$00	363 888\$00	
Year 5, 2nd semester	363 888\$00	363 888\$00	18 194\$00	382 083\$00		



3. Forecast operational accounts of the project

	Unit:				
ITEMS	1	2	3	4	5
1.Net Sales	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00
1.1.Internal Market	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00
1.2.External Market					
2.Other Profits					
2.1.Services Rendered					
2.2.Other					
3.Output Variation					
4.Total	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00
5.Cost of the Consumed National Stocks	486 000\$00	518 130\$00	550 854\$00	556 363\$00	561 926\$00
6.Cost of the Consumed Imported Stocks					
7.Subcontracts					
8. Other External Charges for Services	197 366\$00	199 222\$00	201 097\$00	202 991\$00	204 904\$00
8.1.Electricity/Water/Fuels	39 520\$00	39 798\$00	40 079\$00	40 363\$00	40 650\$00
8.2.Rent	10 985\$00	11 095\$00	11 206\$00	11 318\$00	11 431\$00
8.3.Communications	48 600\$00	49 086\$00	49 577\$00	50 073\$00	50 573\$00
8.4.Insurance	30 531\$00	30 836\$00	31 144\$00	31 456\$00	31 770\$00
8.5.Commissions	37 505\$00	37 880\$00	38 259\$00	38 641\$00	39 028\$00
8.6.Publicity and Propaganda	3 000\$00	3 030\$00	3 060\$00	3 091\$00	3 122\$00
8.5. Various External Charges for Services	27 225\$00	27 497\$00	27 772\$00	28 050\$00	28 330\$00
9.Taxes	157\$00	168\$00	178\$00	180\$00	182\$00
9.1.Direct					
9.2.Indirect	157\$00	168\$00	178\$00	180\$00	182\$00
10.Costs with Staff	171 037\$00	172 833\$00	174 647\$00	176 479\$00	178 329\$00
11.Others Cost and Expenses	31 493\$00	33 575\$00	35 695\$00	36 052\$00	36 413\$00
12.Depreciation and Reinsertion	319 700\$00	319 700\$00	319 700\$00	307 200\$00	269 700\$00
14.Total	1 205 753\$00	1 243 628\$00	1 282 172\$00	1 279 265\$00	1 251 455\$00
15.Operational Profit of the Exercise	368 887\$00	435 113\$00	502 595\$00	523 349\$00	569 186\$00
16.Financial Costs	257 821\$00	260 632\$00	241 862\$00	169 157\$00	96 797\$00
16.1.of Operational Nature	39 488\$00	42 299\$00	41 723\$00	41 796\$00	42 214\$00
16.2.of Financing Nature	218 333\$00	218 333\$00	200 139\$00	127 361\$00	54 583\$00
17.Extraordinary Costs and Losses					
18.Profit Previous to Taxes	111 066\$00	174 481\$00	260 733\$00	354 192\$00	472 389\$00
19. Provisions for Taxes on Profits	38 873\$00	61 068\$00	91 257\$00	123 967\$00	165 336\$00
20.Net Profit	72 193\$00	113 413\$00	169 477\$00	230 225\$00	307 053\$00




4. Indicators of profitability

PROJECT PROFITABILITY INDICATORS

Net Present Value (NPV)	156 662\$00
Internal Rate of Return (IRR)	15,82%
Profitability Index (PI)	117,12%
Pay back period - Months	58

PROJECT CASH-FLOWS

					Unit:dollars
ITEMS	1	2	3	4	5
Total Annual Investment (1)	3 119 043\$00				
Investment Residual Value (2)					1 176 500\$00
Operational Cash-Flow (3)	610 226\$00	651 446\$00	689 315\$00	664 786\$00	631 336\$00
Cash-Flow Previous to the Project (4)					
Project's Cash-Flow (3+2-1-4)	-2 508 817\$00	651 446\$00	689 315\$00	664 786\$00	1 807 836\$00
Present Value of Operational CF	540 023\$00	651 446\$00	689 315\$00	664 786\$00	631 336\$00
Present Value of CF	-2 220 192\$00	510 178\$00	477 730\$00	407 726\$00	981 221\$00
NPV	156 662\$00				
Accumulated CF	-2 220 192\$00	-1 710 014\$00	-1 232 284\$00	- 824 559\$00	156 662\$00



5. Sensitivity analysis

SENSITIVITY ANALYSIS

					Unit.uoliai S				
	Calculated	CRITICAL PARAMETERS CONSIDERED							
Variation	Indicator	Sale	Cost	Investment	Sales				
		Price	Level	Cost	Level				
-10%	V.A.L.	54 685\$00	754 877\$00	633 372\$00	242 674\$00				
	T.I.R.	13,9%	25,4%	24,3%	16,9%				
-5%	V.A.L.	279 748\$00	628 202\$00	567 449\$00	372 100\$00				
	T.I.R.	17,5%	23,2%	22,6%	19,0%				
10%	V.A.L.	945 081\$00	248 174\$00	369 680\$00	760 377\$00				
	T.I.R.	28,6%	17,0%	18,5%	25,5%				
5%	V.A.L.	723 303\$00	374 850\$00	435 603\$00	630 952\$00				
	T.I.R.	24,8%	19,0%	19,7%	23,3%				

Unit:dollars



5. Economic indicators

COMPANY COSTS' STRUCTURE

ITEMS	1	2	3	4	5
Total Profits	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00
Consumed Stocks	30,86%	30,86%	30,86%	30,86%	30,86%
Subcontracts					
ECSs	12,53%	11,87%	11,27%	11,26%	11,25%
Taxes	0,01%	0,01%	0,01%	0,01%	0,01%
Costs with Staff	10,86%	10,30%	9,79%	9,79%	9,79%
Other Costs and Expenses	2,00%	2,00%	2,00%	2,00%	2,00%
Depreciation and Reinsertion Provisio	20,30%	19,04%	17,91%	17,04%	14,81%
Provisions					
Financial Costs of Operational Nature	2,51%	2,52%	2,34%	2,32%	2,32%
Financial Costs of Financing Nature	13,87%	13,01%	11,21%	7,07%	3,00%
Net Profit	4,58%	6,76%	9,50%	12,77%	16,87%



COMPANY'S GROSS SALES MARGIN

Unitaoliars

ITEMS	1	2	3	4	5
Sales	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00
Purchases of Goods for Resale	486 000\$00	518 130\$00	550 854\$00	556 363\$00	561 926\$00
Gross Margin	1 088 640\$00	1 160 611\$00	1 233 913\$00	1 246 252\$00	1 258 715\$00



COMPANY'S BREAK EVEN POINT

ITEM	1	2	3	4	5
Sales Volume	1 574 640\$00	1 678 741\$00	1 784 767\$00	1 802 615\$00	1 820 641\$00
Margin (%)	69,1%	69,1%	69,1%	69,1%	69,1%
Variable Costs	687 582\$00	725 806\$00	761 288\$00	768 451\$00	776 030\$00
Net contribution margin	887 058\$00	952 935\$00	1 023 479\$00	1 034 163\$00	1 044 610\$00
Net contribution margin (%)	56,33%	56,76%	57,35%	57,37%	57,38%
Fixed Costs	818 254\$00	821 081\$00	805 741\$00	723 338\$00	615 963\$00
Break Even point	1 452 505\$00	1 446 460\$00	1 405 070\$00	1 260 825\$00	1 073 555\$00
Safety Margin	7,76%	13,84%	21,27%	30,06%	41,03%



GROSS VALUE ADDED (GVA) AND COMPANY'S PRODUCTIVITY

ITEM	1	2	3	4	5		
Costs with Staff	171 037\$00	172 833\$00	174 647\$00	176 479\$00	178 329\$00		
Financial Costs	257 821\$00	260 632\$00	241 862\$00	169 157\$00	96 797\$00		
Depreciation	319 700\$00	319 700\$00	319 700\$00	307 200\$00	269 700\$00		
Net Profit	72 193\$00	113 413\$00	169 477\$00	230 225\$00	307 053\$00		
GVA	820 751\$00	866 578\$00	905 685\$00	883 061\$00	851 879\$00		
No. of workers	67	67	67	67	67		
Employees Total Productivity	12 250\$00	12 934\$00	13 518\$00	13 180\$00	12 715\$00		
Assets Total Productivity	24,71%	26,20%	32,40%	37,40%	42,95%		



COMPANY'S ECONOMIC RATIOS

ITEM	1	2	3	4	5
Operational Released Resources	610 226\$00	651 446\$00	689 315\$00	664 786\$00	631 336\$00
Equity Profitability	8,47%	11,75%	14,93%	16,87%	18,36%
Sales Gross Profitability	69,14%	69,14%	69,14%	69,14%	69,14%
Sales Net Profitability	7,05%	10,39%	14,61%	19,65%	25,95%
Sales Operational Profitability	38,75%	38,81%	38,62%	36,88%	34,68%
Assets Economic Profitability	18,37%	19,70%	24,66%	28,15%	31,83%
Assets Profitability	11,11%	13,16%	17,98%	22,16%	28,70%





7. Forecast balance sheet

					Unit:dollars
ITEMS	1	2	3	4	5
ASSETS					
1.Gross Fixed Assets	2 712 500\$00	2 712 500\$00	2 712 500\$00	2 712 500\$00	2 712 500\$00
1.1.Non - Physical	37 500\$00	37 500\$00	37 500\$00	37 500\$00	37 500\$00
1.2.Physical	2 675 000\$00	2 675 000\$00	2 675 000\$00	2 675 000\$00	2 675 000\$00
1.3.Financial					
2.Depreciation and Reinsertion	319 700\$00	639 400\$00	959 100\$00	1 266 300\$00	1 536 000\$00
3.Mid and Long Term Current Assets					
4.Stocks	40 500\$00	43 178\$00	45 905\$00	46 364\$00	46 827\$00
5.Short Term Current Assets	426 839\$00	258 821\$00	148 731\$00	150 218\$00	151 720\$00
5.1.Clients	131 220\$00	139 895\$00	148 731\$00	150 218\$00	151 720\$00
5.2.Other Debtors	295 619\$00	118 926\$00			
6.Bank Deposits/Cash/Negotionable Assets	461 467\$00	932 448\$00	847 665\$00	718 483\$00	608 308\$00
7.Prepayments and Deferred Income					
8.Total Assets	3 321 606\$00	3 307 547\$00	2 795 700\$00	2 361 264\$00	1 983 355\$00
EQUITY					
9.Capital	779 761\$00	779 761\$00	779 761\$00	779 761\$00	779 761\$00
10.Suplementary Instalments					
11.Reserves / Unappropriated Earned Surplus		72 193\$00	185 606\$00	355 083\$00	585 308\$00
12.Net Profit	72 193\$00	113 413\$00	169 477\$00	230 225\$00	307 053\$00
13.Interim Dividends					
14.Total Equity	851 954\$00	965 367\$00	1 134 843\$00	1 365 068\$00	1 672 121\$00
LIABILITIES					
15. Provisions for Risks and Costs					
16.Mid and Long Term Debts	2 339 282\$00	2 183 330\$00	1 455 554\$00	727 777\$00	
16.1.Bank Loans	2 183 330\$00	2 183 330\$00	1 455 554\$00	727 777\$00	
16.2.Partners' Loans	155 952\$00				
16.3.Other Debts					
17.Short Term Debt	130 369\$00	158 849\$00	205 303\$00	268 419\$00	311 234\$00
17.1.Bank Loans					
17.2.Suppliers	87 750\$00	93 998\$00	92 / 18\$00	92 880\$00	93 809\$00
17.3.Public Statal Sector	42 619\$00	64 852\$00	112 585\$00	175 539\$00	217 425\$00
17.4. Uther Debts					
18.Prepayments and Delerred Income					
19.Total Liabilities	2 469 652\$00	2 342 180\$00	1 660 856\$00	996 196\$00	311 234\$00
20.Total Liabilities+ Equity	3 321 606\$00	3 307 547\$00	2 795 700\$00	2 361 264\$00	1 983 355\$00





SEED

-ay

8. Financial Indicators

COMPANY'S BALANCE STRUCTURE

ITEMS	1	2	3	4	5	
Fixed Assets	2 433 300\$00	2 116 278\$00	1 799 305\$00	1 492 564\$00	1 223 327\$00	
Circulating Capital	888 306\$00	1 191 269\$00	996 395\$00	868 701\$00	760 028\$00	
Equity	851 954\$00	965 367\$00	1 134 843\$00	1 365 068\$00	1 672 121\$00	
Long Term Liabilities	2 339 282\$00	2 183 330\$00	1 455 554\$00	727 777\$00		
Short Term Liabilities	130 369\$00	158 849\$00	205 303\$00	268 419\$00	311 234\$00	



COMPANY'S FINANCIAL RATIOS

ITEMS	1	2	3	4	5
Debt	74,35%	70,81%	59,41%	42,19%	15,69%
Debt Recovery Period	5,97	5,04	2,98	1,35	
Debt payment with released					
operational resources	279%	298%	74%	78%	81%
Liability Average Cost	10,44%	11,13%	14,56%	16,98%	31,10%
Financial Autonomy	25,65%	29,19%	40,59%	57,81%	84,31%
Solvency	34,50%	41,22%	68,33%	137,03%	537,26%





COMPANY'S LIQUIDITY RATIOS

ITEMS	1	2	3	4	5
General Liquidity	7,12	7,77	5,08	3,41	2,59
Reduced Liquidity	6,81	7,50	4,85	3,24	2,44
Immediate Liquidity	3,54	5,87	4,13	2,68	1,95







OTHER COMPANY INDICATORS

ITEMS	1	2	3	4	5
Average Receiving Period (days)	30	30	30	30	30
Average Payment Period (days)	65	65	61	60	60
Assets Rotation	47,41%	50,75%	63,84%	76,34%	91,80%
Stocks Rotation (days)	30	30	30	30	30
Wage Productivity	479,87%	501,40%	518,58%	500,38%	477,70%
Share of Fixed Assets Covered by Equ	31,41%	35,59%	41,84%	50,33%	61,65%

COMPANY SCHEMATIC BALANCE

					Unit:dollars
ITEM	1	2	3	4	5
Permanent Capital Net Fixed Assets	3 191 236\$00 2 392 800\$00	3 148 697\$00 2 073 100\$00	2 590 397\$00 1 753 400\$00	2 092 845\$00 1 446 200\$00	1 672 121\$00 1 176 500\$00
Net Current Assets	798 436\$00	1 075 597\$00	836 997\$00	646 645\$00	495 621\$00
Cyclical Needs Cyclical Resources	467 339\$00 130 369\$00	301 999\$00 158 849\$00	194 635\$00 205 303\$00	196 581\$00 268 419\$00	198 547\$00 311 234\$00
Net Current Assets Needs	336 970\$00	143 149\$00	- 10 668\$00	- 71 838\$00	- 112 687\$00
Active Treasury Passive Treasury	461 467\$00	932 448\$00	847 665\$00	718 483\$00	608 308\$00
Treasury	461 467\$00	932 448\$00	847 665\$00	718 483\$00	608 308\$00
Treasury Control					





SCENARIO 2 - REALISTIC

NOTE: Only the changed tables are shown

1. Income

MONTHLY QUANTITIES (Ton.)

SERVICES/PRODUCTS	1	2	3	4	5
Packaged tomato paste	324	342	360	360	360
TOTAL	324	342	360	360	360

UNIT PRICE (USD/TON)

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Packaged tomato paste	840\$00	848\$00	857\$00	865\$00	874\$00
TOTAL					

MONTHLY PROVISIONAL PROFITS

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Packaged tomato paste	272 160\$00	290 153\$00	308 478\$00	311 563\$00	314 679\$00
TOTAL	272 160\$00	290 153\$00	308 478\$00	311 563\$00	314 679\$00

ANNUAL PROVISIONAL PROFITS

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Packaged tomato paste	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00
TOTAL	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00



2. Costs

PURCHASES: QUANTITIES

Unid.: Ton.

RAW MATERIALS	1	2	3	4	5
Fresh tomato	1620	1710	1800	1800	1800
TOTAL	1.620	1.710	1.800	1.800	1.800

UNIT COST (\$/Ton.)

					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Fresh tomato	45\$00	45\$00	46\$00	46\$00	47\$00
TOTAL	45\$00	45\$00	46\$00	46\$00	47\$00

MONTHLY PURCHASES OF RAW MATERIALS

		_			Unit:dollars
RAW MATERIALS	1	2	3	4	5
Fresh tomato	72 900\$00	77 720\$00	82 628\$00	83 454\$00	84 289\$00
TOTAL	72 900\$00	77 720\$00	82 628\$00	83 454\$00	84 289\$00

ANNUAL PURCHASES OF RAW MATERIALS

					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Fresh tomato	437 400\$00	466 317\$00	495 769\$00	500 726\$00	505 734\$00
TOTAL	437 400\$00	466 317\$00	495 769\$00	500 726\$00	505 734\$00

ANNUAL ECS

					Unit:dollars
FSE	1	2	3	4	5
Sub-contracts					
Electricity	11 700\$00	11 700\$00	11 700\$00	11 700\$00	11 700\$00
Fuels	20 020\$00	20 220\$00	20 422\$00	20 627\$00	20 833\$00
Water	7 800\$00	7 878\$00	7 957\$00	8 036\$00	8 117\$00
Fast weathering tools and utensiles	1 950\$00	1 970\$00	1 989\$00	2 009\$00	2 029\$00
Pakages (latas de 3 kg e 5kg)	48 600\$00	49 086\$00	49 577\$00	50 073\$00	50 573\$00
Office Supplies	2 925\$00	2 954\$00	2 984\$00	3 014\$00	3 044\$00
Chemical products and others	10 985\$00	11 095\$00	11 206\$00	11 318\$00	11 431\$00
Communication	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Accountancy postage	3 600\$00	3 636\$00	3 672\$00	3 709\$00	3 746\$00
Insurance	30 409\$00	30 713\$00	31 020\$00	31 330\$00	31 644\$00
Travel and accommodation	12 000\$00	12 120\$00	12 241\$00	12 364\$00	12 487\$00
Fees and commissions	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Maintenance and Repair	34 775\$00	35 123\$00	35 474\$00	35 829\$00	36 187\$00
Advertising and publicity	3 000\$00	3 030\$00	3 060\$00	3 091\$00	3 122\$00
Cleaning, hygiene and comfort	780\$00	788\$00	796\$00	804\$00	812\$00
Other ECSs	3 900\$00	3 939\$00	3 978\$00	4 018\$00	4 058\$00
TOTAL	197 244\$00	199 099\$00	200 973\$00	202 866\$00	204 778\$00



INVESTMENT IN WORKING CAPITAL

Unit:dollars								
ITEMS	DIAS	1	2	3	4	5		
1. Current Assets	30	30 690\$00	61 989\$00	62 603\$00	63 224\$00	63 851\$00		
2. Clients	30	136 080\$00	145 076\$00	154 239\$00	155 782\$00	157 339\$00		
3. Stocks	30	36 450\$00	38 860\$00	41 314\$00	41 727\$00	42 144\$00		
4. Stocks' Suppliers	30	78 975\$00	84 598\$00	83 446\$00	83 592\$00	84 428\$00		
5. State								
- Paid VAT		555 046\$00	99 885\$00	105 092\$00	106 137\$00	107 193\$00		
- Settled VAT		277 603\$00	295 956\$00	314 648\$00	317 794\$00	320 972\$00		
- Credited VAT		277 443\$00	81 372\$00					
- Outstanding VAT				128 184\$00	211 657\$00	213 780\$00		
- Income Tax		2 414\$00	2 438\$00	2 462\$00	2 487\$00	2 511\$00		
6. Social Security		1 332\$00	1 346\$00	1 359\$00	1 373\$00	1 387\$00		
7. Net Current Assets Needs		397 942\$00	238 915\$00	42 705\$00	- 38 376\$00	- 38 771\$00		
8. Net Current Assets Investment		397 942\$00	- 159 026\$00	- 196 210\$00	- 42 705\$00			

					Unit:dollars
	1	2	3	4	5
Initial Stocks		36 450\$00	77 720\$00	82 628\$00	83 454\$00
Final Stocks	36 450\$00	77 720\$00	82 628\$00	83 454\$00	84 289\$00
Purchases	473 850\$00	507 587\$00	500 677\$00	501 553\$00	506 568\$00
Purchases of Goods for Resale	437 400\$00	466 317\$00	495 769\$00	500 726\$00	505 734\$00
Loan Term	5				
Interest Rate	10,00%	Deferred Peric	bd	2	
Period	Initial	Amortisation	Interest	Amortisation	Final
	Outstanding Capital			+ Interest	Oustanding Capital
Year 1, 1st semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 1, 2nd semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 2, 1st semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 2, 2nd semester	2 177 309\$00		108 865\$00	108 865\$00	2 177 309\$00
Year 3, 1st semester	2 177 309\$00	362 885\$00	108 865\$00	471 750\$00	1 814 424\$00
Year 3, 2nd semester	1 814 424\$00	362 885\$00	90 721\$00	453 606\$00	1 451 539\$00
Year 4, 1st semester	1 451 539\$00	362 885\$00	72 577\$00	435 462\$00	1 088 655\$00
Year 4, 2nd semester	1 088 655\$00	362 885\$00	54 433\$00	417 318\$00	725 770\$00
Year 5, 1st semester	725 770\$00	362 885\$00	36 288\$00	399 173\$00	362 885\$00
Year 5, 2nd semester	362 885\$00	362 885\$00	18 144\$00	381 029\$00	



32

3. Forecast Operational accounts of the project

					Unit:dollars
ITEMS	1	2	3	4	5
1.Net Sales	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00
1.1.Internal Market	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00
1.2.External Market					
2.Other Profits					
2.1.Services Rendered					
2.2.Other					
3.Output Variation					
4.Total	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00
5.Cost of the Consumed National Stocks	437 400\$00	466 317\$00	495 769\$00	500 726\$00	505 734\$00
6.Cost of the Consumed Imported Stocks					
7.Subcontracts					
8. Other External Charges for Services	197 244\$00	199 099\$00	200 973\$00	202 866\$00	204 778\$00
8.1.Electricity/Water/Fuels	39 520\$00	39 798\$00	40 079\$00	40 363\$00	40 650\$00
8.2.Rent	10 985\$00	11 095\$00	11 206\$00	11 318\$00	11 431\$00
8.3.Communications	48 600\$00	49 086\$00	49 577\$00	50 073\$00	50 573\$00
8.4.Insurance	30 409\$00	30 713\$00	31 020\$00	31 330\$00	31 644\$00
8.5.Commissions	37 505\$00	37 880\$00	38 259\$00	38 641\$00	39 028\$00
8.6. Publicity and Propaganda	3 000\$00	3 030\$00	3 060\$00	3 091\$00	3 122\$00
8.5. Various External Charges for Services	27 225\$00	27 497\$00	27 772\$00	28 050\$00	28 330\$00
9.Taxes	163\$00	174\$00	185\$00	187\$00	189\$00
9.1.Direct					
9.2.Indirect	163\$00	174\$00	185\$00	187\$00	189\$00
10.Costs with Staff	171 037\$00	172 833\$00	174 647\$00	176 479\$00	178 329\$00
11.Others Cost and Expenses	32 659\$00	34 818\$00	37 017\$00	37 388\$00	37 761\$00
12.Depreciation and Reinsertion	319 700\$00	319 700\$00	319 700\$00	307 200\$00	269 700\$00
14.Total	1 158 204\$00	1 192 942\$00	1 228 291\$00	1 224 846\$00	1 196 491\$00
15.Operational Profit of the Exercise	474 756\$00	547 975\$00	622 578\$00	644 532\$00	691 581\$00
16.Financial Costs	253 270\$00	255 800\$00	237 137\$00	164 626\$00	92 425\$00
16.1.of Operational Nature	35 539\$00	38 069\$00	37 551\$00	37 616\$00	37 993\$00
16.2.of Financing Nature	217 731\$00	217 731\$00	199 587\$00	127 010\$00	54 433\$00
17.Extraordinary Costs and Losses					
18. Profit Previous to Taxes	221 487\$00	292 175\$00	385 441\$00	479 906\$00	599 156\$00
19. Provisions for Taxes on Profits	77 520\$00	102 261\$00	134 904\$00	167 967\$00	209 705\$00
20.Net Profit	143 966\$00	189 914\$00	250 536\$00	311 939\$00	389 451\$00



SEED

-ay

4. Indicators of profitability

INDICADORES FINANCEIROS DO PROJECTO

Valor Actual Líquido do Projecto (VAL)	437 035\$00
Taxa Interna de Rentabilidade (TIR)	21,01%
Índice de Lucratividade (IL)	131,24%
Período Rec. Investimento (PRI) - Meses	55

PROJECT CASH-FLOWS

					Unit:dollars
ITEMS	1	2	3	4	5
Total Annual Investment (1)	3 110 442\$00				
Investment Residual Value (2)					1 176 500\$00
Operational Cash-Flow (3)	681 397\$00	727 345\$00	769 823\$00	746 149\$00	713 584\$00
Cash-Flow Previous to the Project (4)					
Project's Cash-Flow (3+2-1-4)	-2 429 045\$00	727 345\$00	769 823\$00	746 149\$00	1 890 084\$00
Present Value of Operational CF	603 006\$00	727 345\$00	769 823\$00	746 149\$00	713 584\$00
Present Value of CF	-2 149 597\$00	569 618\$00	533 526\$00	457 627\$00	1 025 862\$00
NPV	437 035\$00				
Accumulated CF	-2 149 597\$00	-1 579 979\$00	-1 046 453\$00	- 588 827\$00	437 035\$00

5. Sensitivity analysis

SENSITIVITY ANALYSIS

Unid.:dollars

Variation	Indicators	CRITICAL PARAMETERS CONSIDERED						
Made	Calculated	Sales	Level of	Investment	Level of sales			
		Price	Costs	Cost				
-10%	N.P.V.	357 857\$00	1 056 730\$00	949 752\$00	528 131\$00			
	I.R.R.	18,8%	30,8%	30,5%	21,6%			
-5%	N.P.V.	587 848\$00	937 285\$00	883 796\$00	672 985\$00			
	I.R.R.	22,6%	28,7%	28,4%	24,1%			
10%	N.P.V.	1 277 822\$00	578 948\$00	685 927\$00	1 107 548\$00			
	I.R.R.	34,7%	22,5%	23,3%	31,7%			
5%	N.P.V.	1 047 831\$00	698 394\$00	751 883\$00	962 694\$00			
	I.R.R.	30,6%	24,5%	24,9%	29,1%			



6. Economic indicators

COMPANY COSTS' STRUCTURE

ITEMS	1	2	3	4	5
Total Profits	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00
Consumed Stocks	26,79%	26,79%	26,79%	26,79%	26,79%
Subcontracts					
ECSs	12,08%	11,44%	10,86%	10,85%	10,85%
Taxes	0,01%	0,01%	0,01%	0,01%	0,01%
Costs with Staff	10,47%	9,93%	9,44%	9,44%	9,45%
Other Costs and Expenses	2,00%	2,00%	2,00%	2,00%	2,00%
Depreciation and Reinsertion Provision	19,58%	18,36%	17,27%	16,43%	14,28%
Provisions					
Financial Costs of Operational Nature	2,18%	2,19%	2,03%	2,01%	2,01%
Financial Costs of Financing Nature	13,33%	12,51%	10,78%	6,79%	2,88%
Net Profit	8,82%	10,91%	13,54%	16,69%	20,63%



COMPANY'S GROSS SALES MARGIN

SEED

- «W

ITEMS	1	2	3	4	5
Sales	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00
Purchases of Goods for Resale	437 400\$00	466 317\$00	495 769\$00	500 726\$00	505 734\$00
Gross Margin	1 195 560\$00	1 274 600\$00	1 355 101\$00	1 368 652\$00	1 382 338\$00



COMPANY'S BREAK EVEN POINT

ITEM	1	2	3	4	5
Sales Volume	1 632 960\$00	1 740 917\$00	1 850 869\$00	1 869 378\$00	1 888 072\$00
Margin (%)	73,2%	73,2%	73,2%	73,2%	73,2%
Variable Costs	636 200\$00	671 007\$00	703 352\$00	709 971\$00	716 965\$00
Net contribution margin	996 760\$00	1 069 910\$00	1 147 517\$00	1 159 408\$00	1 171 107\$00
Net contribution margin (%)	61,04%	61,46%	62,00%	62,02%	62,03%
Fixed Costs	817 536\$00	820 362\$00	805 072\$00	722 868\$00	615 693\$00
Break Even point	1 339 344\$00	1 334 862\$00	1 298 527\$00	1 165 520\$00	992 627\$00
Safety Margin	17,98%	23,32%	29,84%	37,65%	47,43%



GROSS VALUE ADDED (GVA) AND COMPANY'S PRODUCTIVITY

ITEM	1	2	3	4	5
Costs with Staff	171 037\$00	172 833\$00	174 647\$00	176 479\$00	178 329\$00
Financial Costs	253 270\$00	255 800\$00	237 137\$00	164 626\$00	92 425\$00
Depreciation	319 700\$00	319 700\$00	319 700\$00	307 200\$00	269 700\$00
Net Profit	143 966\$00	189 914\$00	250 536\$00	311 939\$00	389 451\$00
GVA	887 973\$00	938 247\$00	982 021\$00	960 244\$00	929 906\$00
No. of workers	67	67	67	67	67
Employees Total Productivity	13 253\$00	14 004\$00	14 657\$00	14 332\$00	13 879\$00
Assets Total Productivity	26,00%	26,97%	32,01%	35,46%	38,51%



COMPANY'S ECONOMIC RATIOS

ITEM	1	2	3	4	5
Operational Released Resources	681 397\$00	727 345\$00	769 823\$00	746 149\$00	713 584\$00
Equity Profitability	15,62%	17,09%	18,39%	18,63%	18,87%
Sales Gross Profitability	73,21%	73,21%	73,21%	73,21%	73,21%
Sales Net Profitability	13,56%	16,78%	20,82%	25,67%	31,73%
Sales Operational Profitability	41,73%	41,78%	41,59%	39,91%	37,79%
Assets Economic Profitability	19,96%	20,90%	25,09%	27,55%	29,55%
Assets Profitability	13,90%	15,75%	20,29%	23,80%	28,64%



7. Forecast balance sheet

					Unit:dollars
ITEMS	1	2	3	4	5
ASSETS					
1.Gross Fixed Assets	2 712 500\$00	2 712 500\$00	2 712 500\$00	2 712 500\$00	2 712 500\$00
1.1.Non - Physical	37 500\$00	37 500\$00	37 500\$00	37 500\$00	37 500\$00
1.2.Physical	2 675 000\$00	2 675 000\$00	2 675 000\$00	2 675 000\$00	2 675 000\$00
1.3.Financial					
2.Depreciation and Reinsertion	319 700\$00	639 400\$00	959 100\$00	1 266 300\$00	1 536 000\$00
3.Mid and Long Term Current Assets					
4.Stocks	36 450\$00	38 860\$00	41 314\$00	41 727\$00	42 144\$00
5.Short Term Current Assets	413 523\$00	226 448\$00	154 239\$00	155 782\$00	157 339\$00
5.1.Clients	136 080\$00	145 076\$00	154 239\$00	155 782\$00	157 339\$00
5.2.Other Debtors	277 443\$00	81 372\$00			
6.Bank Deposits/Cash/Negotionable Assets	571 877\$00	1 141 034\$00	1 118 832\$00	1 064 360\$00	1 038 909\$00
7.Prepayments and Deferred Income					
8.Total Assets	3 414 649\$00	3 479 442\$00	3 067 785\$00	2 708 068\$00	2 414 892\$00
EQUITY					
9.Capital	777 610\$00	777 610\$00	777 610\$00	777 610\$00	777 610\$00
10.Suplementary Instalments	• •			• •	
11.Reserves / Unappropriated Earned Surplus		143 966\$00	333 880\$00	584 416\$00	896 355\$00
12.Net Profit	143 966\$00	189 914\$00	250 536\$00	311 939\$00	389 451\$00
13.Interim Dividends	•				
14.Total Equity	921 577\$00	1 111 490\$00	1 362 027\$00	1 673 966\$00	2 063 417\$00
LIABILITIES					
15. Provisions for Risks and Costs					
16.Mid and Long Term Debts	2 332 831\$00	2 177 309\$00	1 451 540\$00	725 770\$00	
16.1.Bank Loans	2 177 309\$00	2 177 309\$00	1 451 539\$00	725 770\$00	
16.2.Partners' Loans	155 522\$00		TRUE		
16.3.Other Debts					
17.Short Term Debt	160 241\$00	190 642\$00	254 218\$00	308 333\$00	351 475\$00
17.1.Bank Loans					
17.2.Suppliers	78 975\$00	84 598\$00	83 446\$00	83 592\$00	84 428\$00
17.3.Public Statal Sector	81 266\$00	106 045\$00	170 771\$00	224 741\$00	267 047\$00
17.4.Other Debts					
18.Prepayments and Deferred Income					
19.Total Liabilities	2 493 073\$00	2 367 952\$00	1 705 758\$00	1 034 103\$00	351 475\$00
20.Total Liabilities+ Equity	3 414 649\$00	3 479 442\$00	3 067 785\$00	2 708 068\$00	2 414 892\$00



8. Financial Indicators

COMPANY'S BALANCE STRUCTURE

ITEMS	1	2	3	4	5
Fixed Assets	2 429 250\$00	2 111 960\$00	1 794 714\$00	1 487 927\$00	1 218 644\$00
Circulating Capital	985 399\$00	1 367 482\$00	1 273 071\$00	1 220 141\$00	1 196 248\$00
Equity	921 577\$00	1 111 490\$00	1 362 027\$00	1 673 966\$00	2 063 417\$00
Long Term Liabilities	2 332 831\$00	2 177 309\$00	1 451 540\$00	725 770\$00	
Short Term Liabilities	160 241\$00	190 642\$00	254 218\$00	308 333\$00	351 475\$00





COMPANY'S FINANCIAL RATIOS

ITEMS	1	2	3	4	5
Debt	73,01%	68,06%	55,60%	38,19%	14,55%
Debt Recovery Period	5,03	4,27	2,55	1,17	
Debt payment with released					
operational resources	313%	334%	83%	87%	91%
Liability Average Cost	10,16%	10,80%	13,90%	15,92%	26,30%
Financial Autonomy	26,99%	31,94%	44,40%	61,81%	85,45%
Solvency	36,97%	46,94%	79,85%	161,88%	587,07%





COMPANY'S LIQUIDITY RATIOS

ITEMS	1	2	3	4	5
General Liquidity	6,38	7,38	5,17	4,09	3,52
Reduced Liquidity	6,15	7,17	5,01	3,96	3,40
Immediate Liquidity	3,57	5,99	4,40	3,45	2,96









ANNEXES

1. Technology, technical equipment, technical coefficients and others

			Working perio	d: 6 month	ns/year, 24
FINAL F	PRODUCT: TOMATO PASTE		hours/da	y, 7 days/v	week
			Packaging: tins of	3 or 5 kilo	s and drums of
INSTAL	LED CAPACITY (Tonnes of fresh tomato/hour)	2,5	2	10 kilos	
INSTAL	LED CAPACITY (Tones of finished product/day)	0,5			
Process	ing coefficient	0,2			
			UNIT COST OF	CYCLES	TOTAL
TIEM	DESCRIPTION	QUANTITY	AQUISITION	PER YEAR	COST
			(USD)	4/45	(USD)
1	INDUSTRIAL EQUIPEMENT (2,500 Kg/nour)	1	700 000 00	1/15	1.500.000,00
1,1	Equipment for processing paste	1	700.000,00	1/15	700.000,00
1,2	Packaging equipment	1	550.000,00	1/15	550.000,00
1,3	Auxiliary equipment (boller, compressed air,		250.000,00	1/15	250.000,00
2					590 000 00
2	BUILDINGS AND ANNEAES	1	250,000,00	1/6	250,000,00
2,1	New weighing machine	1	230.000,00	1/15	230.000,00
2,2	New weighing machine	1	250,000,00	1/15	250,000,00
2,3		1	250.000,00	1/15	200.000,00
31	10 toppe trucks	1	60,000,00	1/5	60,000,00
3,1	A toppe trucks	2	35,000,00	1/5	70,000,00
3,2	1 tonne trucks	1	20,000,00	1/5	20,000,00
34	l ight vehicles	3	30,000,00	1/5	90,000,00
35	Fork lifts	1	55,000,00	1/5	55,000,00
3.6			300,000,00	1/0	300.000.00
-,-			MONTHLY COST	CYCLES	
4	PRODUCTION STAFF	NUMBER	(USD)	PER YEAR	COST (USD)
	STAFF FOR AGRICULTURAL EXTENSION		2.000,00		24.000,00
	Senior agricultural engineer	1	1.200,00	12	14.400,00
	Agricultural technical engineers	4	800,00	12	9.600,00
	TOTAL FACTORY STAFF		4.585,00		58.220,00
4,1	Factory foreman	2	1.200,00	12	14.400,00
4,2	Warehouse heads	3	450,00	12	5.400,00
4,3	Chemical engineer	1	800,00	12	9.600,00
4,4	Machine operators	15	1.425,00	12	17.100,00
4,5	Maintenance technicians	5	400,00	12	4.800,00
4,6	Head of laboratory and quality control	1	150,00	12	1.800,00
4,7	Laboratory and quality control staff	2	160,00	12	1.920,00
4,8	Professional training				3.200,00
F			MONTHLY COST	CYCLES	ANNUAL
Э	ADIVIINISTRATIVE STAFF	NUMBER	(USD)	PER YEAR	COST (USD)
			7.805,00		95.460,00
5,1	General manager	1	1.500,00	12	18.000,00
5,2	Financial manager	1	1.200,00	12	14.400,00
5,3	Production manager	1	1.200,00	12	14.400,00
5,4	Commercial manager	1	1.200,00	12	14.400,00
5,5	Chief accountant	1	600,00	12	7.200,00
5,6	Supplies staff	3	240,00	12	2.880,00
5,7	Sales staff	3	240,00	12	2.880,00
5,8	Drivers	5	325,00	12	3.900,00
5,9	Secretarial staff	2	200,00	12	2.400,00
5.10	Cleaning Staff	5	250,00	12	3.000,00
5,11	Security staff	10	850,00	12	10.200,00

2. Price, Production, Yield, Import and Export Statistics



China Xinjiang Tomato paste is very famous in the world because its pure natural taste and its top quality. we, Xinjiang Green-leaf Foodstuff Group Co., Beijing Br., export tomato paste from our Xinjiang plant directly, so, our quality and price is very competitive.

This website obtain the detail information about tomato paste, including price, specification, processing technique, inspection data, etc. If you need the information which is not contained in this website, please do not hesitate to ask us

At present, we have catalogues and samples available, and we'll send it to you upon the receipt of your intent, and the samples' transmit cost will be charged by the your sides.



OUR QUALITY CERTIFICATE

Appendix 3



SEED

- 444





	VPRICE LIST FOR 2002 CROP								
BRIX	PACKING	TINS/CARTON	Price US\$/MT FOB Xingang Tianjin						
28-30%	850GM	12TINS	720						
	1KG	12TINS	670						
	3KG	6TINS	560						
	4.5KG	6TINS	550						
	220KG/DRUM	80DRUM/20"FCL	450						
36-38%	220KG/DRUM	80DRUM/20"FCL	500						



PRICE LIST FOR 2001 CROP

BRIX	PACKING	TINS/CARTON	Price US\$/MT FOB Tianjin
28-30%	850GM	12TINS	820
	1KG	12TINS	770
	3KG	6TINS	660
	4.5KG	6TINS	650
	220KG/DRUM	80DRUM/20"FCL	600



36-38% 220KG/DRUM 80DRUM/20"FCL 660

Tomatoes				Year			
Area Harv (Ha)	1995	1996	1997	1998	1999	2000	2001
World	3.197.774	3.319.955	3.326.390	3.566.252	3.763.183	3.750.176	3.745.229
Total de SADC	1.072.732	1.069.095	1.067.856	1.041.142	1.038.314	982.257	982.493
Angola	3.700	4.000	3.800	4.000	3.000	3.500	3.500
Congo, Dem Republic of	7.000	6.149	5.876	5.614	5.400	5.400	5.400
Malawi	85.000	87.500	86.842	87.500	87.805	87.500	87.500
Mauritius	125.218	109.097	115.231	103.163	103.436	113.882	114.118
Mozambique	85.714	86.364	86.957	87.500	88.000	73.220	73.220
Seychelles	60.714	60.345	60.000	61.667	61.290	61.290	61.290
South Africa	334.892	334.535	342.182	323.981	319.146	272.650	272.650
Swaziland	126.667	126.667	125.000	128.571	125.000	125.926	125.926
Tanzania, United Rep of	77.160	78.049	75.301	78.035	78.570	77.778	77.778
Zambia	100.000	104.167	100.000	100.000	100.000	100.000	100.000
Zimbabwe	66.667	72.222	66.667	61.111	66.667	61.111	61.111

Tomatoes				Year			
Production (Mt)	1995	1996	1997	1998	1999	2000	2001
World	86.734.151	92.932.114	89.313.832	94.338.747	104.366.671	101.975.637	100.259.346
Total de SADC	726.816	746.300	730.577	715.618	724.933	650.465	650.485
Angola	14.000	15.000	14.000	15.000	11.000	13.000	13.000
Congo, Dem Republic of	48.000	44.826	42.834	40.929	38.000	38.000	38.000
Malawi	34.000	35.000	33.000	35.000	36.000	35.000	35.000
Mauritius	13.486	10.877	12.226	10.729	8.037	9.680	9.700
Mozambique	18.000	19.000	20.000	21.000	22.000	7.117	7.117
Seychelles	170	175	180	185	190	190	190
South Africa	435.360	451.622	444.837	421.175	430.847	368.078	368.078
Swaziland	3.800	3.800	3.500	3.600	3.500	3.400	3.400
Tanzania, United Rep of	125.000	128.000	125.000	135.000	139.359	140.000	140.000
Zambia	23.000	25.000	23.000	22.000	24.000	25.000	25.000
Zimbabwe	12.000	13.000	12.000	11.000	12.000	11.000	11.000

Tomatoes				Year			
Yield (Hg/Ha)	1995	1996	1997	1998	1999	2000	2001
World	271.233	279.920	268.501	264.532	277.336	271.922	267.699
Total de SADC	1.168.441	1.169.346	1.167.919	1.141.933	1.136.951	1.080.870	1.081.106
Angola	37.838	37.500	36.842	37.500	36.667	37.143	37.143
Congo, Dem Republic of	68.571	72.900	72.897	72.905	70.370	70.370	70.370
Malawi	85.000	87.500	86.842	87.500	87.805	87.500	87.500
Mauritius	125.218	109.097	115.231	103.163	103.436	113.882	114.118
Mozambique	85.714	86.364	86.957	87.500	88.000	73.220	73.220
Seychelles	60.714	60.345	60.000	61.667	61.290	61.290	61.290
South Africa	334.892	334.535	342.182	323.981	319.146	272.650	272.650
Swaziland	126.667	126.667	125.000	128.571	125.000	125.926	125.926
Tanzania, United Rep of	77.160	78.049	75.301	78.035	78.570	77.778	77.778
Zambia	100.000	104.167	100.000	100.000	100.000	100.000	100.000
Zimbabwe	66.667	72.222	66.667	61.111	66.667	61.111	61.111



Tomatoes		(000	Yea	ar (accord)		
Imports - Qty (Mt)	1995	1996	1997	1998	1999	2000
World	3.100.793	3.443.747	3.628.554	3.692.751	3.584.924	3.574.312
Total de SADC	10.240	10.115	12.473	13.589	12.190	11.519
Botswana	4.494	4.723	5.541	5.742	5.742	5.541
Congo, Dem Republic of	0	0	53	10	10	10
Lesotho	4.000	4.000	4.000	4.000	4.000	4.000
Malawi	0	0	18	22	22	22
Seychelles	455	269	292	297	297	167
South Africa	261	16	19	399	251	23
Swaziland	1.000	1.000	1.664	1.182	1.361	1.308
Tanzania, United Rep of	0	0	2	2	2	2
Zambia	0	20	29	60	60	60
Zimbabwe	30	87	855	1.875	445	386
Tomatoes			Yea	ar		
Imports - Val (1000\$)	1995	1996	1997	1998	1999	2000
World	2.672.901	3.226.942	3.031.479	3.209.848	2.984.996	3.076.620
Total de SADC	4.952	4.713	5.554	5.746	5.577	5.250
Botswana	2.569	2.506	2.604	2.777	2.777	2.604
Congo, Dem Republic of	0	0	33	6	6	6
Lesotho	1.600	1.600	1.600	1.600	1.600	1.600
Malawi	0	0	7	18	18	18
Seychelles	437	402	598	641	641	361
South Africa	199	3	14	149	92	4
Swaziland	130	130	344	206	328	501
Tanzania, United Rep of	0	0	9	9	9	9
Zambia	0	25	32	50	50	50
Zimbabwe	17	47	313	290	56	97
Tomatoes			Yea	ar		
Exports - Qty (Mt)	1995	1996	1997	1998	1999	2000
World	3.452.170	3.356.339	3.750.999	3.971.869	3.968.802	3.738.030
Total de SADC	763	4.175	5.178	9.287	8.207	7.475
Botswana	15	13	2	6	6	2
Malawi	0	0	0	220	220	220
Mauritius	0	0	0	0	6	1
Seychelles	0	0	4	6	0	0
South Africa	699	4.149	5.097	8.580	7.504	7.097
Swaziland	0	0	34	34	47	122
Zambia	0	0	3	3	3	3
Zimbabwe	49	13	38	438	421	30
Tomatoes			Yea	ar		
Exports - Val (1000\$)	1995	1996	1997	1998	1999	2000
World	2.799.317	2.935.039	2.832.208	3.054.792	2.926.437	3.049.958
Total de SADC	461	1.579	1.198	2.248	1.928	1.562
Botswana	10	10	1	3	3	1
Malawi	0	0	0	40	40	40
Mauritius	0	0	0	0	3	1
Seychelles	0	0	10	13	1	0
Couth Africa				4 9	4 007	4 4 4 4
South Africa	437	1.565	1.153	1.955	1.637	1.444
Swaziland	437 0	1.565 0	1.153 12	1.955 12	1.637	1.444 51
South Anica Swaziland Zambia	437 0 0	1.565 0 0	1.153 12 8	1.955 12 8	1.637 7 8	<u>1.444</u> 51 8



Tomato Paste			Yea	ar		
Imports - Qty (Mt)	1995	1996	1997	1998	1999	2000
World	1.158.937	1.154.808	1.239.336	1.274.661	1.429.603	1.410.444
Total de SADC	15.401	13.170	11.551	9.812	11.854	15.085
Angola	2.900	5.200	5.100	4.700	5.900	10.200
Botswana	99	77	102	73	73	102
Congo, Dem Republic of	5.800	5.700	4.839	2.200	1.900	1.600
Malawi	11	10	10	5	5	5
Mauritius	516	393	246	324	225	537
Seychelles	75	98	98	160	70	207
South Africa	5.269	1.065	803	996	1.502	1.075
Swaziland	0	0	11	20	10	112
Tanzania, United Rep of	570	500	189	1.100	2.100	1.200
Zambia	60	10	0	20	20	20
Zimbabwe	101	117	153	214	49	27

Tomato Paste			Yea	ar		
Imports - Val (1000\$)	1995	1996	1997	1998	1999	2000
World	1.150.764	1.098.416	1.034.477	1.081.540	1.174.941	930.394
Total de SADC	15.725	11.045	7.044	5.964	6.797	4.200
Botswana	313	219	258	150	150	258
Congo, Dem Republic of	9.000	8.300	5.527	2.900	2.700	1.500
Malawi	11	10	10	4	4	4
Mauritius	487	457	192	225	183	380
Seychelles	187	179	161	267	131	255
South Africa	4.772	1.035	536	866	1.144	607
Swaziland	0	0	23	29	29	54
Tanzania, United Rep of	760	700	176	1.350	2.400	1.100
Zambia	60	10	0	20	15	15
Zimbabwe	135	135	161	153	41	27

Tomato Paste	Year							
Exports - Qty (Mt)	1995	1996	1997	1998	1999	2000		
World	1.218.498	1.266.066	1.504.886	1.515.840	1.579.182	1.621.741		
Total de SADC	266	441	521	604	311	215		
Botswana	3	0	1	0	0	1		
Malawi	0	0	11	15	15	15		
Mauritius	0	0	0	0	0	1		
South Africa	187	259	379	544	241	194		
Swaziland	0	0	80	9	0	0		
Zimbabwe	76	182	50	36	55	4		

Tomato Paste	Year					
Exports - Val (1000\$)	1995	1996	1997	1998	1999	2000
World	1.197.307	1.202.512	1.223.961	1.277.103	1.261.547	1.057.079
Total de SADC	340	552	536	761	420	247
Botswana	6	2	2	0	0	2
Malawi	0	0	4	5	5	5
Mauritius	0	0	0	1	1	2
Seychelles	0	1	0	1	1	0
South Africa	242	335	434	722	368	234
Swaziland	0	0	40	6	0	0
Zimbabwe	92	214	56	26	45	4



Tomatojuice Concentrated	Year					
Imports - Qty (Mt)	1995	1996	1997	1998	1999	2000
World	50.700	49.887	60.495	58.009	18.090	20.679

Tomatojuice Concentrated		Year				
Imports - Val (1000\$)	1995	1996	1997	1998	1999	2000
World	22.020	23.181	26.394	27.579	7.392	7.936

Tomatojuice Concentrated		Year				
Exports - Qty (Mt)	1995	1996	1997	1998	1999	2000
World	558	454	445	227	890	972

Tomatojuice Concentrated	Year					
Exports - Val (1000\$)	1995	1996	1997	1998	1999	2000
World	370	245	194	126	554	624



r

APPENDIX 4: PRE-VIABILITY STUDY FOR THE COCONUT PRODUCTS FACTORY IN INHAMBANE/MAXIXE

LVSDI

AGRI-PROCESSING SECTORIAL STUDIES

PROJECT 3: CONSTRUCTION OF AN INTEGRATED <u>COCONUT PRODUCTS FACTORY</u> IN INHAMBANE/MAXIXE

(FINAL REPORT)

<u>SUMMARY</u>

I. SHORT PRESENTATION

II SUMMARY OF THE PRE-VIABILITY INDICATORS

III PROJECT CONTEXT

1. Agricultural sector

- 2. Agro-Industrial sector
- 3. Commercial/Marketing Sector

IV ANALYSIS OF ECONOMIC AND FINANCIAL VIABILITY

- 1. Assumptions
- 2. Investment
- 3. Financing Plan
- 4. Income
- 5. Costs

SCENARIOS (2)

- 1. Provisional demonstration of results
- 2. Profitability indicators
- 3. Sensitivity Analysis
- 4. Economic Indicators
- 5. Provisional Balance-sheet
- 6. Financial Indicators

APPENDICES

1. Technology, technical equipment, technical coefficients, and others.

- 2. Statistics on prices, production, income, imports, exports.
- 3. Diagnosis and Strategy for the Agricultural Sector
- 4. Diagnosis and Strategy for Agro-Industry

SEED

- av



SHORT PRESENTATION

Among the various processing units visited and studied, we recommend the construction of an integrated factory of coconut derivatives, to be set up in the Inhambane or Maxixe area, for the following reasons:

- This location seems optimal to use since it is in an area thick with coconut palms (there are no signs of the presence of the lethal yellowing disease present in the Zambezia coconut plantations), and of easy access; a series of infrastructures, such as electricity, are available;
- A shareholding structure that brings together a range of stakeholders in the coconut and copra chain: members of the association of producers, producers and traders;
- It can play an important role in encouraging the planting of coconut palms (new varieties; dwarf palms), serving as a bridge between funding agencies and the producers, and absorbing their production;
- It can play a decisive role as a pilot project (demonstration effect), guaranteeing the creation of more national value added, starting from one of the greatest natural riches of this region, and diversifying the processed products, which have guaranteed markets;
- The production is mostly for export;
- It can be rapidly implemented, it has markets guaranteed, it will have a major impact on the economy of the region and of the country (the country needs to create more added value from its natural riches), it will generate jobs, directly and indirectly (encouraging people to stay in the area, and improving their standard of living).

pre-viability factors presented should be looked into The basic more deeply through subsequent market studies and technical and economic viability studies.





PROJECT DESCRIPTION

Sector	Description	Products/by-	Strong Points	Other
		products		important
Coconut products factory	Two integrated units (production and processing, with mutual participation in the capital). Promotion, extension, processing of coconuts and derivatives	 Crude copra oil Refined copra Margarine Bagasse Laundry soap Toilet soap Grated coconut Coconut milk Charcoal Fibre 	Allows renewal of trees Plant hybrid varieties where the coconuts can be more easily harvested (dwarf palms) Stabilises the market Encourages farmers Allows industry to pay the farmers more Large amount of value added Less vulnerability to a single market	This may encourage the existing company "Copromol" which is operating, but only extracting crude oil and bagasses, 100% for export, to which should be suggested adjustments to guarantee success: create more value added, and integrate the agricultural component in partnership with the family sector.



1. SUMMARY OF PRE-FEASIBILITY INDICATORS

T Summary of pre-viability indicators for Project 3 -Integrated Coconut derivatives processing factory in Inhambane/Maxixe				
	<u>SCENARIO 1 – Cautious</u>			
I	Investment needed	3,327,668 USD		
N D	Break-even year	Year 3		
I	"Break-Even"	1,758,383 USD		
A	Sales in Break-even year	2,321,758 USD		
Т	Pay back period	57 months		
R	IRR	17.03 %		
S	NPV	245,398 USD		
	<u>SCENARIO 2 – Realistic</u>			
I	Investment needed	3,317,469 USD		
N D	Break-even year	Year 3		
I	"Break-Even"	1,637,010 USD		
C A	Sales in Break-even year	2,356,473 USD		
Т	Pay back period	55 months		
O	IRR	21.67 %		
S	NPV	517,617 USD		

CONCLUSIONS

From analysing the economic and financial indicators of profitability, presented in the following chapters, one notes that the "project to build an integrated factory of coconut derivatives" is technically, economically and financially viable (in terms of pre-viability).

The precautions taken in the assumptions used, and sensibility analysis made of the project's critical parameters, give it a very reasonable safety margin, and significantly reduce the project risk.

For purposes of pre-viability, the net benefits arising from the coconut derivatives which constitute the diversification of this unit, and the great value added in comparison with those already established (better margins, less dependence on the clients for oil, greater stability, greater national value added) were not considered.





These conclusions will be real to the extent that the constraints identified in general terms on the agricultural sector and on agro-industry are overcome. In the Draft Report on the "Diagnosis and Strategy Advocated", suggestions are made for solving a significant part of these constraints in terms of private initiative.

In the investment and costs forecast, measures and the respective resources for ensuring the supply of raw material, which has been one of the main constraints on the factories already established, are safeguarded.





III CONTEXT

As mentioned in the draft report concerning the diagnosis and the development strategy the agricultural sector and agroof of industry, the viability of the coconut harvest in the Limpopo Valley depends, summarily, on the following factors:

1. Improving the existing infrastructures (public initiative)

- Improving access: road and rail networks
- Stability in the supply of energy, and of fixed and mobile telecommunications
- Improvement in the education and health services
- Reducing tape the public and increasing red in sector its Create efficiency. mechanisms for decentralising state decisions and control over all actors, in order to reduce the conditions that lead the proliferation of vices that divert their to behaviour away from the national interest.
- Ensure that public and private economic agents comply with the law as regards tax and customs evasion, and the licensing of activities.

2. Investment in professional training, for farmers, workers, administrative staff, salespersons and other relevant professionals.

3. Investment in research and in extension services

4. **Availability** of services: accountancy, legal the services, availability treatment and of data concerning markets (for and productive factors, and for primary manufactured products nationally and internationally), transport of goods, storage, training, recruitment, financial services, etc.

Overcome the reluctance of the financial sector to finance 5. agriculture and reduce the interest rates currently charged, which on their own make non-viable any business in this sector (suggestions been made, notably for the the have creation by state of a guarantee fund, which would cover part of the risks of the financial and insurance sectors).

IN SHORT, CREATE THE SO FAR NON-EXISTENT "BUSINESS ENVIRONMENT" WHICH IS INDISPENSABLE FOR THE SUCCESS OF ANY PROJECT.





Appendix 3

6. Agricultural sector

Currently there is a large number of trees in the Limpopo Valley, it is estimated that annual production is in excess and of 100.000 (mainly tonnes of coconuts of the tall variety, and with a use rate not higher than 80% of production). The palm groves mainly owned by the family sector (unlike the situation are in Zambezia. Mostly the farmers merely collect the fruit, and do and regional market is huge, little management. The national and excellent infrastructural the Limpopo Valley has natural, and the production historical conditions for developing of coconut products, in large quantities, and in а competitive manner.

As the Draft Report notes, within the agricultural sector, the following conditions are indispensable to make viable the production of coconuts:

- Encourage the introduction into the family sector of dwarf varieties, and carry out extension work for managing the coconut plantations (although the coconut disease present in Zambezia has not yet reached Inhambane, preventive measures must be taken).
- To encourage the business sector, it is necessary to reduce the weight of the informal economy.
- Encourage agro-industry to promote planting, and establish private methods, following market laws, of financing farmers on time, and with interest rates that their activity will bear.
- Encourage the insurance sector to launch "harvest insurance" at tolerable prices.

7. Agro-industrial sector

the As Draft Report notes, within the agro-industrial sector, the following conditions are indispensable to make viable coconut processing units:

- Availability and stability in the supply of raw material
- Quality of the raw material

SEED -

- av

- Undertake extension, complementary to the state or other specialised agents
- Undertake promotion, complementary to the state or other specialised agents
- Availability skilled of labour (essentially, ability to read; sense of responsibility as regards their role in the organisation; no vices)

Appendix 3

- Creation of "Limpopo Valley" brands of coconut products.
- Existence of services for certifying origin



Investment in marketing: focus quality and on on certification of origin (these market segments are still niches, highly they have exponential growth rates, and are profitable, appropriate for new brands that are entering).

8. Commercial sector/marketing

This sector is not а block on the development of the coconut harvest. There are already agents that supply these services, or if more agents are necessary, the market will ensure that they appear:

- Suppliers of goods transport services;
- Warehouses;
- "Tradings"
- Distributors and retailers;
- Communications, marketing and advertising companies etc.
- Companies which design, develop and produce packaging.

level is IMPORTANT the At this it to set up regulations and create the body that will manage and inspect the LIMPOPO VALLEY CERTIFICATE OF ORIGIN, to be used as a BRAND.

Appendix 3



IV ANALYSIS OF ECONOMIC AND FINANCIAL VIABILITY

1. Assumptions

SCENARIOS

Two scenarios were developed, which are different only as to the assumptions concerning the sales price of the final product, refined oil, and the purchase price of copra.

Co	Coconut Derivatives Sales Price, August 2002					
Product	SALES PRICE "Limpopo Valley" coconut derivatives					
	Scenario 1 - Cautious	Scenario 2 - Realistic				
Crude oil	(1) Year 1: 350 USD/Tonne Year 2 to 5: 354 to 364 USD/Tonne depending on inflation.	(1) Year 1: 350 USD/Tonne Year 2 to 5: 354 to 364 USD/Tonne depending on inflation.				
Refined oil	(1) Year 1: 550 USD/Tonne Year 2 to 5: 556 to 572 USD/Tonne depending on inflation.	(1) Year 1: 575 USD/Tonne Year 2 to 5: 581 to 598 USD/Tonne depending on inflation.				
<u>Copra</u>	(2) Year 1: 100 USD/Tonne Year 2 to 5: 101 to 104 USD/Tonne depending on inflation.	(2) Year 1: 95 USD/Tonne Year 2 to 5: 96 to 99 USD/Tonne depending on inflation.				
Notes:						
1. Prices obtained by reference to the market prices of the industries already operating (100% exports to South Africa), in the case of crude oil, and international market prices for this and for refined oil (June 2002): Crude oil, CIE - duty paid Liverpool, 322 USD/toppe, Petiped oil, Ex Works UK 442 USD/toppe						
2. Prices obtaine USD/tonne at even to harve Philippines in	2. Prices obtained by reference to the prices currently paid by the industry. These prices of around 85 USD/tonne are low, and in our understanding do not encourage the farmer to sell fresh coconuts, or even to harvest them (shortage of labour to climb the high varieties of trees). Price of copra from the Philippas in lung 2002; CIE Potterdam 266 5 USD/tonne					
3. It was consid only in accord	 Philippines in June 2002: CIF-Rotterdam, 266.5 USD/tonne. 3. It was considered that international prices will remain stable over the five years of the study, evolving only in accordance with dollar inflation. 					

Appendix 3



OTHER GENERAL ASSUMPTIONS

- The investments needed, from buildings/building work, to industrial, administrative transport and equipment, training, marketing, formation, licences and studies, permits, are quantified in detail.
- The technology acquired (German) will make it possible to maximise yields from the factory.
- The factory is autonomous in terms of transport.
- The following considered: 30% financial structure was own capital or the equivalent, and 70% bank funding. А market interest rate (10%) was considered, without any improvement.
- The complete payment of all obligations (VAT, income tax corporation tax, social security) has been considered, tax, without any fiscal benefit (this ought to be granted by the state, ensuring it reverts suggested rural that to the development company).
- A "2% surprise factor" on total income is considered, under the heading "other expenses and costs" in the balance sheet.
- A 13% rate of updating Cash flows was used.
- A 1% dollar inflation rate was used as an estimate throughout the period of the study.
- Investment, income and costs are not quantified for products other than crude oil and refined oil.

NOTE: Part of the data used was gathered from the Limpopo Valley stakeholders, namely farmers from the business sector, agrocommercial industry (Copromol and Somoil), sector, technicians and other staff from public bodies, among others, apart from studies and the available secondary information.





2. Investment

OVERALL INVESTMENT PLAN

	Unit:dollars
ITEM	1
FIXED TANGIBLE ASSETS	2 777 475\$00
Buildings and Annexes INDUSTRIAL EQUIPMENT(45 tonnes/day) Transport equipment	1 055 000\$00 1 187 475\$00 485 000\$00
Agricultural Extension equipment	50 000\$00
FIXED INTANGIBLE ASSETS	52 500\$00
Licences, Charters	2 500\$00
Company Constitution	2 500\$00
Professional Training Plan Implementation	15 000\$00
Feasibility Study	7 500\$00
Marketing Plan Implementation	25 000\$00
FIXED ASSETS INVESTMENT	2 829 975\$00
INVESTMENT IN WORKING CAPITAL	497 593\$00
TOTAL	3 327 568\$00


INVESTMENT IN WORKING CAPITAL

	-					Unit:dollars
ITEMS	DAYS	1	2	3	4	5
1. Current Assets	30	30 353\$00	33 443\$00	33 729\$00	34 066\$00	34 407\$00
2. Clients	30	170 701\$00	181 986\$00	193 480\$00	195 415\$00	197 369\$00
3. Stocks	30	81 675\$00	87 075\$00	92 574\$00	93 500\$00	94 435\$00
4. Stocks' Suppliers	30	96 525\$00	96 201\$00	101 535\$00	102 092\$00	103 113\$00
5. State						
- Paid VAT		663 344\$00	194 278\$00	205 663\$00	207 720\$00	209 797\$00
- Settled VAT		348 230\$00	371 251\$00	394 699\$00	398 646\$00	402 632\$00
- Credited VAT		315 114\$00	138 141\$00			
- Outstanding VAT				50 895\$00	190 926\$00	192 835\$00
- Income Tax		2 401\$00	2 425\$00	2 441\$00	2 465\$00	2 490\$00
6. Social Security		1 324\$00	1 337\$00	1 345\$00	1 358\$00	1 372\$00
7. Net Current Assets Needs		497 593\$00	340 682\$00	163 567\$00	26 140\$00	26 401\$00
8. Net Current Assets Investment		497 593\$00	- 156 911\$00	- 177 115\$00	- 137 427\$00	261\$00

					Unit:dollars
	1	2	3	4	5
Initial Stocks		81 675\$00	94 991\$00	100 990\$00	102 000\$00
Final Stocks	81 675\$00	94 991\$00	100 990\$00	102 000\$00	103 020\$00
Purchases	1 061 775\$00	1 058 211\$00	1 116 888\$00	1 123 008\$00	1 134 238\$00
Purchases of Goods for Resale	980 100\$00	1 044 896\$00	1 110 889\$00	1 121 998\$00	1 133 218\$00



FTC

2. Plano de Financiamento

PROJECT'S FINANCING PLAN

Unit:dollars					
ITEMS	1				
1. SOURCES					
<i>Capital and Reserves</i> Equity Suplementary Instalments	831 892\$00 831 892\$00				
<i>Debt Capital</i> Bank Loans Partners' Loans	2 495 676\$00 2 329 298\$00 166 378\$00				
Subsidies Forfeited Funds for Investment Forfeited Funds for PTs					
TOTAL	3 327 568\$00				
2. APPLICATIONS					
Fixed Assets Investiment Net Current Assets Investment	2 829 975\$00 497 593\$00				
TOTAL	3 327 568\$00				



3. Benefits

- Although the long term strategy should follow a line of differentiating the final product (brand, quality, and all the derivatives already mentioned which are found to be profitable), with much better margins, only the processing of copra into crude oil, refined oil and the use of the bagasse by-product were considered.
- There is no problem with the capacity of the market to absorb the production of this unit (quantity), if we take the following indicators into account:
 - Mozambique imports much of the refined oil that it consumes;
 - South Africa already imports 100% of the crude oil produced, over 20,000 tonnes/year;
 - The current units producing copra oil in the Limpopo Valley (five) are unable to meet external demand, for lack of raw material;
 - The productive capacity of Limpopo Valley copra is higher than 600,000 tonnes/year (at an average of 275 grams of copra per coconut), of which less than 10% goes to the industry;
- The bagasse by-product is quantified at national market prices. It should be mentioned that with the development of the livestock sector, copra bagasse will certainly find a large market to be supplied, given its excellent characteristics as animal feed.

4. <u>Costs</u>

- The raw material is acquired from the producers at prices that result from the implementation of the measures defined in the "Draft Report" of the Diagnosis and Strategy for the Agricultural Sector (appendix). The assumptions used are attainable, through a greater valuing of copra, generating further national added value, with the production of some of the derivatives mentioned.
- Although new equipment with current technology will be acquired, industrial yields 50% below the level of the best world producers (66%) were considered. It was also projected that the factory will start with a 90% efficiency in year one, advancing to 95% in year 2, and 100% in the following years
- The provision of services, third party suppliers, staff costs, depreciation of equipment have been exhaustively quantified at market prices (including multi-risk insurance, work accidents, stock, 2% maintenance and conservation on the initial value of the investment, advertising and others), as can be noted in the respective tables.
- Under the heading of financial costs of operations are envisaged costs derived from promoting the plantation of new coconut palms (equivalent to 2% on the value of the annual purchases).

ALL THE REMAINING ASSUMPTIONS AND RESPECTIVE TABLES ARE PRESENTED BELOW IN RELATION TO THE 2 SCENARIOS USED.

SEED -- 200

SCENARIO 1 - Cautious

1. Benefits

INSTALLED AND USED PRODUCTIVE CAPACITY

SERVICES/PRODUCTS	1	2	3	4	5
Installed Productive Capacity (Ton.Hour/copra)	1,9	1,9	1,9	1,9	1,9
Efficiency Rate	90%	95%	100%	100%	100%
Shifts:					
1	8	8	8	8	8
11	8	8	8	8	8
111	8	8	8	8	8
Daily total of Hours/Machinery (H/M)	24	24	24	24	24
No. of working days/ Year	242	242	242	242	242
TOTAL (Ton. Copra processed/ year) -	9801	10346	10890	10890	10890
TOTAL (Ton. crude oil processed) -	4901	5173	5445	5445	5445

MONTHLY QUANTITIES (Ton.)

SERVICES/PRODUCTS	1	2	3	4	5
Refined copra oil (25% of total)	111	118	124	124	124
Crude copra oil (75% of total)	334	353	371	371	371
Bagasse	267	282	297	297	297
TOTAL	713	752	792	792	792

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Refined copra oil (25% of total)	550\$00	556\$00	561\$00	567\$00	572\$00
Crude copra oil (75% of total)	350\$00	354\$00	357\$00	361\$00	364\$00
Bagasse	30\$00	30\$00	31\$00	31\$00	31\$00
TOTAL					

MONTHLY PROVISIONAL PROFITS

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Refined copra oil (25% of total)	61 256\$00	65 306\$00	69 431\$00	70 125\$00	70 826\$00
Crude copra oil (75% of total)	116 944\$00	124 675\$00	132 549\$00	133 875\$00	135 213\$00
Bagasse	8 019\$00	8 549\$00	9 089\$00	9 180\$00	9 272\$00
TOTAL	186 219\$00	198 530\$00	211 069\$00	213 180\$00	215 311\$00

ANNUAL PROVISIONAL PROFITS

					Unit:dollars
SERVICES/PRODUCTS	1	2	3	4	5
Refined copra oil (25% of total)	673 819\$00	718 366\$00	763 736\$00	771 373\$00	779 087\$00
Crude copra oil (75% of total)	1 286 381\$00	1 371 425\$00	1 458 042\$00	1 472 622\$00	1 487 348\$00
Bagasse	88 209\$00	94 041\$00	99 980\$00	100 980\$00	101 990\$00
TOTAL	2 048 409\$00	2 183 832\$00	2 321 758\$00	2 344 975\$00	2 368 425\$00





2. <u>Costs</u>

PURCHASES: QUANTITIES (per month)

					Unid.: Ton.
RAW MATERIALS	1	2	3	4	5
Copra	891	941	990	990	990
TOTAL	891	941	990	990	990

UNIT COST (\$/Ton.)

••••••••••••••••••••••••••••••••••••••					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Copra	100\$00	101\$00	102\$00	103\$00	104\$00
TOTAL	100\$00	101\$00	102\$00	103\$00	104\$00

MONTHLY PURCHASES OF RAW MATERIALS

					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Сорга	89 100\$00	94 991\$00	100 990\$00	102 000\$00	103 020\$00
TOTAL	89 100\$00	94 991\$00	100 990\$00	102 000\$00	103 020\$00

ANNUAL PURCHASES OF RAW MATERIALS

					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Copra	980 100\$00	1 044 896\$00	1 110 889\$00	1 121 998\$00	1 133 218\$00
TOTAL	980 100\$00	1 044 896\$00	1 110 889\$00	1 121 998\$00	1 133 218\$00

MONTHLY EXTERNAL CHARGES FOR SERV

	1				Unit:dollars
ECS	1	2	3	4	5
Sub-contracts					
Electricity	3 000\$00	3 030\$00	3 060\$00	3 091\$00	3 122\$00
Fuels	1 400\$00	1 414\$00	1 428\$00	1 442\$00	1 457\$00
Water	1 000\$00	1 010\$00	1 020\$00	1 030\$00	1 041\$00
Fast weathering tools and utensiles	250\$00	253\$00	255\$00	258\$00	260\$00
Pakages	1 114\$00	1 125\$00	1 136\$00	1 147\$00	1 159\$00
Office Supplies	200\$00	202\$00	204\$00	206\$00	208\$00
Chemical products and others	1 718\$00	1 735\$00	1 753\$00	1 770\$00	1 788\$00
Communication	200\$00	202\$00	204\$00	206\$00	208\$00
Accountancy postage	300\$00	303\$00	306\$00	309\$00	312\$00
Insurance	2 711\$00	2 738\$00	2 765\$00	2 793\$00	2 821\$00
Travel and accommodation	1 000\$00	1 010\$00	1 020\$00	1 030\$00	1 041\$00
Fees and commissions	200\$00	202\$00	204\$00	206\$00	208\$00
Maintenance and Repair	2 315\$00	2 338\$00	2 361\$00	2 385\$00	2 409\$00
Advertising and publicity	500\$00	505\$00	510\$00	515\$00	520\$00
Cleaning, hygiene and comfort	100\$00	101\$00	102\$00	103\$00	104\$00
Other ECSs	500\$00	505\$00	510\$00	515\$00	520\$00
TOTAL	16 507\$00	16 672\$00	16 839\$00	17 007\$00	17 177\$00

ANNUAL ECS

					Unit:dollars
FSE	1	2	3	4	5
Sub-contracts					
Electricity	39 600\$00	39 996\$00	40 396\$00	40 800\$00	41 208\$00
Fuels	18 480\$00	18 665\$00	18 851\$00	19 040\$00	19 230\$00
Water	13 200\$00	13 332\$00	13 465\$00	13 600\$00	13 736\$00
Fast weathering tools and utensiles	3 300\$00	3 333\$00	3 366\$00	3 400\$00	3 434\$00
Pakages	13 365\$00	13 499\$00	13 634\$00	13 770\$00	13 908\$00
Office Supplies	2 640\$00	2 666\$00	2 693\$00	2 720\$00	2 747\$00
Chemical products and others	22 680\$00	22 907\$00	23 136\$00	23 367\$00	23 601\$00
Communication	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Accountancy postage	3 600\$00	3 636\$00	3 672\$00	3 709\$00	3 746\$00
Insurance	32 528\$00	32 854\$00	33 182\$00	33 514\$00	33 849\$00
Travel and accommodation	12 000\$00	12 120\$00	12 241\$00	12 364\$00	12 487\$00
Fees and commissions	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Maintenance and Repair	30 552\$00	30 858\$00	31 166\$00	31 478\$00	31 793\$00
Advertising and publicity	6 000\$00	6 060\$00	6 121\$00	6 182\$00	6 244\$00
Cleaning, hygiene and comfort	1 320\$00	1 333\$00	1 347\$00	1 360\$00	1 374\$00
Other ECSs	6 600\$00	6 666\$00	6 733\$00	6 800\$00	6 868\$00
TOTAL	210 666\$00	212 772\$00	214 900\$00	217 049\$00	219 220\$00

MONTHLY COSTS WITH STAFF

MONTHET COSTS WITTSTA					Unit:dollars
STAFF	1	2	3	4	5
GM+CM+FM+PM - Fees - Chargers - Meal Allowance	5 304\$00 5 100\$00 204\$00	5 357\$00 5 151\$00 206\$00	5 411\$00 5 203\$00 208\$00	5 465\$00 5 255\$00 210\$00	5 519\$00 5 307\$00 212\$00
Workers - Fees - Expenses - Meal Allowance	4 430\$00 4 260\$00 170\$00	4 475\$00 4 303\$00 172\$00	4 475\$00 4 303\$00 172\$00	4 519\$00 4 346\$00 174\$00	4 565\$00 4 389\$00 176\$00
Adminitrative Staff - Fees - Expenses - Meal Allowance	3 063\$00 2 945\$00 118\$00	3 093\$00 2 974\$00 119\$00	3 124\$00 3 004\$00 120\$00	3 156\$00 3 034\$00 121\$00	3 187\$00 3 065\$00 123\$00
TOTAL	12 797\$00	12 925\$00	13 010\$00	13 140\$00	13 271\$00



ANNUAL COSTS WITH STAFF

	•				Unit:dollars
STAFF	1	2	3	4	5
	00.040000	04.004000	04.007000		
GM+CM+FM+PM	63 648\$00	64 284\$00	64 927\$00	65 577\$00	66 232\$00
- Fees	61 200\$00	61 812\$00	62 430\$00	63 054\$00	63 685\$00
- Chargers	2 448\$00	2 472\$00	2 497\$00	2 522\$00	2 547\$00
- Meal Allowance					
Workers	53 165\$00	53 696\$00	53 696\$00	54 233\$00	54 776\$00
- Fees	51 120\$00	51 631\$00	51 631\$00	52 148\$00	52 669\$00
- Expenses	2 045\$00	2 065\$00	2 065\$00	2 086\$00	2 107\$00
- Meal Allowance					
Adminitrative Staff	36 754\$00	37 121\$00	37 492\$00	37 867\$00	38 246\$00
- Fees	35 340\$00	35 693\$00	36 050\$00	36 411\$00	36 775\$00
- Expenses	1 414\$00	1 428\$00	1 442\$00	1 456\$00	1 471\$00
- Meal Allowance		20000		1 100400	
TOTAL	153 566\$00	155 102\$00	156 116\$00	157 677\$00	159 254\$00

MONTHLY Income Tax

						Unit:dollars
Rate	STAFF	1	2	3	4	5
20,00%	GM+CM+FM+PM	1 020\$00	1 030\$00	1 041\$00	1 051\$00	1 061\$00
10,00%	Workers	426\$00	430\$00	430\$00	435\$00	439\$00
10,00%	Adminitrative Staff	295\$00	297\$00	300\$00	303\$00	306\$00
	Total	1 741\$00	1 758\$00	1 771\$00	1 789\$00	1 807\$00

SOCIAL SECURITY

	SOCIAL SECORT					Unit:dollars
Rate	STAFF	1	2	3	4	5
3,00%	GM+CM+FM+PM	153\$00	155\$00	156\$00	158\$00	159\$00
3,00%	Workers	128\$00	129\$00	129\$00	130\$00	132\$00
3,00%	Adminitrative Staff	88\$00	89\$00	90\$00	91\$00	92\$00
	Total	369\$00	373\$00	375\$00	379\$00	383\$00



DEPRECIATION TABLE

DESIGNATION	VALUE	DEPRECIATION	1	2	3	4	5
		RATE					
I - FIXED PHYSICAL ASSETS Buildings and Annexes INDUSTRIAL EQUIPMENT(45 tonnes/day) Transport equipment Agricultural Extension equipment	1 055 000\$00 1 187 475\$00 485 000\$00 50 000\$00	4,00% 12,50% 20,00% 20,00%	42 200\$00 148 434\$00 97 000\$00 10 000\$00	42 200\$00 148 434\$00 97 000\$00 10 000\$00	42 200\$00 148 434\$00 97 000\$00 10 000\$00	42 200\$00 148 434\$00 97 000\$00 10 000\$00	42 200\$00 148 434\$00 97 000\$00 10 000\$00
II - FIXED NON PHYSICAL ASSETS Licences, Charters Company Constitution Professional Training Plan Implementation Feasibility Study Marketing Plan Implementation	2 500\$00 2 500\$00 15 000\$00 7 500\$00 25 000\$00	33,33% 33,33% 33,33% 33,33% 33,33%	833\$00 833\$00 5 000\$00 2 500\$00 8 333\$00	833\$00 833\$00 5 000\$00 2 500\$00 8 333\$00	833\$00 833\$00 5 000\$00 2 500\$00 8 333\$00		
TOTAL (I+II)	2 829 975\$00		315 134\$00	315 134\$00	315 134\$00	297 634\$00	297 634\$00

Loan Term	5				
Interest Rate	10,00%	Deferred Period		2	
					Unit:dollars
Period	Initial	Amortisation	Interest	Amortisation	Final
	Outstanding Capital			+ Interest	Oustanding Capital
Year 1, 1st semester	2 329 298\$00		116 465\$00	116 465\$00	2 329 298\$00
Year 1, 2nd semester	2 329 298\$00		116 465\$00	116 465\$00	2 329 298\$00
Year 2, 1st semester	2 329 298\$00		116 465\$00	116 465\$00	2 329 298\$00
Year 2, 2nd semester	2 329 298\$00		116 465\$00	116 465\$00	2 329 298\$00
Year 3, 1st semester	2 329 298\$00	388 216\$00	116 465\$00	504 681\$00	1 941 081\$00
Year 3, 2nd semester	1 941 081\$00	388 216\$00	97 054\$00	485 270\$00	1 552 865\$00
Year 4, 1st semester	1 552 865\$00	388 216\$00	77 643\$00	465 860\$00	1 164 649\$00
Year 4, 2nd semester	1 164 649\$00	388 216\$00	58 232\$00	446 449\$00	776 433\$00
Year 5, 1st semester	776 433\$00	388 216\$00	38 822\$00	427 038\$00	388 216\$00
Year 5, 2nd semester	388 216\$00	388 216\$00	19 411\$00	407 627\$00	







3. Forecast operational accounts of the project

PREVISIONAL OPERATIONAL ACCOUNT OF THE PROJECT

Unit:doll							
ITEMS	1	2	3	4	5		
1.Net Sales 1.1.Internal Market 1.2.External Market	2 048 409\$00 2 048 409\$00	2 183 832\$00 2 183 832\$00	2 321 758\$00 2 321 758\$00	2 344 975\$00 2 344 975\$00	2 368 425\$00 2 368 425\$00		
2.Other Profits 2.1.Services Rendered 2.2.Other							
3.Output Variation							
4.Total	2 048 409\$00	2 183 832\$00	2 321 758\$00	2 344 975\$00	2 368 425\$00		
5.Cost of the Consumed National Stocks 6.Cost of the Consumed Imported Stocks 7.Subcontracts	980 100\$00	1 044 896\$00	1 110 889\$00	1 121 998\$00	1 133 218\$00		
8.Other External Charges for Services 8.1.Electricity/Water/Fuels 8.2.Rent 8.3.Communications 8.4.Insurance 8.5.Commissions 8.6.Publicity and Propaganda	210 666\$00 71 280\$00 22 680\$00 13 365\$00 32 528\$00 35 172\$00 6 000\$00	212 772\$00 71 993\$00 22 907\$00 13 499\$00 32 854\$00 35 524\$00 6 060\$00	214 900\$00 72 713\$00 23 136\$00 13 634\$00 33 182\$00 35 879\$00 6 121\$00	217 049\$00 73 440\$00 23 367\$00 13 770\$00 33 514\$00 36 238\$00 6 182\$00	219 220\$00 74 174\$00 23 601\$00 13 908\$00 33 849\$00 36 600\$00 6 244\$00		
8.5. Various External Charges for Services 9.Taxes 9.1.Direct	29 640\$00 205\$00	29 936\$00 218\$00	30 236\$00 232\$00	30 538\$00 234\$00	30 844\$00 237\$00		
9.2.Indirect	205\$00	218\$00	232\$00	234\$00	237\$00		
11 Others Cost and Expenses	20 484\$00	21 838\$00	23 218\$00	23 450\$00	23 684\$00		
12.Depreciation and Reinsertion 13.Provisions	315 134\$00	315 134\$00	315 134\$00	297 634\$00	297 634\$00		
14.Total	1 680 155\$00	1 749 961\$00	1 820 489\$00	1 818 043\$00	1 833 247\$00		
15.Operational Profit of the Exercise	368 254\$00	433 871\$00	501 269\$00	526 933\$00	535 178\$00		
16.Financial Costs	273 898\$00	276 606\$00	259 954\$00	182 775\$00	105 601\$00		
16.1.of Operational Nature	40 968\$00	43 677\$00	46 435\$00	46 900\$00	47 369\$00		
16.2.of Financing Nature 17.Extraordinary Costs and Losses	232 930\$00	232 930\$00	213 519\$00	135 876\$00	58 232\$00		
18.Profit Previous to Taxes	94 356\$00	157 264\$00	241 314\$00	344 157\$00	429 577\$00		
19. Provisions for Taxes on Profits	9 436\$00	15 726\$00	24 131\$00	34 416\$00	42 958\$00		
20.Net Profit	84 920\$00	141 538\$00	217 183\$00	309 742\$00	386 620\$00		





4. Indicators of profitability

PROJECT FINANCIAL INDICATORS

Net Present Value of the Project (NPV)	245 328\$00
Internal Rentability Rate (IRR)	17,03%
Profitability Index (PI)	123,02%
Investment Recovery Period (IRP) - Months	57

PROJECT CASH-FLOWS

					Unit:dollars
ITEMS	1	2	3	4	5
Total Annual Investment (1)	3 327 568\$00				
Investment Residual Value (2)					1 315 704\$00
Operational Cash-Flow (3)	632 984\$00	689 602\$00	745 836\$00	743 252\$00	742 486\$00
Cash-Flow Previous to the Project (4)					
Project's Cash-Flow (3+2-1-4)	-2 694 584\$00	689 602\$00	745 836\$00	743 252\$00	2 058 191\$00
					<u>.</u>
Present Value of Operational CF	560 163\$00	689 602\$00	745 836\$00	743 252\$00	742 486\$00
		•	•		¢
Present Value of CF	-2 384 587\$00	540 059\$00	516 902\$00	455 850\$00	1 117 103\$00
NPV	245 328\$00				
Accumulated CF	-2 384 587\$00	-1 844 528\$00	-1 327 626\$00	- 871 776\$00	245 328\$00



Appendix 3

5. Sensitivity analysis

SENSITIVITY ANALYSIS

Unit:dollars

	Calculated	CRITICAL PARAMETERS CONSIDERED						
Variation	Indicator	Sale	Cost	Investment	Sales			
		Price	Level	Cost	Level			
-10%	NPV	- 161 205\$00	1 188 680\$00	834 134\$00	296 722\$00			
	IRR	10,7%	31,0%	26,6%	17,3%			
-5%	NPV	250 310\$00	919 275\$00	742 002\$00	473 296\$00			
	IRR	16,6%	26,7%	24,5%	19,9%			
10%	NPV	1 448 806\$00	110 154\$00	465 606\$00	1 003 019\$00			
	IRR	35,2%	14,6%	19,3%	28,0%			
5%	NPV	1 049 338\$00	380 465\$00	557 738\$00	826 445\$00			
	IRR	28,8%	18,5%	20,8%	25,3%			







COMPANY COSTS' STRUCTURE

ITEMS	1	2	3	4	5
Total Profits	2 048 409\$00	2 183 832\$00	2 321 758\$00	2 344 975\$00	2 368 425\$00
Consumed Stocks	47,85%	47,85%	47,85%	47,85%	47,85%
Subcontracts					
ECSs	10,28%	9,74%	9,26%	9,26%	9,26%
Taxes	0,01%	0,01%	0,01%	0,01%	0,01%
Costs with Staff	7,50%	7,10%	6,72%	6,72%	6,72%
Other Costs and Expenses	1,00%	1,00%	1,00%	1,00%	1,00%
Depreciation and Reinsertion Provisions	15,38%	14,43%	13,57%	12,69%	12,57%
Provisions					
Financial Costs of Operational Nature	2,00%	2,00%	2,00%	2,00%	2,00%
Financial Costs of Financing Nature	11,37%	10,67%	9,20%	5,79%	2,46%
Net Profit	4,15%	6,48%	9,35%	13,21%	16,32%



COMPANY'S GROSS SALES MARGIN

					ernt.denare
ITEMS	1	2	3	4	5
Sales	2 048 409\$00	2 183 832\$00	2 321 758\$00	2 344 975\$00	2 368 425\$00
Purchases of Goods for Resale	980 100\$00	1 044 896\$00	1 110 889\$00	1 121 998\$00	1 133 218\$00
Gross Margin	1 068 309\$00	1 138 936\$00	1 210 869\$00	1 222 978\$00	1 235 207\$00

- av



Unit:dollars



COMPANY'S BREAK EVEN POINT

ITEM	1	2	3	4	5
Sales Volume	2 048 409\$00	2 183 832\$00	2 321 758\$00	2 344 975\$00	2 368 425\$00
Margin (%)	52,2%	52,2%	52,2%	52,2%	52,2%
Variable Costs	1 175 815\$00	1 246 016\$00	1 317 503\$00	1 330 678\$00	1 343 985\$00
Net contribution margin	872 594\$00	937 816\$00	1 004 255\$00	1 014 297\$00	1 024 440\$00
Net contribution margin (%)	42,60%	42,94%	43,25%	43,25%	43,25%
Fixed Costs	834 982\$00	837 862\$00	820 824\$00	728 603\$00	653 910\$00
Break Even point	1 960 114\$00	1 951 076\$00	1 897 681\$00	1 684 472\$00	1 511 789\$00
Safety Margin	4,31%	10,66%	18,27%	28,17%	36,17%



GROSS VALUE ADDED (GVA) AND COMPANY'S PRODUCTIVITY

					Unit:dollars
ITEM	1	2	3	4	5
Costs with Staff	153 566\$00	155 102\$00	156 116\$00	157 677\$00	159 254\$00
Financial Costs	273 898\$00	276 606\$00	259 954\$00	182 775\$00	105 601\$00
Depreciation	315 134\$00	315 134\$00	315 134\$00	297 634\$00	297 634\$00
Net Profit	84 920\$00	141 538\$00	217 183\$00	309 742\$00	386 620\$00
GVA	827 519\$00	888 381\$00	948 388\$00	947 828\$00	949 109\$00
No. of workers	75	75	75	75	75
Employees Total Productivity	11 034\$00	11 845\$00	12 645\$00	12 638\$00	12 655\$00
Assets Total Productivity	23,49%	25,36%	31,93%	37,17%	43,74%



COMPANY'S ECONOMIC RATIOS

ITEM	1	2	3	4	5
Operational Released Resources	632 984\$00	689 602\$00	745 836\$00	743 252\$00	742 486\$00
Equity Profitability	9,26%	13,37%	17,03%	19,54%	19,61%
Sales Gross Profitability	52,15%	52,15%	52,15%	52,15%	52,15%
Sales Net Profitability	4,61%	7,20%	10,39%	14,68%	18,14%
Sales Operational Profitability	30,90%	31,58%	32,12%	31,70%	31,35%
Assets Economic Profitability	17,97%	19,68%	25,11%	29,15%	34,22%
Assets Profitability	10,46%	12,38%	16,87%	20,67%	24,66%





7. Forecast balance sheet

					Unit:dollars
ITEMS	1	2	3	4	5
ASSETS					
1.Gross Fixed Assets	2 829 975\$00	2 829 975\$00	2 829 975\$00	2 829 975\$00	2 829 975\$00
1.1.Non - Physical	52 500\$00	52 500\$00	52 500\$00	52 500\$00	52 500\$00
1.2.Physical	2 777 475\$00	2 777 475\$00	2 777 475\$00	2 777 475\$00	2 777 475\$00
1.3 Financial	2		2	2	2
2 Depreciation and Reinsertion	315 134\$00	630 269\$00	945 403\$00	1 243 037\$00	1 540 672\$00
3 Mid and Long Term Current Assets	010 104000	000 200000	040 400000	1 240 001 000	1 040 01 2000
4 Stocks	81 675\$00	87.075\$00	02 574\$00	03 500\$00	04 435\$00
5 Short Term Current Assets	185 815\$00	320 127\$00	103 / 80 \$00	105 /15\$00	107 360\$00
5.1 Cliente	403 013000	191 09600	193 400000	105 415000	197 260\$00
5.1. Other Debters	215 11 100	129 141000	193 400400	195 415400	197 309400
5.2. Other Debtors	315 114300		700 040000	672 047000	500 000000
7.Prepayments and Deferred Income	439 843\$00	896 429\$00	799 948\$00	673 917\$00	588 928\$00
8.Total Assets	3 522 173\$00	3 503 337\$00	2 970 574\$00	2 549 769\$00	2 170 035\$00
EQUITY					
9.Capital	831 892\$00	831 892\$00	831 892\$00	831 892\$00	831 892\$00
10.Suplementary Instalments					
11.Reserves / Unappropriated Earned Surplus		84 920\$00	226 458\$00	443 641\$00	753 383\$00
12.Net Profit	84 920\$00	141 538\$00	217 183\$00	309 742\$00	386 620\$00
13.Interim Dividends					
14.Total Equity	916 812\$00	1 058 350\$00	1 275 533\$00	1 585 275\$00	1 971 894\$00
15 Provisions for Risks and Costs					
16 Mid and Long Term Debts	2 405 676\$00	2 220 208¢00	1 552 865\$00	776 /33\$00	
16 1 Bank Loans	2 320 208\$00	2 329 29000	1 552 865\$00	776 433\$00	
16.2 Portpors' Loops	166 279 \$000	2 329 290400	1 332 003400	110 433000	
16.2 Other Debte	100 37 8000				
17 Short Term Debt	100 695000	115 690000	140 176000	199 062000	100 141000
	109 082900	112 089200	142 176500	188 062900	198 141500
17.1.Bank Loans	00 505000	00.001000	101 535000	100.000000	100 110000
17.2. Suppliers	90 020000	30 201000	101 03000	102 09200	
	13 160\$00	19 488900	40 641300	85 97 1500	95 028\$00
18.Prepayments and Deferred Income					
19.Total Liabilities	2 605 361\$00	2 444 987\$00	1 695 041\$00	964 495\$00	198 141\$00
20.Total Liabilities+ Equity	3 522 173\$00	3 503 337\$00	2 970 574\$00	2 549 769\$00	2 170 035\$00

SEED





8. Financial Indicators

COMPANY'S BALANCE STRUCTURE

					Unit:dollars
ITEMS	1	2	3	4	5
Fixed Assets	2 596 516\$00	2 286 781\$00	1 977 146\$00	1 680 437\$00	1 383 738\$00
Circulating Capital	925 658\$00	1 216 556\$00	993 428\$00	869 332\$00	786 297\$00
Equity	916 812\$00	1 058 350\$00	1 275 533\$00	1 585 275\$00	1 971 894\$00
Long Term Liabilities	2 495 676\$00	2 329 298\$00	1 552 865\$00	776 433\$00	
Short Term Liabilities	109 685\$00	115 689\$00	142 176\$00	188 062\$00	198 141\$00



COMPANY'S FINANCIAL RATIOS

ITEM	1	2	3	4	5
Debt	35,19%	43,29%	75,25%	164,36%	995,20%
Debt Recovery Period	6,24	5,10	2,92	1,28	
Liability Average Cost	10,51%	11,31%	15,34%	18,95%	53,30%
Financial Autonomy	26,03%	30,21%	42,94%	62,17%	90,87%
Solvency	35,19%	43,29%	75,25%	164,36%	995,20%





COMPANY'S LIQUIDITY RATIOS

ITEMS	1	2	3	4	5
General Liquidity	9,18	11,27	7,64	5,12	4,44
Reduced Liquidity	8,44	10,52	6,99	4,62	3,97
Immediate Liquidity	4,01	7,75	5,63	3,58	2,97



OTHER COMPANY INDICATORS

ITEMS	1	2	3	4	5
Average Receiving Period (days)	30	30	30	30	30
Average Payment Period (days)	36	34	33	33	33
Assets Rotation	58,16%	62,34%	78,16%	91,97%	109,14%
Stocks Rotation (days)	30	30	30	30	30
Costs with Staff/ Sales	7,50%	7,10%	6,72%	6,72%	6,72%
Wage Productivity	538,87%	572,77%	607,49%	601,12%	595,97%
Share of Fixed Assets Covered by Equity	32,40%	37,40%	45,07%	56,02%	69,68%

COMPANY SCHEMATIC BALANCE

					Unit:dollars
ITEM	1	2	3	4	5
Permanent Capital	3 412 488\$00	3 387 647\$00	2 828 398\$00	2 361 707\$00	1 971 894\$00
Net Fixed Assets	2 514 841\$00	2 199 706\$00	1 884 572\$00	1 586 938\$00	1 289 303\$00
WORKING CAPITAL (WC)	897 647\$00	1 187 941\$00	943 826\$00	774 769\$00	682 591\$00
Cyclical Needs	567 490\$00	407 201\$00	286 054\$00	288 914\$00	291 804\$00
Cyclical Resources	109 685\$00	115 689\$00	142 176\$00	188 062\$00	198 141\$00
Net Current Assets Needs(WCI)	457 805\$00	291 512\$00	143 878\$00	100 852\$00	93 663\$00
Active Treasury Passive Treasury	439 843\$00	896 429\$00	799 948\$00	673 917\$00	588 928\$00
Treasury	439 843\$00	896 429\$00	799 948\$00	673 917\$00	588 928\$00
Treasury Control					





SCENARIO 2 - REALISTIC

NOTE: Only the altered tables are shown

1. Benefits

No alterations have been made.

2. <u>Cost's</u>

PURCHASES: QUANTITIES (per month)

RAW MATERIALS	1	2	3	4	5
Copra	891	941	990	990	990
TOTAL	891	941	990	990	990

UNIT COST (\$/Ton.)

Unit:dollars							
RAW MATERIALS	1	2	3	4	5		
Copra	95\$00	96\$00	97\$00	98\$00	99\$00		
TOTAL	95\$00	96\$00	97\$00	98\$00	99\$00		

MONTHLY PURCHASES OF RAW MATERIALS

	-				Unit:dollars
RAW MATERIALS	1	2	3	4	5
Copra	84 645\$00	90 241\$00	95 940\$00	96 900\$00	97 869\$00
TOTAL	84 645\$00	90 241\$00	95 940\$00	96 900\$00	97 869\$00

ANNUAL PURCHASES OF RAW MATERIALS

					Unit:dollars
RAW MATERIALS	1	2	3	4	5
Copra	931 095\$00	992 651\$00	1 055 344\$00	1 065 898\$00	1 076 557\$00
TOTAL	931 095\$00	992 651\$00	1 055 344\$00	1 065 898\$00	1 076 557\$00

- av



l Init:dollars

MONTHLY EXTERNAL CHARGES FOR SERVICES

					Unit:dollars
ECS	1	2	3	4	5
Sub-contracts					
Electricity	3 000\$00	3 030\$00	3 060\$00	3 091\$00	3 122\$00
Fuels	1 400\$00	1 414\$00	1 428\$00	1 442\$00	1 457\$00
Water	1 000\$00	1 010\$00	1 020\$00	1 030\$00	1 041\$00
Fast weathering tools and utensiles	250\$00	253\$00	255\$00	258\$00	260\$00
Pakages	1 164\$00	1 176\$00	1 188\$00	1 200\$00	1 212\$00
Office Supplies	200\$00	202\$00	204\$00	206\$00	208\$00
Chemical products and others	1 718\$00	1 735\$00	1 753\$00	1 770\$00	1 788\$00
Communication	200\$00	202\$00	204\$00	206\$00	208\$00
Accountancy postage	300\$00	303\$00	306\$00	309\$00	312\$00
Insurance	2 700\$00	2 728\$00	2 755\$00	2 782\$00	2 810\$00
Travel and accommodation	1 000\$00	1 010\$00	1 020\$00	1 030\$00	1 041\$00
Fees and commissions	200\$00	202\$00	204\$00	206\$00	208\$00
Maintenance and Repair	2 315\$00	2 338\$00	2 361\$00	2 385\$00	2 409\$00
Advertising and publicity	500\$00	505\$00	510\$00	515\$00	520\$00
Cleaning, hygiene and comfort	100\$00	101\$00	102\$00	103\$00	104\$00
Other ECSs	500\$00	505\$00	510\$00	515\$00	520\$00
TOTAL	16 548\$00	16 713\$00	16 880\$00	17 049\$00	17 220\$00

ANNUAL ECS

					Unit:dollars
FSE	1	2	3	4	5
Sub-contracts					
Electricity	39 600\$00	39 996\$00	40 396\$00	40 800\$00	41 208\$00
Fuels	18 480\$00	18 665\$00	18 851\$00	19 040\$00	19 230\$00
Water	13 200\$00	13 332\$00	13 465\$00	13 600\$00	13 736\$00
Fast weathering tools and utensiles	3 300\$00	3 333\$00	3 366\$00	3 400\$00	3 434\$00
Pakages	13 973\$00	14 112\$00	14 253\$00	14 396\$00	14 540\$00
Office Supplies	2 640\$00	2 666\$00	2 693\$00	2 720\$00	2 747\$00
Chemical products and others	22 680\$00	22 907\$00	23 136\$00	23 367\$00	23 601\$00
Communication	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Accountancy postage	3 600\$00	3 636\$00	3 672\$00	3 709\$00	3 746\$00
Insurance	32 406\$00	32 730\$00	33 057\$00	33 388\$00	33 722\$00
Travel and accommodation	12 000\$00	12 120\$00	12 241\$00	12 364\$00	12 487\$00
Fees and commissions	2 400\$00	2 424\$00	2 448\$00	2 473\$00	2 497\$00
Maintenance and Repair	30 552\$00	30 858\$00	31 166\$00	31 478\$00	31 793\$00
Advertising and publicity	6 000\$00	6 060\$00	6 121\$00	6 182\$00	6 244\$00
Cleaning, hygiene and comfort	1 320\$00	1 333\$00	1 347\$00	1 360\$00	1 374\$00
Other ECSs	6 600\$00	6 666\$00	6 733\$00	6 800\$00	6 868\$00
TOTAL	211 151\$00	213 262\$00	215 395\$00	217 549\$00	219 724\$00

SEED





INVESTMENT IN WORKING CAPITAL

	-					Unit:dollars
ITEMS	DAYS	1	2	3	4	5
1. Current Assets	30	30 393\$00	33 488\$00	33 774\$00	34 111\$00	34 453\$00
2. Clients	30	173 253\$00	184 707\$00	196 373\$00	198 336\$00	200 320\$00
3. Stocks	30	77 591\$00	82 721\$00	87 945\$00	88 825\$00	89 713\$00
4. Stocks' Suppliers	30	91 699\$00	91 391\$00	96 459\$00	96 987\$00	97 957\$00
5. State - Paid VAT		655 116\$00	185 501\$00	196.326\$00	198 289\$00	200 272\$00
- Settled VAT - Credited VAT		353 436\$00 301 680\$00	376 802\$00 110 378\$00	400 600\$00	404 606\$00	408 652\$00
- Outstanding VAT				93 896\$00	206 317\$00	208 380\$00
- Income Tax		2 401\$00	2 425\$00	2 441\$00	2 465\$00	2 490\$00
6. Social Security		1 324\$00	1 337\$00	1 345\$00	1 358\$00	1 372\$00
7. Net Current Assets Needs		487 494\$00	316 141\$00	123 952\$00	14 145\$00	14 287\$00
8. Net Current Assets Investment		487 494\$00	- 171 353\$00	- 192 189\$00	- 109 806\$00	141\$00

					Unit:dollars
	1	2	3	4	5
Initial Stocks		77 591\$00	90 241\$00	95 940\$00	96 900\$00
Final Stocks	77 591\$00	90 241\$00	95 940\$00	96 900\$00	97 869\$00
Purchases	1 008 686\$00	1 005 300\$00	1 061 044\$00	1 066 857\$00	1 077 526\$00
Purchases of Goods for Resale	931 095\$00	992 651\$00	1 055 344\$00	1 065 898\$00	1 076 557\$00

Loan Term	5				
Interest Rate	10,00%	Deferred period		2	Ī
				-	Unit:dollars
Period	Initial	Amortisation	Interest	Amortisation	Final
	Outstanding Capital			+ Interest	Oustanding Capital
Year 1, 1st semester	2 322 228\$00		116 111\$00	116 111\$00	2 322 228\$00
Year 1, 2nd semester	2 322 228\$00		116 111\$00	116 111\$00	2 322 228\$00
Year 2, 1st semester	2 322 228\$00		116 111\$00	116 111\$00	2 322 228\$00
Year 2, 2nd semester	2 322 228\$00		116 111\$00	116 111\$00	2 322 228\$00
Year 3, 1st semester	2 322 228\$00	387 038\$00	116 111\$00	503 149\$00	1 935 190\$00
Year 3, 2nd semester	1 935 190\$00	387 038\$00	96 760\$00	483 798\$00	1 548 152\$00
Year 4, 1st semester	1 548 152\$00	387 038\$00	77 408\$00	464 446\$00	1 161 114\$00
Year 4, 2nd semester	1 161 114\$00	387 038\$00	58 056\$00	445 094\$00	774 076\$00
Year 5, 1st semester	774 076\$00	387 038\$00	38 704\$00	425 742\$00	387 038\$00
Year 5, 2nd semester	387 038\$00	387 038\$00	19 352\$00	406 390\$00	

SEED -



3. Forecast operational accounts

					Unit:dollars
ITEMS	1	2	3	4	5
1.Net Sales	2 079 037\$00	2 216 485\$00	2 356 473\$00	2 380 038\$00	2 403 838\$00
1.1.Internal Market	2 079 037\$00	2 216 485\$00	2 356 473\$00	2 380 038\$00	2 403 838\$00
1.2.External Market					
2.Other Profits					
2.1.Services Rendered					
2.2.Other					
3.Output Variation					
4.Total	2 079 037\$00	2 216 485\$00	2 356 473\$00	2 380 038\$00	2 403 838\$00
5.Cost of the Consumed National Stocks	931 095\$00	992 651\$00	1 055 344\$00	1 065 898\$00	1 076 557\$00
6.Cost of the Consumed Imported Stocks					
7 Subcontracts					
8. Other External Charges for Services	211 151\$00	213 262\$00	215 395\$00	217 549\$00	219 724\$00
8.1.Electricity/Water/Fuels	71 280\$00	71 993\$00	72 713\$00	73 440\$00	74 174\$00
8.2.Rent	22 680\$00	22 907\$00	23 136\$00	23 367\$00	23 601\$00
8.3.Communications	13 973\$00	14 112\$00	14 253\$00	14 396\$00	14 540\$00
8.4.Insurance	32 406\$00	32 730\$00	33 057\$00	33 388\$00	33 722\$00
8.5.Commissions	35 172\$00	35 524\$00	35 879\$00	36 238\$00	36 600\$00
8.6. Publicity and Propaganda	6 000\$00	6 060\$00	6 121\$00	6 182\$00	6 244\$00
8.5. Various External Charges for Services	29 640\$00	29 936\$00	30 236\$00	30 538\$00	30 844\$00
9. Laxes	208\$00	222\$00	236\$00	238\$00	240\$00
9.1.Dilect	209¢00	22200	22600	229000	240000
9.2.Indifect	200000 152 566¢00	155 102\$00	156 116\$00	230300 157 677¢00	240000 150 25400
11 Others Cost and Expenses	20 790\$00	22 165\$00	23 565\$00	23 800\$00	24 038\$00
12 Depreciation and Reinsertion	315 134\$00	315 134\$00	315 134\$00	297 634\$00	297 634\$00
13.Provisions	010 104000	010 104000	010 104000	201 004000	201 004000
14.Total	1 631 945\$00	1 698 536\$00	1 765 790\$00	1 762 797\$00	1 777 448\$00
15 On availance Drafit of the Everaine	447.002000	547 040¢00	500 602000	647 044600	cac 200¢00
15.Operational Profit of the Exercise	447 092500	517 949900	290 093200	617 241500	626 390900
16.Financial Costs	273 804\$00	276 553\$00	260 000\$00	183 064\$00	106 132\$00
16.1.of Operational Nature	41 581\$00	44 330\$00	47 129\$00	47 601\$00	48 077\$00
16.2.of Financing Nature	232 223\$00	232 223\$00	212 871\$00	135 463\$00	58 056\$00
17.Extraordinary Costs and Losses					
18.Profit Previous to Taxes	173 289\$00	241 396\$00	330 683\$00	434 177\$00	520 257\$00
19.Provisions for Taxes on Profits	17 329\$00	24 140\$00	33 068\$00	43 418\$00	52 026\$00
20.Net Profit	155 960\$00	217 257\$00	297 614\$00	390 759\$00	468 232\$00

SEED -





4. Indicators of profitability

PROJECT FINANCIAL INDICATORS

Net Present Value of the Project (NPV)	517 607\$00
Internal Rentability Rate (IRR)	21,67%
Profitability Index (PI)	136,41%
Investment Recovery Period (IRP) - Months	55

PROJECT CASH-FLOWS

					Unit:dollars
ITEMS	1	2	3	4	5
Total Annual Investment (1)	3 317 469\$00				
Investment Residual Value (2)					1 303 590\$00
Operational Cash-Flow (3)	703 317\$00	764 614\$00	825 620\$00	823 857\$00	823 922\$00
Cash-Flow Previous to the Project (4)					
Project's Cash-Flow (3+2-1-4)	-2 614 152\$00	764 614\$00	825 620\$00	823 857\$00	2 127 512\$00
Present Value of Operational CF	622 405\$00	764 614\$00	825 620\$00	823 857\$00	823 922\$00
Present Value of CF	-2 313 409\$00	598 805\$00	572 196\$00	505 287\$00	1 154 728\$00
NPV	517 607\$00		-		-
Accumulated CF	-2 313 409\$00	-1 714 604\$00	-1 142 408\$00	- 637 121\$00	517 607\$00



5. Sensitivity analysis

					Unit:dollars				
	Calculated	CRITICAL PARAMETERS CONSIDERED							
Variation	Indicator	Sale	Cost	Investment	Sales				
		Price	Level	Cost	Level				
-10%	NPV	151 631\$00	1 483 295\$00	1 147 349\$00	579 435\$00				
	IRR	15,2%	36,0%	32,2%	21,6%				
-5%	NPV	557 622\$00	1 223 179\$00	1 055 206\$00	771 249\$00				
	IRR	21,3%	31,7%	29,8%	24,5%				
10%	NPV	1 773 944\$00	442 830\$00	778 776\$00	1 346 690\$00				
	IRR	41,0%	19,5%	23,7%	33,7%				
5%	NPV	1 368 503\$00	702 946\$00	870 919\$00	1 154 876\$00				
	IRR	34,1%	23,5%	25,5%	30,6%				

SENSITIVITY ANALYSIS







6. Economic indicators

COMPANY COSTS' STRUCTURE

ITEMS	1	2	3	4	5
Total Profits	2 079 037\$00	2 216 485\$00	2 356 473\$00	2 380 038\$00	2 403 838\$00
Consumed Stocks	44,78%	44,78%	44,78%	44,78%	44,78%
Subcontracts					
ECSs	10,16%	9,62%	9,14%	9,14%	9,14%
Taxes	0,01%	0,01%	0,01%	0,01%	0,01%
Costs with Staff	7,39%	7,00%	6,62%	6,62%	6,62%
Other Costs and Expenses	1,00%	1,00%	1,00%	1,00%	1,00%
Depreciation and Reinsertion Provisions	15,16%	14,22%	13,37%	12,51%	12,38%
Provisions					
Financial Costs of Operational Nature	2,00%	2,00%	2,00%	2,00%	2,00%
Financial Costs of Financing Nature	11,17%	10,48%	9,03%	5,69%	2,42%
Net Profit	7,50%	9,80%	12,63%	16,42%	19,48%



COMPANY'S GROSS SALES MARGIN

Unit:dollars

ITEMS	1	2	3	4	5
Sales	2 079 037\$00	2 216 485\$00	2 356 473\$00	2 380 038\$00	2 403 838\$00
Purchases of Goods for Resale	931 095\$00	992 651\$00	1 055 344\$00	1 065 898\$00	1 076 557\$00
Gross Margin	1 147 942\$00	1 223 834\$00	1 301 129\$00	1 314 140\$00	1 327 281\$00



COMPANY'S BREAK EVEN POINT

ITEM	1	2	3	4	5
Sales Volume	2 079 037\$00	2 216 485\$00	2 356 473\$00	2 380 038\$00	2 403 838\$00
Margin (%)	55,2%	55,2%	55,2%	55,2%	55,2%
Variable Costs	1 128 336\$00	1 195 364\$00	1 263 620\$00	1 276 256\$00	1 289 019\$00
Net contribution margin	950 701\$00	1 021 120\$00	1 092 853\$00	1 103 782\$00	1 114 820\$00
Net contribution margin (%)	45,73%	46,07%	46,38%	46,38%	46,38%
Fixed Costs	834 155\$00	837 035\$00	820 055\$00	728 067\$00	653 610\$00
Break Even point	1 824 170\$00	1 816 901\$00	1 768 249\$00	1 569 901\$00	1 409 351\$00
Safety Margin	12,26%	18,03%	24,96%	34,04%	41,37%



GROSS VALUE ADDED (GVA) AND COMPANY'S PRODUCTIVITY

					Unit:dollars
ITEM	1	2	3	4	5
Costs with Staff	153 566\$00	155 102\$00	156 116\$00	157 677\$00	159 254\$00
Financial Costs	273 804\$00	276 553\$00	260 000\$00	183 064\$00	106 132\$00
Depreciation	315 134\$00	315 134\$00	315 134\$00	297 634\$00	297 634\$00
Net Profit	155 960\$00	217 257\$00	297 614\$00	390 759\$00	468 232\$00
GVA	898 464\$00	964 046\$00	1 028 865\$00	1 029 135\$00	1 031 253\$00
No. of workers	75	75	75	75	75
Employees Total Productivity	11 980\$00	12 854\$00	13 718\$00	13 722\$00	13 750\$00
Assets Total Productivity	25,05%	26,45%	32,10%	35,97%	40,20%



COMPANY'S ECONOMIC RATIOS

ITEM	1	2	3	4	5
Operational Released Resources	703 317\$00	764 614\$00	825 620\$00	823 857\$00	823 922\$00
Equity Profitability	15,83%	18,07%	19,84%	20,66%	19,85%
Sales Gross Profitability	55,22%	55,22%	55,22%	55,22%	55,22%
Sales Net Profitability	8,34%	10,89%	14,03%	18,24%	21,64%
Sales Operational Profitability	33,83%	34,50%	35,04%	34,62%	34,28%
Assets Economic Profitability	19,61%	20,98%	25,76%	28,80%	32,12%
Assets Profitability	12,47%	14,21%	18,43%	21,58%	24,42%





7. Forecast balance sheet

				-	Unit:dollars
ITEMS	1	2	3	4	5
ASSETS 1.Gross Fixed Assets 1.1.Non - Physical 1.2.Physical 1.3 Financial	2 829 975\$00 52 500\$00 2 777 475\$00	2 829 975\$00 52 500\$00 2 777 475\$00	2 829 975\$00 52 500\$00 2 777 475\$00	2 829 975\$00 52 500\$00 2 777 475\$00	2 829 975\$00 52 500\$00 2 777 475\$00
2.Depreciation and Reinsertion 3 Mid and Long Term Current Assets	315 134\$00	630 269\$00	945 403\$00	1 243 037\$00	1 540 672\$00
4.Stocks 5.Short Term Current Assets 5.1.Clients 5.2.Other Debtors 6.Bank Deposits/Cash/Negotionable Assets 7.Prepayments and Deferred Income	77 591\$00 474 933\$00 173 253\$00 301 680\$00 518 816\$00	82 721\$00 295 085\$00 184 707\$00 110 378\$00 1 066 592\$00	87 945\$00 196 373\$00 196 373\$00 1 036 246\$00	88 825\$00 198 336\$00 198 336\$00 986 742\$00	89 713\$00 200 320\$00 200 320\$00 985 792\$00
8.Total Assets	3 586 181\$00	3 644 104\$00	3 205 136\$00	2 860 841\$00	2 565 128\$00
EQUITY 9.Capital 10.Suplementary Instalments	829 367\$00	829 367\$00	829 367\$00	829 367\$00	829 367\$00
11.Reserves / Unappropriated Earned Surplus 12.Net Profit 13.Interim Dividends	155 960\$00	155 960\$00 217 257\$00	373 217\$00 297 614\$00	670 831\$00 390 759\$00	1 061 590\$00 468 232\$00
14.Total Equity	985 327\$00	1 202 584\$00	1 500 198\$00	1 890 957\$00	2 359 189\$00
LIABILITIES 15.Provisions for Risks and Costs 16.Mid and Long Term Debts 16.1.Bank Loans 16.2.Partners' Loans 16.3.Other Debts	2 488 102\$00 2 322 228\$00 165 873\$00	2 322 228\$00 2 322 228\$00	1 548 152\$00 1 548 152\$00	774 076\$00 774 076\$00	
17.Short Term Debt 17.1.Bank Loans 17.2.Suppliers 17.3.Public Statal Sector 17.4.Other Debts	112 752\$00 91 699\$00 21 054\$00	119 292\$00 91 391\$00 27 901\$00	156 786\$00 96 459\$00 60 328\$00	195 807\$00 96 987\$00 98 820\$00	205 939\$00 97 957\$00 107 982\$00
18.Prepayments and Deferred Income 19.Total Liabilities	2 600 854\$00	2 441 521\$00	1 704 938\$00	969 883\$00	205 939\$00
20.Total Liabilities+ Equity	3 586 181\$00	3 644 104\$00	3 205 136\$00	2 860 841\$00	2 565 128\$00

SEED -





8. Financial Indicators

COMPANY'S BALANCE STRUCTURE

					Unit:dollars
ITEMS	1	2	3	4	5
Fixed Assets Circulating Capital	2 592 432\$00 993 749\$00	2 282 427\$00 1 361 677\$00	1 972 517\$00 1 232 619\$00	1 675 762\$00 1 185 078\$00	1 379 016\$00 1 186 112\$00
Equity Long Term Liabilities Short Term Liabilities	985 327\$00 2 488 102\$00 112 752\$00	1 202 584\$00 2 322 228\$00 119 292\$00	1 500 198\$00 1 548 152\$00 156 786\$00	1 890 957\$00 774 076\$00 195 807\$00	2 359 189\$00 205 939\$00



COMPANY'S FINANCIAL RATIOS

ITEM	1	2	3	4	5
Debt	37,88%	49,26%	87,99%	194,97%	1145,58%
Debt Recovery Period	5,28	4,36	2,53	1,12	
Liability Average Cost	10,53%	11,33%	15,25%	18,87%	51,54%
Financial Autonomy	27,48%	33,00%	46,81%	66,10%	91,97%
Solvency	37,88%	49,26%	87,99%	194,97%	1145,58%





COMPANY'S LIQUIDITY RATIOS

		-	J
) 12,11	8,42	6,51	6,20
11,41	7,86	6,05	5,76
) 8,94	6,61	5,04	4,79
	D 12,11 1 11,41 D 8,94	D 12,11 8,42 1 11,41 7,86 D 8,94 6,61	D 12,11 8,42 6,51 1 11,41 7,86 6,05 D 8,94 6,61 5,04



OTHER COMPANY INDICATORS

ITEMS	1	2	3	4	5
Average Receiving Period (days)	30	30	30	30	30
Average Payment Period (days)	36	34	33	33	33
Assets Rotation	57,97%	60,82%	73,52%	83,19%	93,71%
Stocks Rotation (days)	30	30	30	30	30
Costs with Staff/ Sales	7,39%	7,00%	6,62%	6,62%	6,62%
Wage Productivity	585,07%	621,56%	659,04%	652,68%	647,55%
Share of Fixed Assets Covered by Equity	34,82%	42,49%	53,01%	66,82%	83,36%

COMPANY SCHEMATIC BALANCE

ITEM	1	2	3	4	5
Permanent Capital	3 473 429\$00	3 524 812\$00	3 048 350\$00	2 665 033\$00	2 359 189\$00
Net Fixed Assets	2 514 841\$00	2 199 706\$00	1 884 572\$00	1 586 938\$00	1 289 303\$00
WORKING CAPITAL (WC)	958 588\$00	1 325 106\$00	1 163 778\$00	1 078 096\$00	1 069 886\$00
Cyclical Needs	552 524\$00	377 806\$00	284 318\$00	287 161\$00	290 033\$00
Cyclical Resources	112 752\$00	119 292\$00	156 786\$00	195 807\$00	205 939\$00
Net Current Assets Needs(WCI)	439 772\$00	258 514\$00	127 532\$00	91 354\$00	84 094\$00
Active Treasury	518 816\$00	1 066 592\$00	1 036 246\$00	986 742\$00	985 792\$00
Passive Treasury					
Treasury	518 816\$00	1 066 592\$00	1 036 246\$00	986 742\$00	985 792\$00





ANNEXES

1. Technology, technical equipment, technical coefficients and others

PROCESSING UNIT FOR CRUDE AND REFINED COPRA OIL

FINAL F	FINAL PRODUCT: CRUDE AND REFINED COPRA OIL Working period: 11 months/year, 24 hours/day, 5 days/wee				, 24 hours/day, 5 days/week
INSTAL	LED CAPACITY (copra/day - 24 hours)	Tonnes	45		
INSTAL	LED CAPACITY (crude oil/day - 24 hours)	Tonnes	22,5		
ITEM	DESCRIPTION	QUANTITY	UNIT COST OF AQUISITION (USD)	CYCLES PER YEAR	TOTAL COST (USD)
1	INDUSTRIAL EQUIPMENT(45 tonnes/day)	1	,	1/15	1.187.475,00
1,1	Equipment for pressing oil	1	167.475,00	1/15	167.475,00
1,2	Tanks for storing crude oil and system for filling		350.000,00	1/15	350.000,00
	trucks	1			
1,3	Auxiliary equipment (boiler, compressed air,	1	150.000,00	1/15	150.000,00
	500KW generator)	4	470 000 00		470 000 00
1,4	Refining unit (20 tonnes/day - 24 nours)	1	170.000,00		170.000,00
1,5		1	350.000,00		350.000,00
2	BUILDINGS AND ANNEXES				1.055.000,00
	and warehouses for copra and finished product (4,500				
2.1	sa metres)	1	975,000,00	1/6	975.000.00
2.2	New weighing machine	1	80.000.00	1/15	80.000.00
3	TRANSPORT EQUIPMENT		,	.,	485.000.00
3.1	30 tonne tanker truck	1	160,000,00	1/5	160.000.00
3.2	4 tonne trucks	4	35,000,00	1/5	140.000.00
3.3	1 tonne trucks	2	20.000.00	1/5	40.000.00
3.4	Light vehicles	- 3	30,000,00	1/5	90,000,00
3,5	Fork lifts	1	55.000,00	1/5	55.000,00
4	FACTORY STAFF	NUMBER	MONTHLY COST	CYCLES	ANNUAL COST (USD)
-		NONBER	(USD)	PER YEAR	ANNOAL 0001 (00D)
		0	4.260,00	40	51.120,00
4,1	Factory foreman	2	1.200,00	12	14.400,00
4,2		4	800,00	12	7.200,00
4,3	Machine operators	10	800,00 950.00	12	9.000,00
4,4	Maintenance technicians	5	400.00	12	4 800.00
-,5 1 6	Head of laboratory and quality control	1	150,00	12	4.000,00
4,0	Laboratory and quality control staff	2	160,00	12	1.000,00
5			MONTHLY COST	CYCLES	
5	ADMINISTRATIVE STAFF	NUNDER	(USD)	PER YEAR	ANNUAL COST (USD)
- 4			8.045,00	40	96.540,00
5,1		1	1.500,00	12	18.000,00
5,2	Financial manager	1	1.200,00	12	14.400,00
5,3 E 4		1	1.200,00	12	14.400,00
5,4		1	1.200,00	12	7 200 00
5,5 5,6		1	240.00	12	2 890 00
5,0	Sales staff	5	240,00	12	2.000,00
5.8		5	400,00	12	3,000,00
5,0	Secretarial staff	2	200.00	12	2 400 00
5 10	Cleaning Staff	5	200,00	12	3 000 00
5.11	Security staff	10	850.00	12	10,200,00
0,					
6	RAW MATERIALS AND OTHER MATERIALS	Amount consumed per year/tonne	(USD/TONNE)	PER YEAR	ANNUAL COST (USD)
61	Copra - 100% of installed capacity	10,890	ļ , ,	ļ	0.00
6.2	Fuel and lubricants	30,800	0.50		15,400,00
6.3	Laboratory consumables	00.000	0,00		6,500,00
6.4	Office materials				4,500.00
5.5	Materials				12,400.00
5.6	Drums (20 Litr), Tins (0.75 Litr)				



2. Price Statistics

Coconut oil (Philippines, cif Rotterdam)

Source: Oil World		
1996		
US\$/Ton		
January	711	
February	,	
March	738	
A	723	
April	756	
May	770	
June	110	
July	816	
	775	
August	742	
September	704	
October	721	
November	722	
November	760	
December	777	



1997	
US	\$/Ton
January	768
February	768
March	707
April	131
Мау	710
June	654
lulv	637
August	597
August	567
September	615
October	627
November	027
December	616
	586

Monthly Data Coconut oil (Philippines, cif Rotterdam)

Source: Oil World			
1998			
January	US\$/Ton		
February		558	
March		559	
April		578	
May		618	
June		723	
July		652	
August		667	
September		667	
October		652	
November		695	
December		752	
SEED		774	



1999			
	US\$/Ton		
January	763		
February	745		
March	700		
April	827		
Мау	874		
June	706		
July	656		
August	000		
September	584		
October	704		
November	690		
December	703		
	703		

Monthly Data Coconut oil (Philippines, cif Rotterdam)

Source: Oil World	
2000	
US\$/7	「on
January	654
February	591
March	550
April	552
Мау	550
June	481
lulv	437
Sury A	400
August	371
September	332
October	340
November	540
December	367
SEED	329
down a farme handran in	

2001		
	US\$/Ton	
January	31	9
February	20	5
March	20	Э
April	28	9
May	29	3
Way	29	5
June	31	7
July	35	8
August		° 0
September	30	3
October	32	2
November	30	7
NOVEIIDEI	33	0
December	33	9

Monthly Data Coconut oil (Philippines, cif Rotterdam)

Source: Oil World			
2002			
	US\$/Ton		
January			
February		362	
		376	
March		366	
April			
May		411	
iviay		420	
June			
hulv		446	
oury		445	



