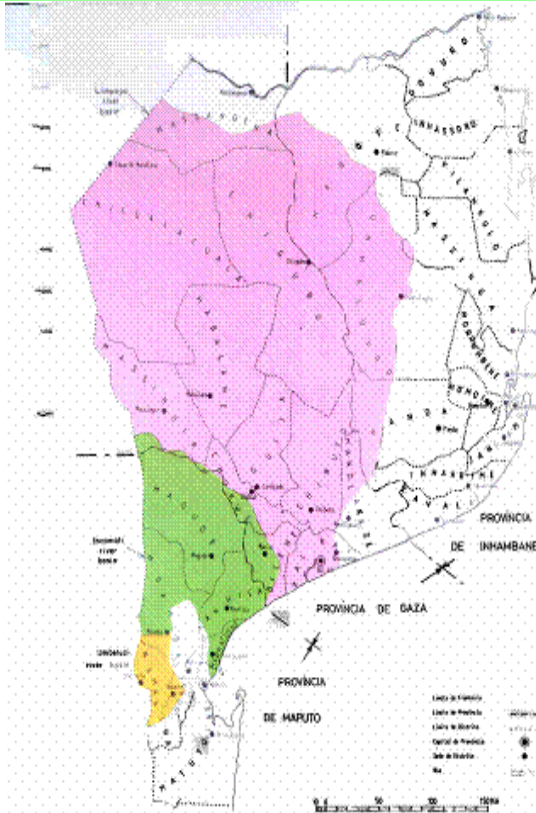


LIMPOPO CORRIDOR SPATIAL DEVELOPMENT INITIATIVE PROMOTING AGRO-INDUSTRIAL

Livestock Sector

Diagnosis, Strategies and Pre-Viability Studies



ETC International Team – Drawn up by

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Maputo
April 2003

The main audience for this study

The business people interested in investing in the agro-industrial sector in the Limpopo Corridor

All PRIVATE or PUBLIC entities who assist their clientes in this task.

What does this study offer?

A **pre-feasibility** evaluation of agro-industrial processing projects in the Limpopo Corridor; projects resting,

On the one hand, on selecting some of the commercial opportunities identified in earlier studies;

On the other hand, in recognising projects which, although in an advanced stage of implementation, are faced with a range of difficulties.

The context of the study

It is different from the context of earlier studies for two main reasons:

In terms of framework for its strategic planning, and

In the socio-economic circumstance in which it arose.

The main strategic framework – the so-called

Spatial Development Initiative (SDI);

As to the circumstances:

The new economic environment and

The existing commercial risk factors in the country.

PART I. VISON

(Provide in the former report on the
Agro-industrial Processing)

PART II. DIAGNONISIS 2

Current situation of livestock in the Limpopo Corridor

Livestock industry

Livestock infrastructures

Livestock policy and strategy

Main constrains and opportunities

PART III. STRATEGY..... 19

Recommended strategy for livestock industrial processing

Identification and justification of the selected anchor porjects

Summary of the financial indicators of the anchor projects

Project 1: Cattle and goat abattoir, with cattle feed lot

Project 2: Tannery

Project 3: Animal feed industry, with egg production unit

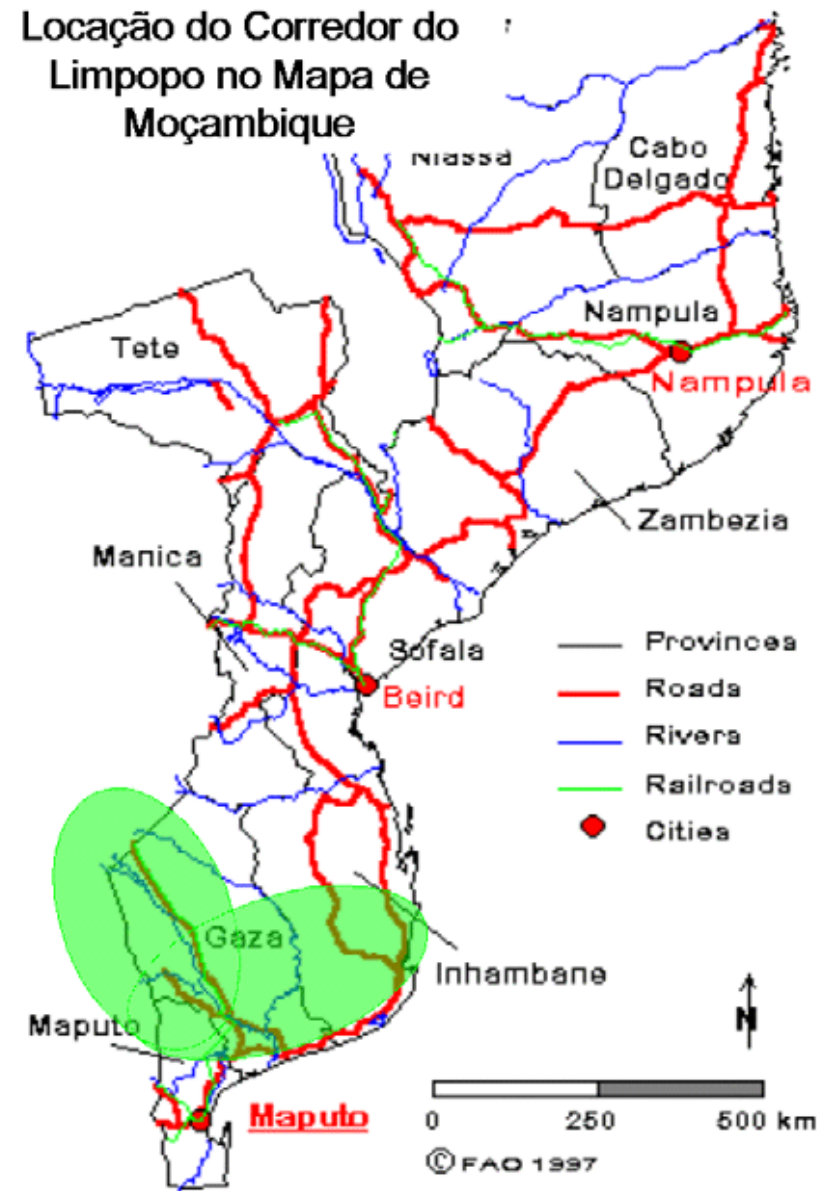
The Vision

What is the scope of the Limpopo Corridor?

Broad versus narrow definition of the Limpopo Corridor

The Limpopo Corridor can be defined

more by the 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.



Scope of the Limpopo Corridor

Broad definition?

Gaza +10 dist. From Inhambane+2 Maputo prov.

Surface: $\approx 125,000 \text{ Km}^2$ ($\approx 17\%$ of the Country)

Population: $\approx 2\text{-}2.3$ million inhabitants (13% of the Mozambican population)

Restrict definition?

Gaza+2 Maputo prov.

Surface: $\approx 85 \text{ Km}^2$ ($\approx 11\%$ of the Country)

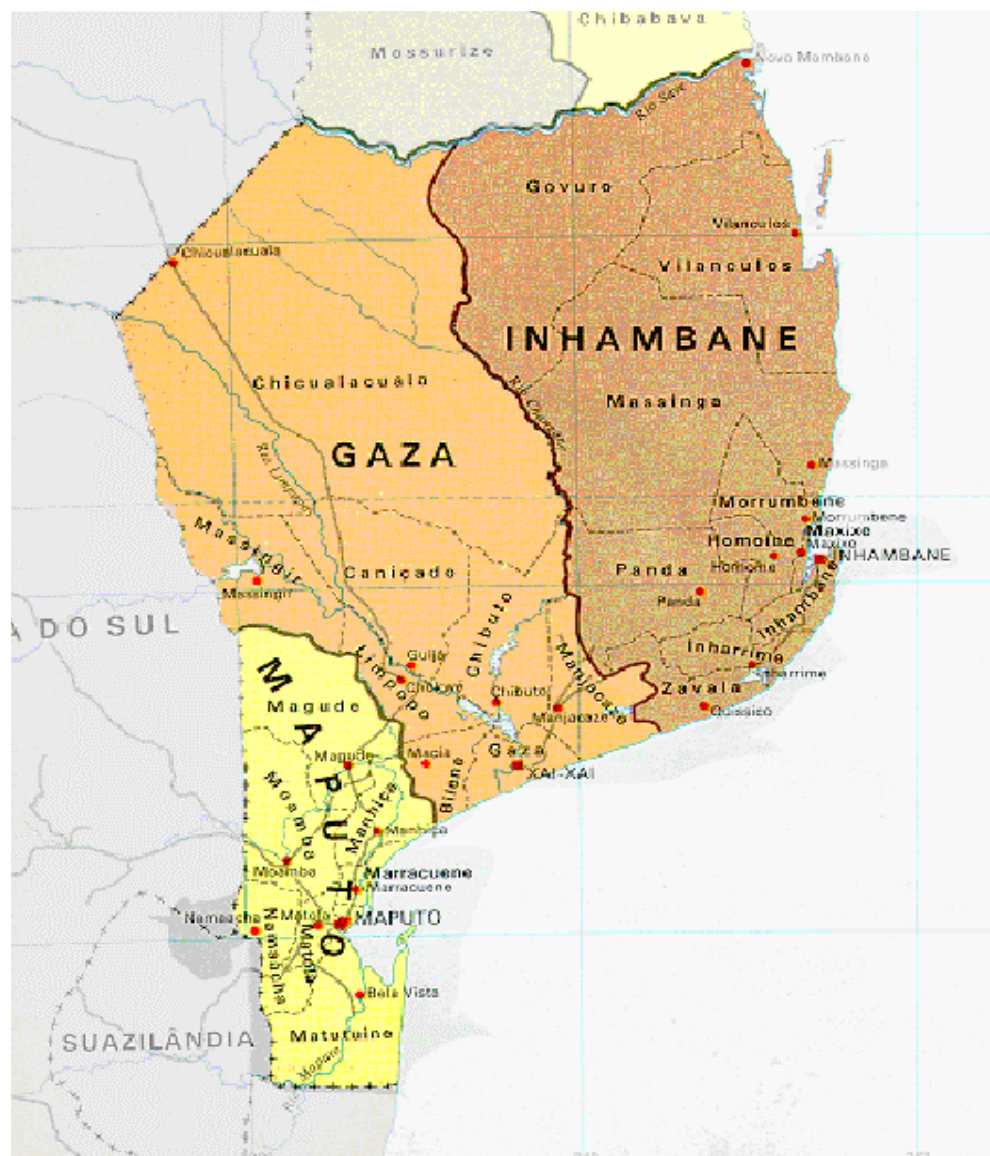
Population: $\approx 1.3\text{-}1.5$ million ($\approx 8\%$ of the Pop.)

Tabela 1. Definição ampla da superfície e da população do Corredor do Vale do Limpopo, 1997-2002

District	Surface		Population		Population	
	(1000 km ²)	%	1997 (1000 people.)	2002	%	Density
Total Valley	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
Chigubo	14,9	12	14	15	1	1
Chokwe	2,5	2	182	226	10	90
Guijá	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

Nota: 1/2 de Funhalouro, 1/3 de Massinga

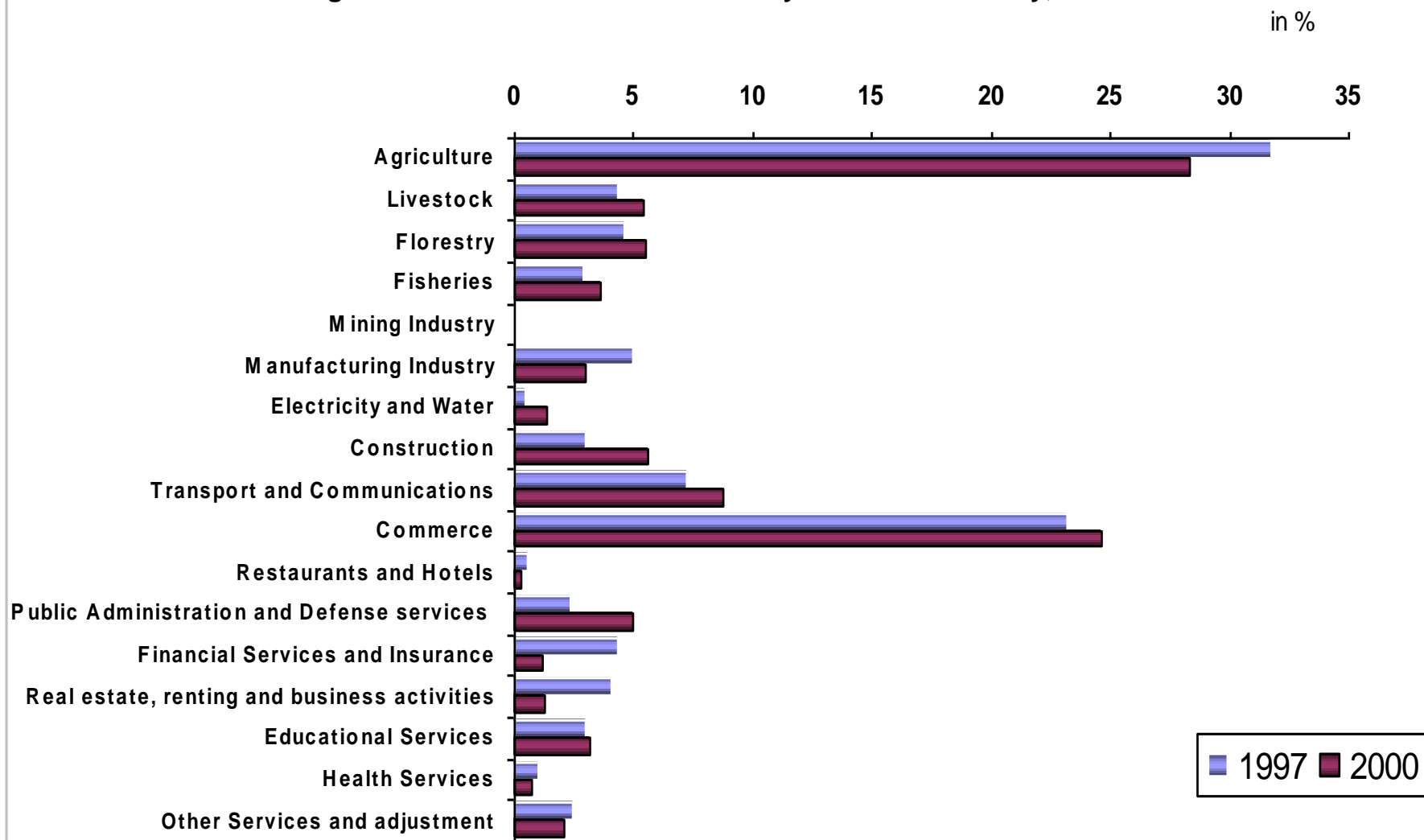
Fonte: INE. 1999. *Demographic Projeções 1997-2010*



The Limpopo Corridor

at the present moment

Figure 2: Structure of Gaza's GDP by economic activity, 1997-2000



Source: UNDP, 2001

The LC in nowadays

17 activities comprising the GDP by province
 $\approx 9\%$ of the National economy

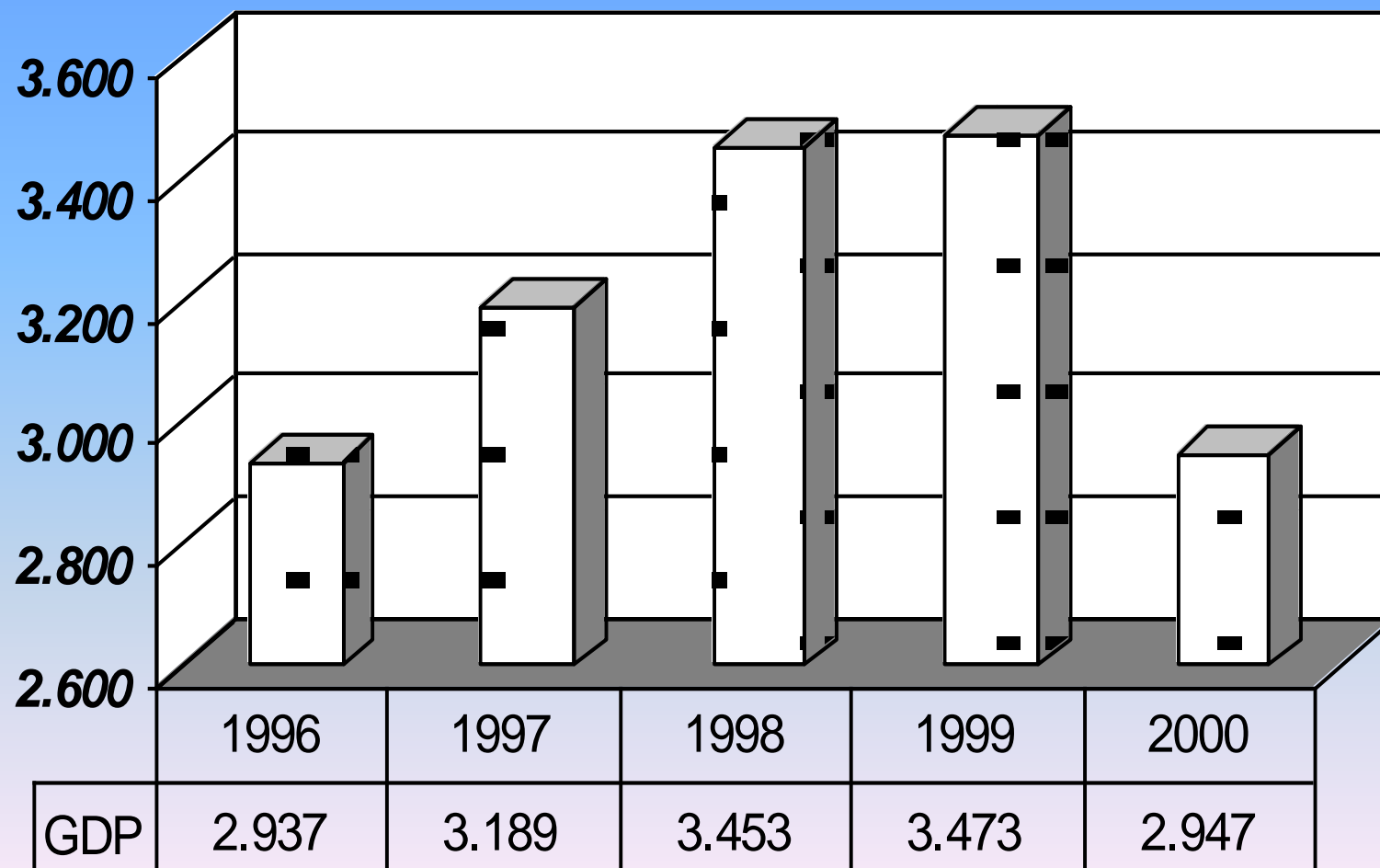
LC ≈ 274 million US dollars

South ≈ 440 million US dollars (without the
Capital)

Maputo City ≈ 1.133 million US dollars

Graph 1. Gross domestic product, Mozambique 1996-2000

(in US\$ 10⁹)



≈ US\$ 3,2 billion US dollars a year in 1996-2000

Graph 2. Weight of the Limpopo Valley in the National Economy compared with Maputo City and the Southern Region

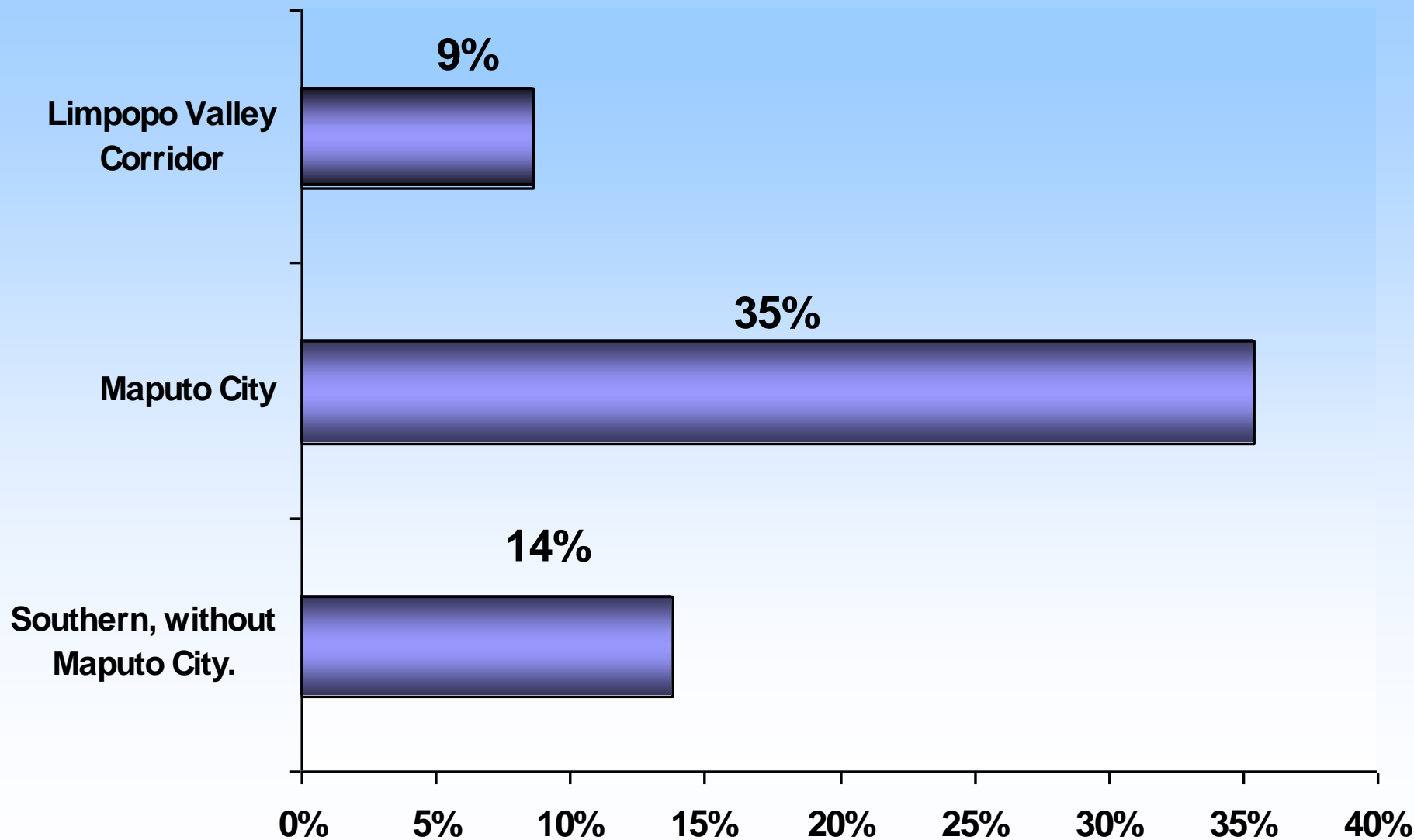
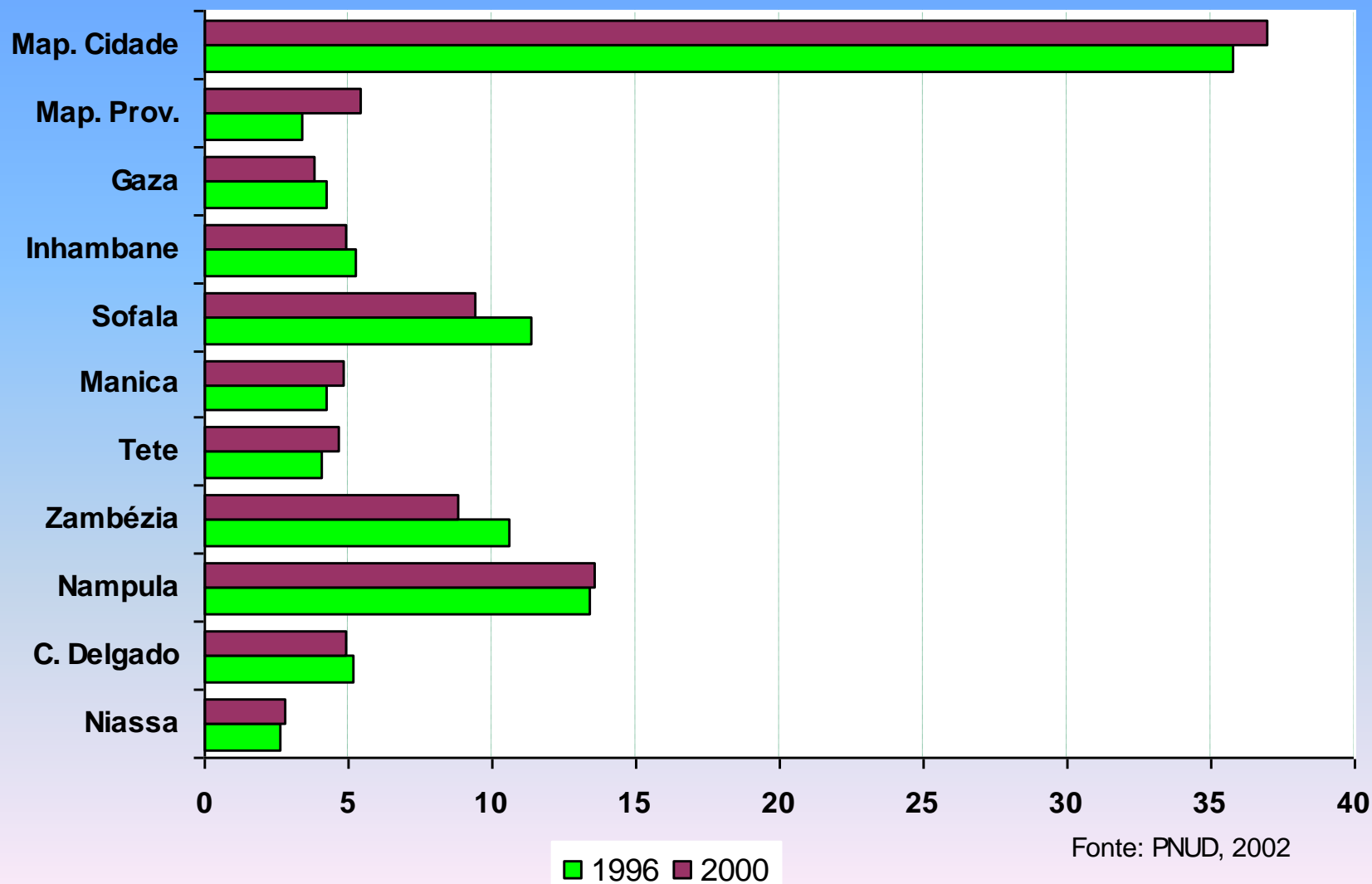
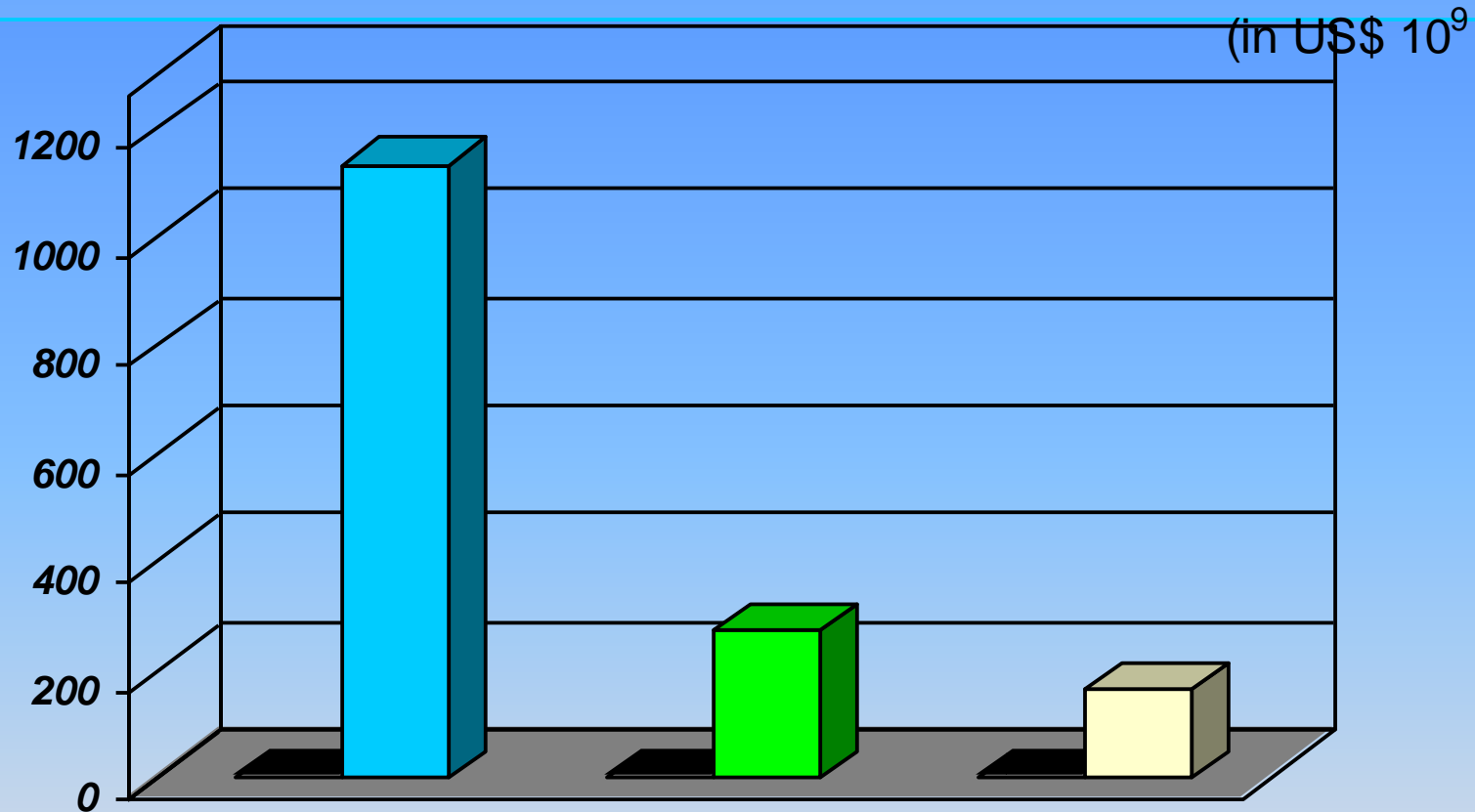


Gráfico 2. Contribuição Provincial para o PIB, Moçambique 1996-2000

in %



Graph 3. Weight of the GDP of the Limpopo Valley Corridor in the Economy of the Southern Region, Mozambique 1996-2000



	Maputo City	Limpopo Valley Corridor	Rest of the South
■ %	72%	17%	11%
□ US\$ 10 ⁹	1133	274	166

The likely prospect for the Limpopo Corridor in the next future

The broader region of the Limpopo Corridor (particularly the Limpopo River Basin and the Limpopo Railway) has become one of the privileged and more attractive places for private investment in Mozambique. i.e MEGA PROJECTS:

"Corridor Sands" (heavy sands),

"National Limpopo Park",

"Massingir Dam",

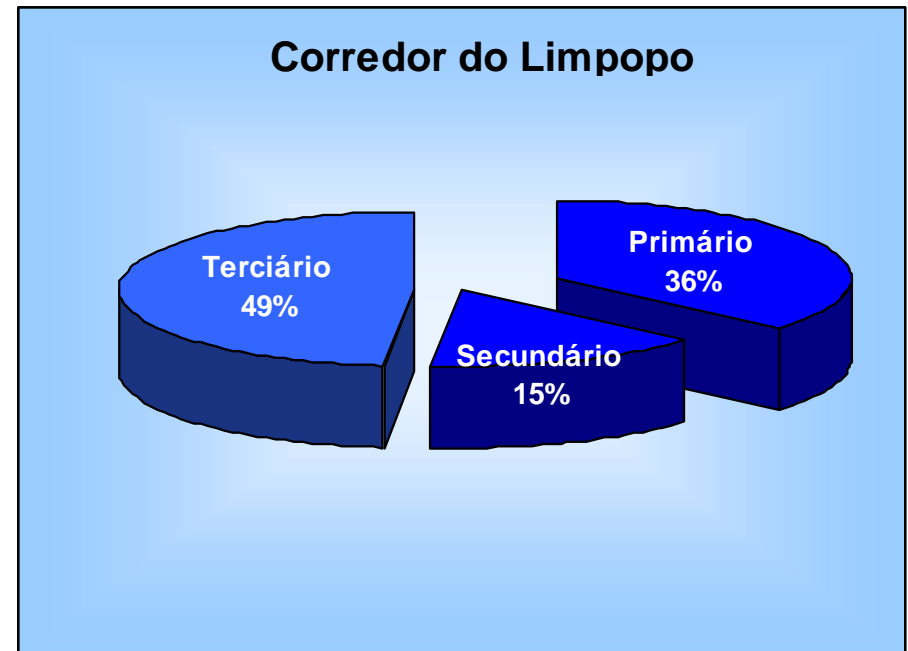
The high tension power line to Inhambane e the Pande gas pipeline, two major infrastructure projects which, in the medium to long term, will bring important benefits for the development of the Limpopo Valley.

What will the likely agrarian land in the Limpopo Corridor?

Today it is used apporximately 16 to 20% of the total land use for agrarina purpose in the country, of which 95% in family farming, 4,5% medium farming and less than 1% in large farming

The present weight of agriculture is still relatively high, both in terms of production and employment.

But will this weight continue?



Two possible alternatives

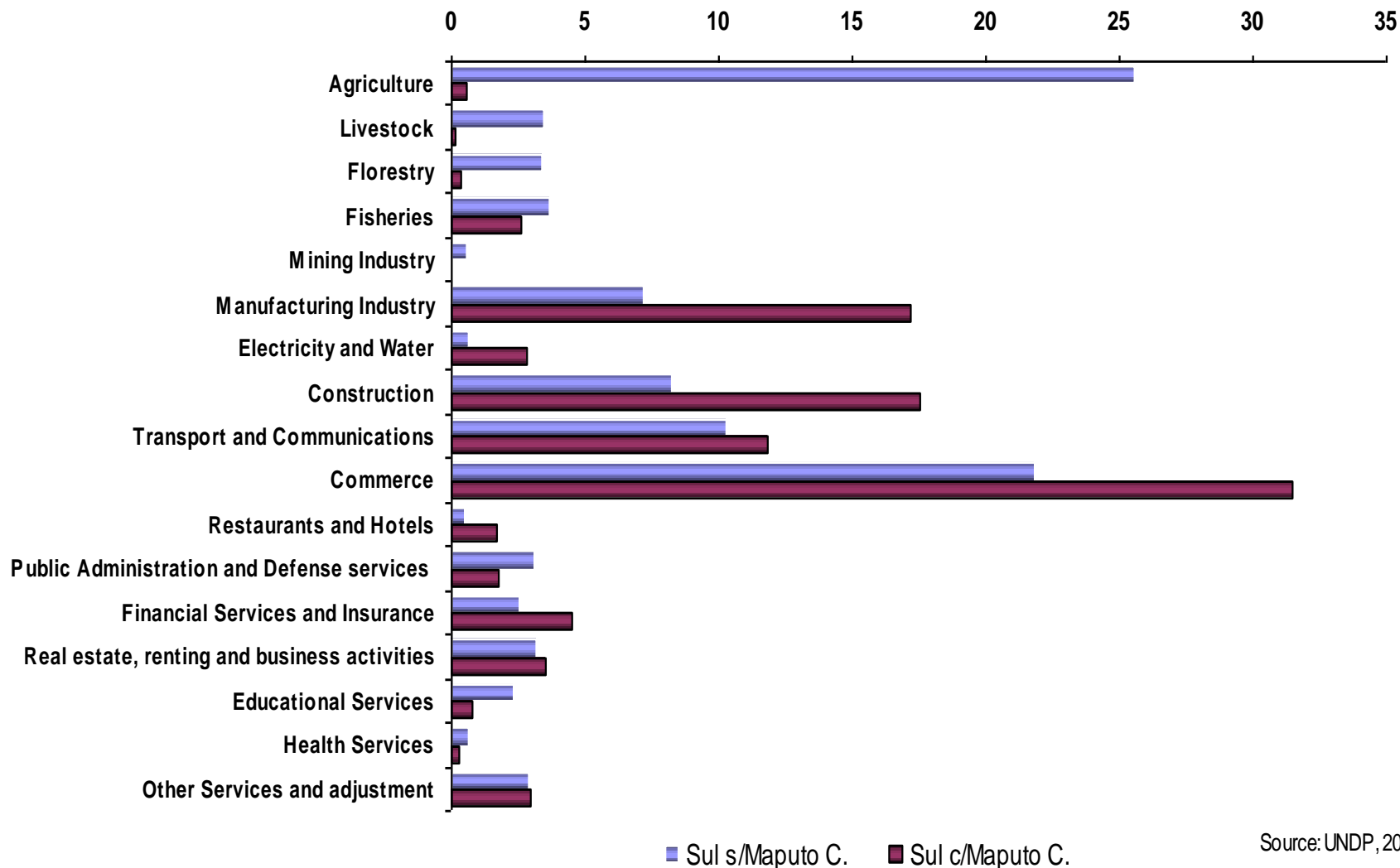
The economic structure remains more or less the same; i.e., in the case the projects currently expected to be implemented fail.

The economic structure will change dramatically, if not so much in terms of employment but in terms of production.

Either a change towards a structure similar to Maputo City (4% Primary, 20% Secondary, 76% Tertiary), or

a change towards a higher industrial than service weight.

Estrutura do PIB da Zona Sul com e sem a Cidade de Maputo por Actividade Económica, Média Anual entre 1996-2000
in %



Source: UNDP, 2002

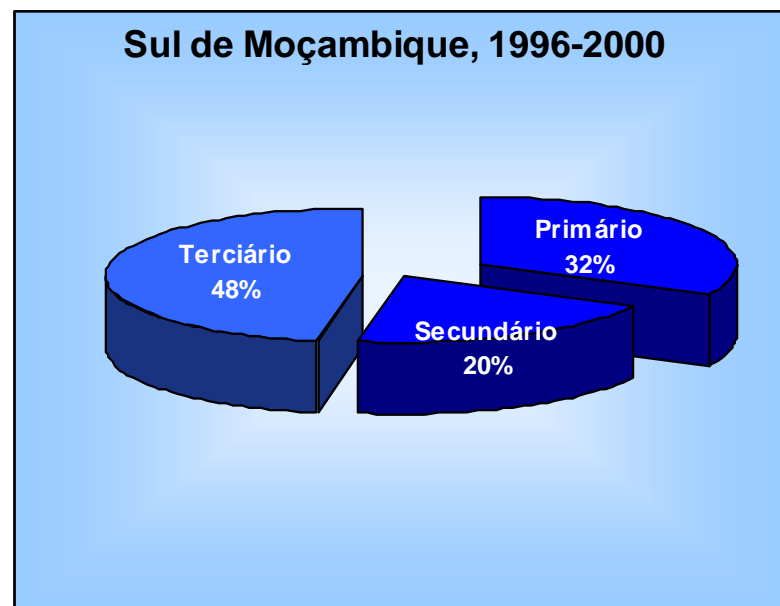
Oportunity and Potential

Oportunity to transform the economic structure of the Southern Region, either through the industrialization of the mining and agricultural sectors or through the services (tourism, commerce and transport)

Will the mega-projects anchor economic growth?

And what about development?

Here is the major change and also oportunity for the agro-industrial processing



Constrains

Entrepreneurs: what do they say and demand?

Ministry of Planning and Finance, Labour,
Cooperation and Environmental Action

EDM e TDM

Tourism

Land

Is the Ministry for Labour promoting unemployment?

Single Counter (Balcão Único)

Empresas do Grupo B versus colecta dos impostos

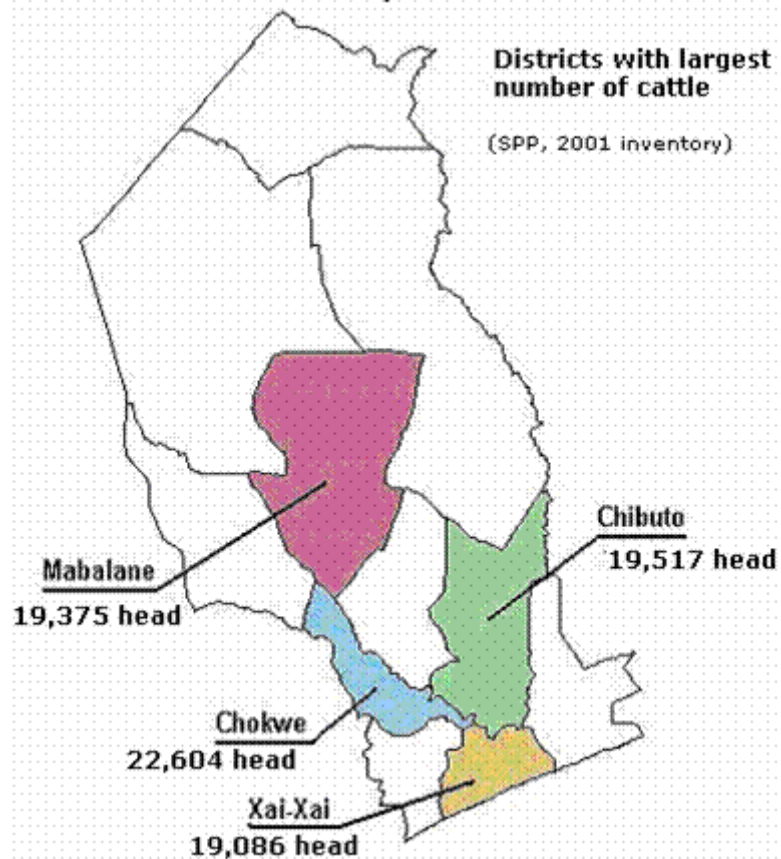
PROAGRI

SADC Commercial Protocol

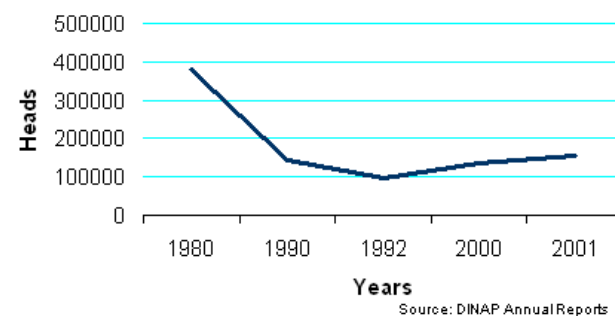
Is there a place for a national HIPC?

CURRENT SITUATION OF LIVESTOCK IN THE LIMPOPO CORRIDOR

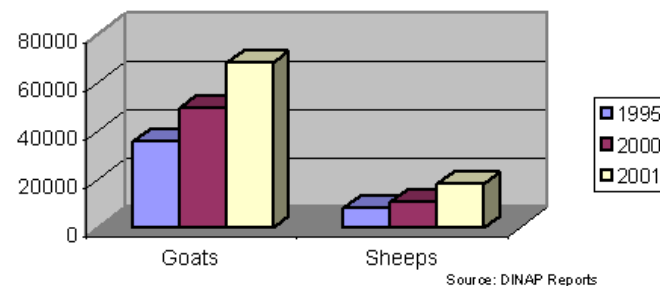
Map 1.1. Gaza Province



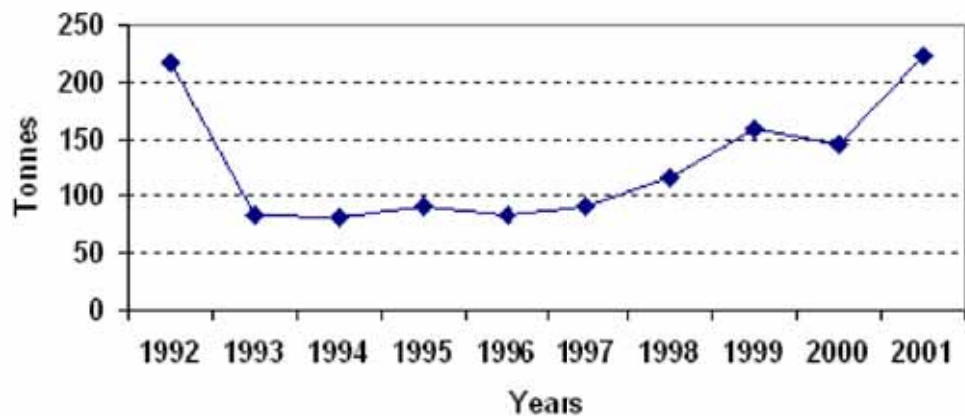
Graph 1.1: Evolution of numbers of cattle



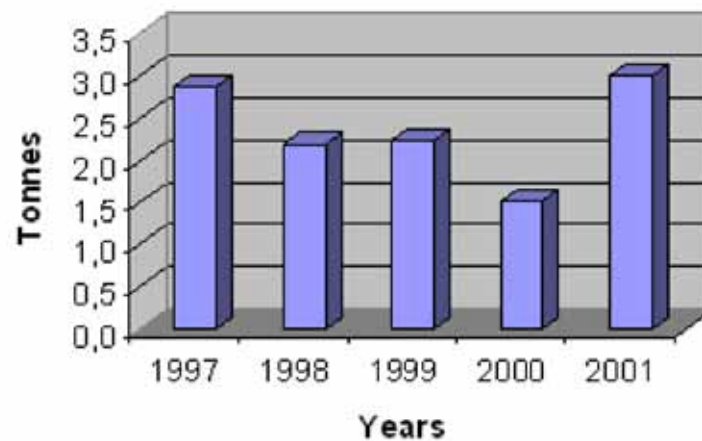
Graph 1.2: Evolution of numbers of goats and sheep (1995-2001)



Graph 1.4: Evolution of beef production, 1992-2001



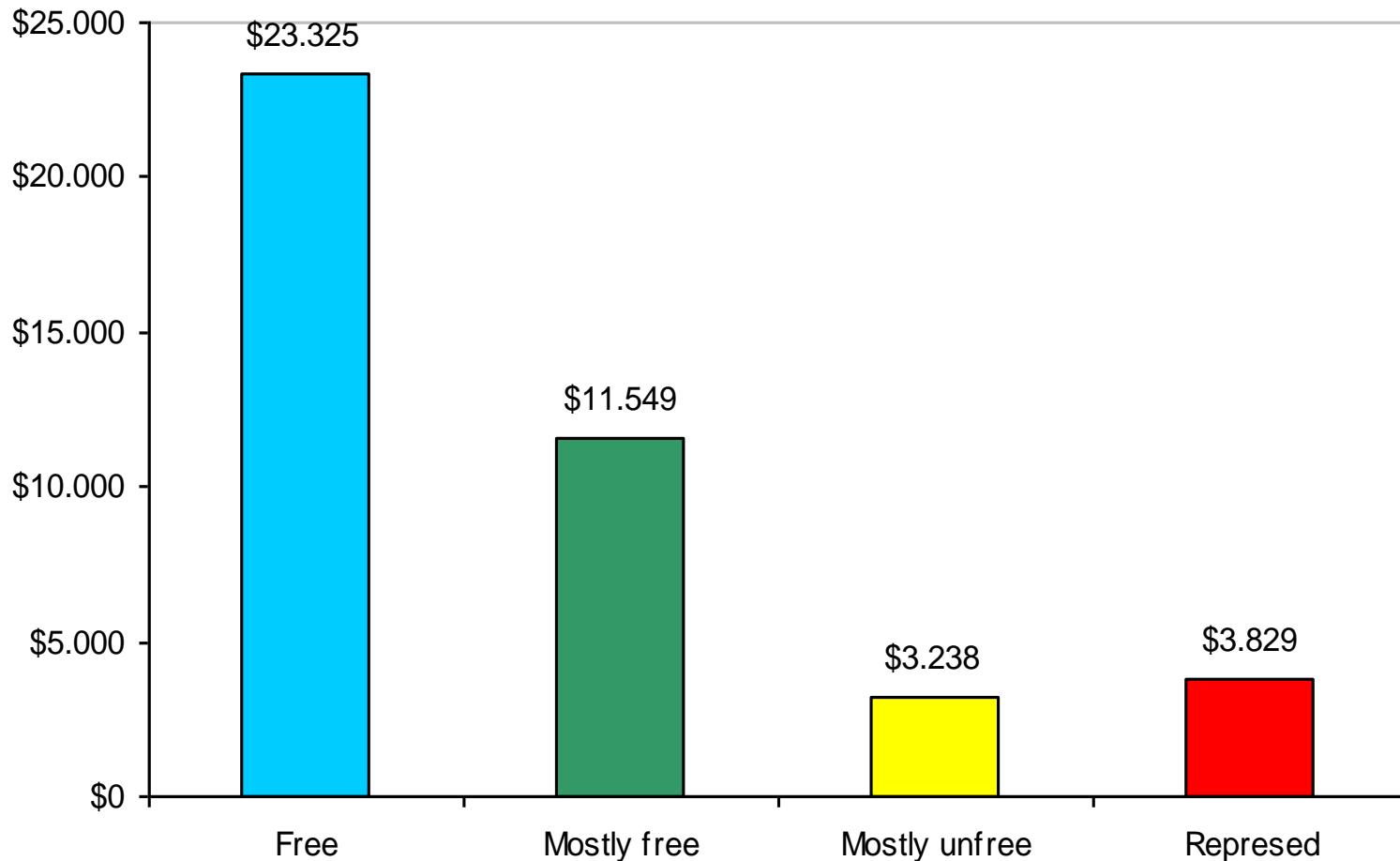
Graph 1.5: Evolution of pork production, 1997-2001



Constrains

Economic Freedom and Per capita Income

(1999 Per Capital income in Purchasing Power Parity)



"2002 Level of Economic Freedom"

Source: O'Driscoll, 2002: 2

THE INDEX OF ECONOMIC FREEDOM, MOZAMBIQUE

1995-2002



Year:	1995	2002
Rank:	97	76
Score:	4.20	3.05
Category:	<u>Repressed</u>	<u>Mostly Unfree</u>

1995

Trade Policy	5.0	Government Intervention	4.0	Foreign Investment	4.0	Wages and Prices	4.0	Regulation	4.0
Fiscal Burden	3.0	Monetary Policy	5.0	Banking and Finance	4.0	Property Rights	4.0	Black Market	5.0

2002

Trade Policy	3.0	Government Intervention	3.0	Foreign Investment	2.0	Wages and Prices	3.0	Regulation	4.0
Fiscal Burden	3.5	Monetary Policy	1.0	Banking and Finance	3.0	Property Rights	4.0	Black Market	4.0

Country	2002	2001	2000	1999	1998	1997	1996	1995
Trend	3.05	3.35	3.80	3.90	4.10	4.00	4.10	4.20

From 1990 to 1999, according to World Bank Group data, compound growth in GDP averaged 3.9 percent annually and per capita GDP increased from \$144 to \$198 (in constant 1995 U.S. dollars). Mozambique's government intervention score is 1 point worse this year; however, its monetary policy, foreign investment, and black market scores are respectively, 2 points, 1 point, and 1 point better this year. As a result, Mozambique's overall score is 0.30 point better this year.

SUMMARY OF MAIN CONSTRAINS AND OPPORTUNITIES IN THE LIVESTOCK SECTOR

Constrains:

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

Credit not available for the sector

Lack of a commercial culture

Defective commercial network for family sector livestock products

Lack of industries (abattoirs, meat processing, milk, animal feed, tanneries)

Limited extension for publicising technical norms on breeding and handling animals.

Opportunities

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.

The recent creation of associations of beef cattle farmers, which shows an initiative to organise and strengthen the sector.

Preliminary Observations

Investment is not a game, to say nothing as to being an incursion into the unknown. Investors do not make decisions on the basis of uneducated guesses, but on the basis of specific information which is immunized both to exaggerated optimism and to the unfounded pessimism;

Complementarity, trust and agreement achievement

The investor's main concerns are related to security and timing

Productivity and competitiveness

ANCHOR PROJECTS

DEVELOPMENT:

Main results of the 3

pre-feasibility

studies

LVSDI

AGRO-PROCESSING SECTORAL STUDIES

Livestock Project 1: Cattle and goat abattoir With cattle feed lot

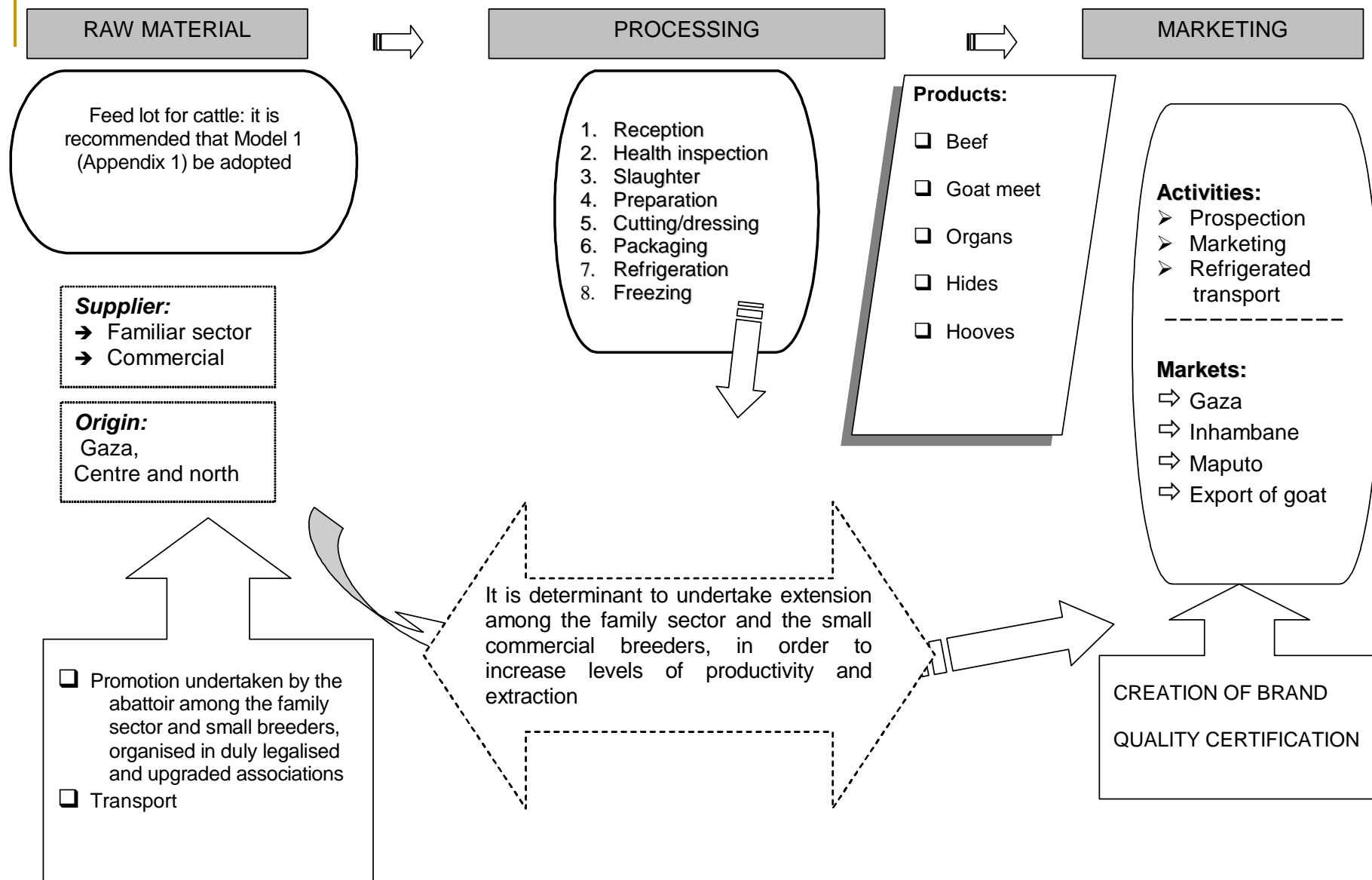
(PRE-VIABILITY STUDY – Final Report)

PROJECT 1: Cattle and goat abattoir, with cattle feed lot

Justification

- The raw material is available in Gaza province
- Currently no abattoir with the capacity and quality to provide services to cattle farmers who do not possess their own abattoirs
- There is a market able to absorb all the production
- The effect on the region is substantial: it helps eliminate existing market shortcomings, increase the value added created in the region, and facilitate market access
- The livestock breeders have a tradition in the activity, and with the extension services provided by the company through associations of farmers, the necessary know-how will be guaranteed;
- The inclusion in the same company of activities upstream of the abattoir, in the form of fattening cattle, and eventually the finishing of goats and sheep
- The time for recovering the investment is reasonable (less than 5 years).

COMPANY ACTIVITY



SUMMARY OF PRE-VIABILITY INDICATORS

<u>SCENARIO – Cautious</u>		
I N D I C A T O R S	Investment needed	4,070, 387 USD
	Break-even year	Year 3
	"Break-Even"	3,450,909 USD
	Sales in Break-even year	5,684,088 USD
	Time to recover investment	54 months
	IRR (Internal Rate of Return)	20.93 %
	<u>NPV (Net Present Value)</u>	1,043,813 USD

LVSDI

AGRI-PROCESSING SECTORIAL STUDIES

**LIVESTOCK PROJECT 2: REHABILITATION,
MODERNISATION E DIVERSIFICATION OF
ACTIVITY OF THE MATOLA TANNERY**

(PRE-VIABILITY)

Justification

Availability of raw material in the provinces south of the Save river

Structuring effect in the Gaza region, and in the other provinces south of the Save (the factory will also process hides from all over the country, since there is no other tannery functioning), given the weight of the livestock sector (notably cattle and goats) in the economy of the region

Existence of export markets and some national market (the growth of which depends on the recovery of the footwear sector)

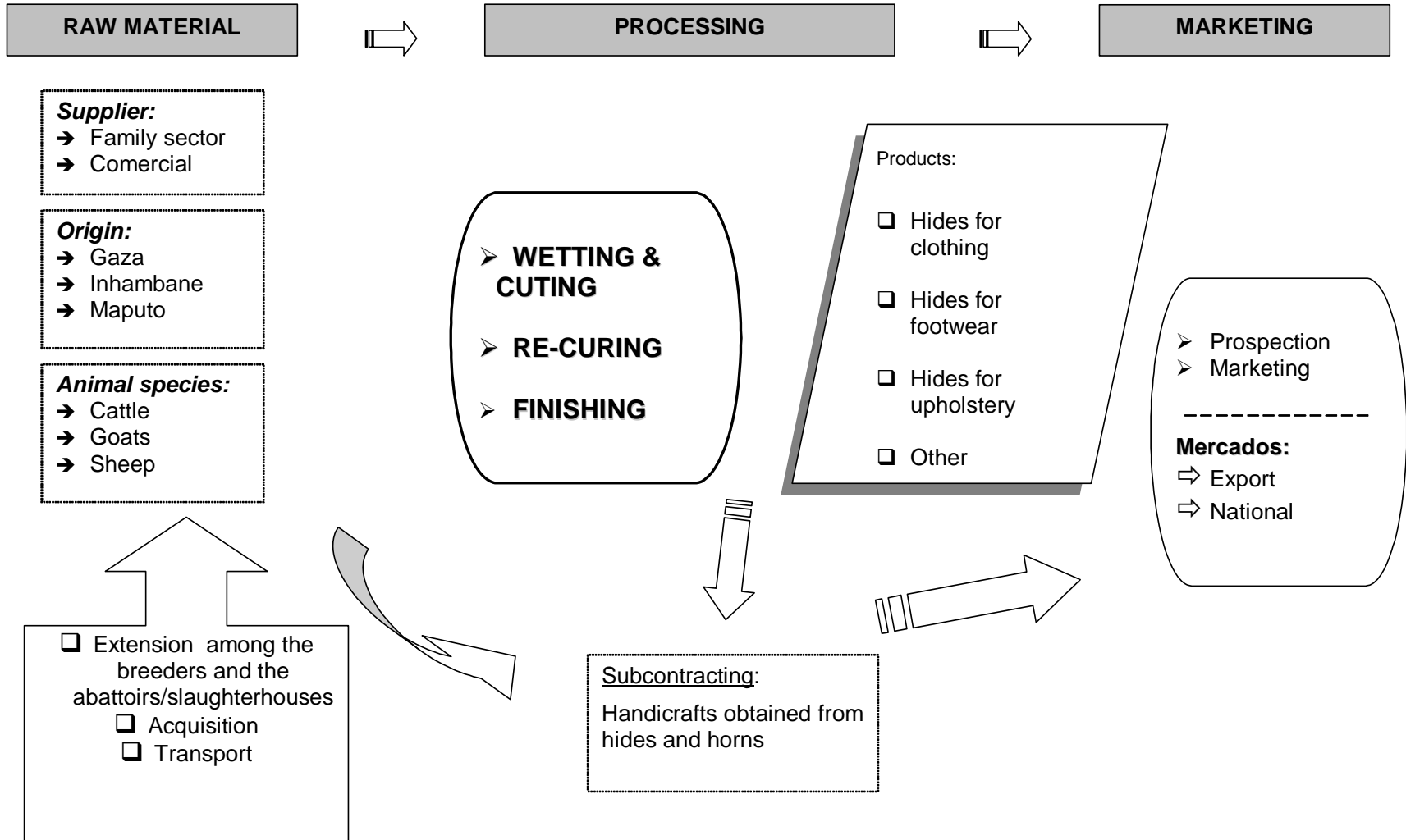
At the level of infrastructures with an impact on the sector, it is essential that the factory should play the role of extensionist to the abattoirs (delivering salt, and warning of the care needed in removing and storing hides) and to the livestock farmers (managing and feeding the animals)

Import substitution will occur in the medium term through the recovery of the footwear sector, and exports will increase significantly both through an increase in the amounts exported, and in the increase in the unit value per kg of hide

The recovery of the existing factory has the great advantage that there is already skilled labour in place, essential to ensure that the industry is competitive

The time for recovering the investment is reasonable (less than 5 years).

COMPANY ACTIVITY



SUMMARY OF PRE-VIABILITY INDICATORS

<u>SCENARIO – Cautious</u>		
I N D I C A T O R S	Investment needed	6,054,566 USD
	Break-even year	Year 3
	"Break-Even"	1,803,946 USD
	Sales in Break-even year	2,400,245 USD
	Time to recover investment	56 months
	IRR (Internal Rate of Return)	17.34 %
	NPV (Net Present Value)	984,328 USD

LVSDI
AGRO-PROCESSING SECTORAL STUDIES

**Livestock Project 3. Animal Feed Industry,
With Egg Production Unit**

(PRE-VIABILITY STUDY)

PROJECT 3: ANIMAL FEED INDUSTRY, WITH EGG PRODUCTION UNIT

Justification:

Availability of some raw materials in the region, and great possibilities of promoting production of them;

Structuring effect in the region due to the impact it has in giving value to agricultural and agro-industrial by-products and residues, apart from the important role in creating an alternative market for some agricultural products (maize, sorghum, cassava, and oil seeds).

Currently there is a market (monogastric) in the region south of the Save river, and there is great potential in the Gaza region

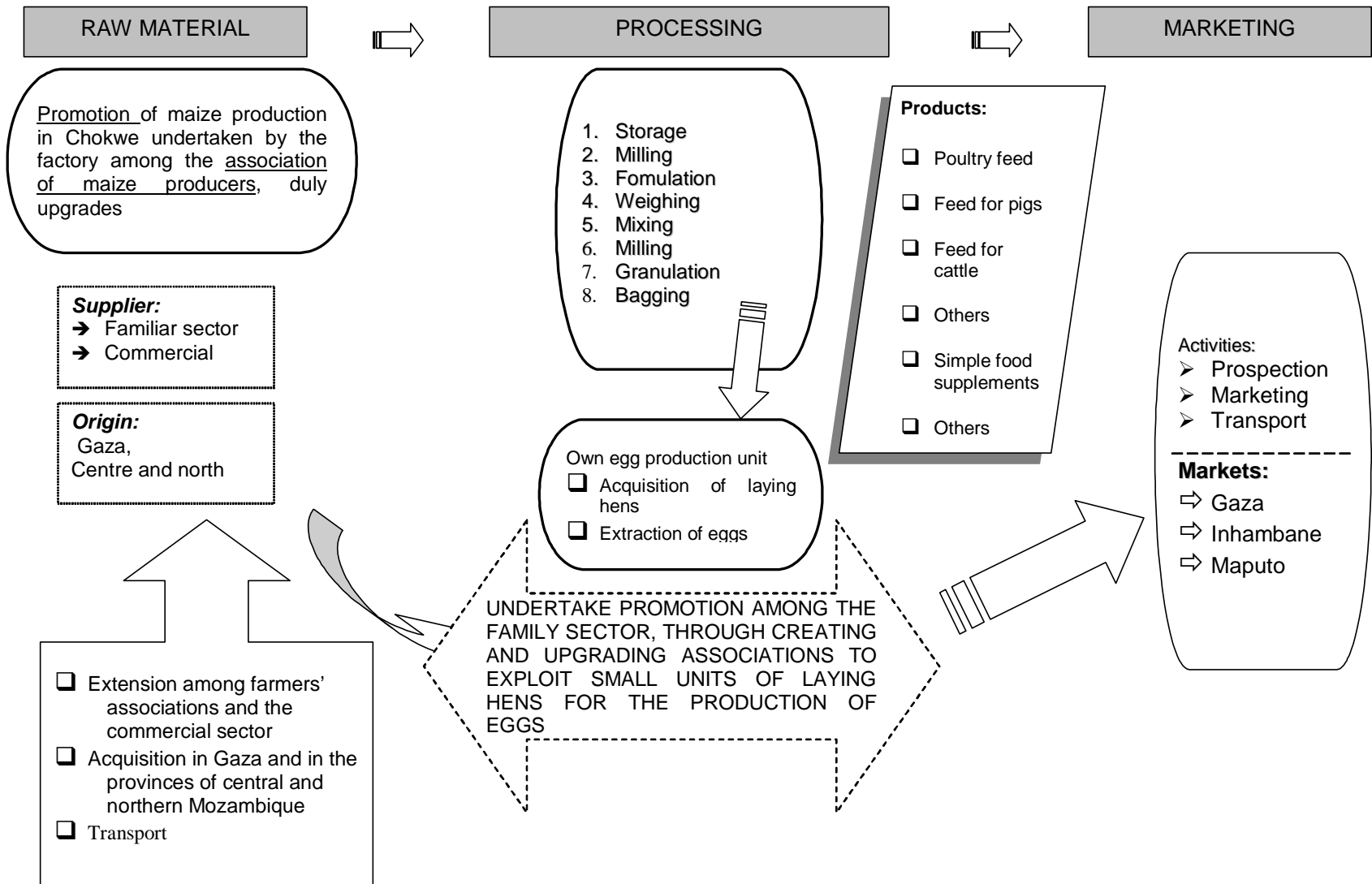
The location of a factory alongside the Limpopo railway line is a determinant factor for distributing the production to Maputo province

There is a potential for import substitution of animal feed (which reaches Mozambique at prohibitive prices) and of maize, as well as eggs for consumption. Current national egg consumption is met by resort to imports, which account for more than 95% of the eggs eaten in the country

The animal feed factory project integrates promoting maize production upstream from its activity, and its own production of eggs downstream

The return on the investment in the factory, in the integrated way the project is designed, will be very reasonable.

COMPANY ACTIVITY



SUMMARY OF PRE-VIABILITY INDICATORS

<u>SCENARIO – Cautious</u>		
I N D I C A T O R S	Investment needed	1,627,152 USD
	Break-even year	Year 3
	"Break-Even"	1,493,943 USD
	Sales in Break-even year	2,291,522 USD
	Time to recover investment	52 months
	IRR (Internal Rate of Return)	24.11 %
	NPV (Net Present Value)	604,366 USD

For the three projects

Interest rate on bank funding (70% of the total investment)	10%
Taxes	Complete payment of all applicable taxes is considered.
Security in the supply of raw materials (quality, quantity and competitiveness)	Investments are considered in agricultural tools (in project 2), financing agricultural inputs (in all 3 projects), and the necessary extension services (in all 3 projects).

Conclusions and Recommendations

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 sensitivity analysis made of the project's critical parameters, give them a very reasonable margin of safety, and reduce the project risk significantly.

In short, with a total private investment in the three anchor projects selected in the order of 12-15 million US dollars (including investment in the agricultural sector so as to guarantee raw material in the necessary quantity, quality and competitiveness) the minimum conditions will be created in the Limpopo Corridor to develop livestock activity that is intimately linked with industrial processing.

The three livestock projects presented here, are not only technically, economically and financially viable - they can serve as an example of the viability of the type of strategy for other projects of processing livestock produce that may eventually arise in the Limpopo Valley.