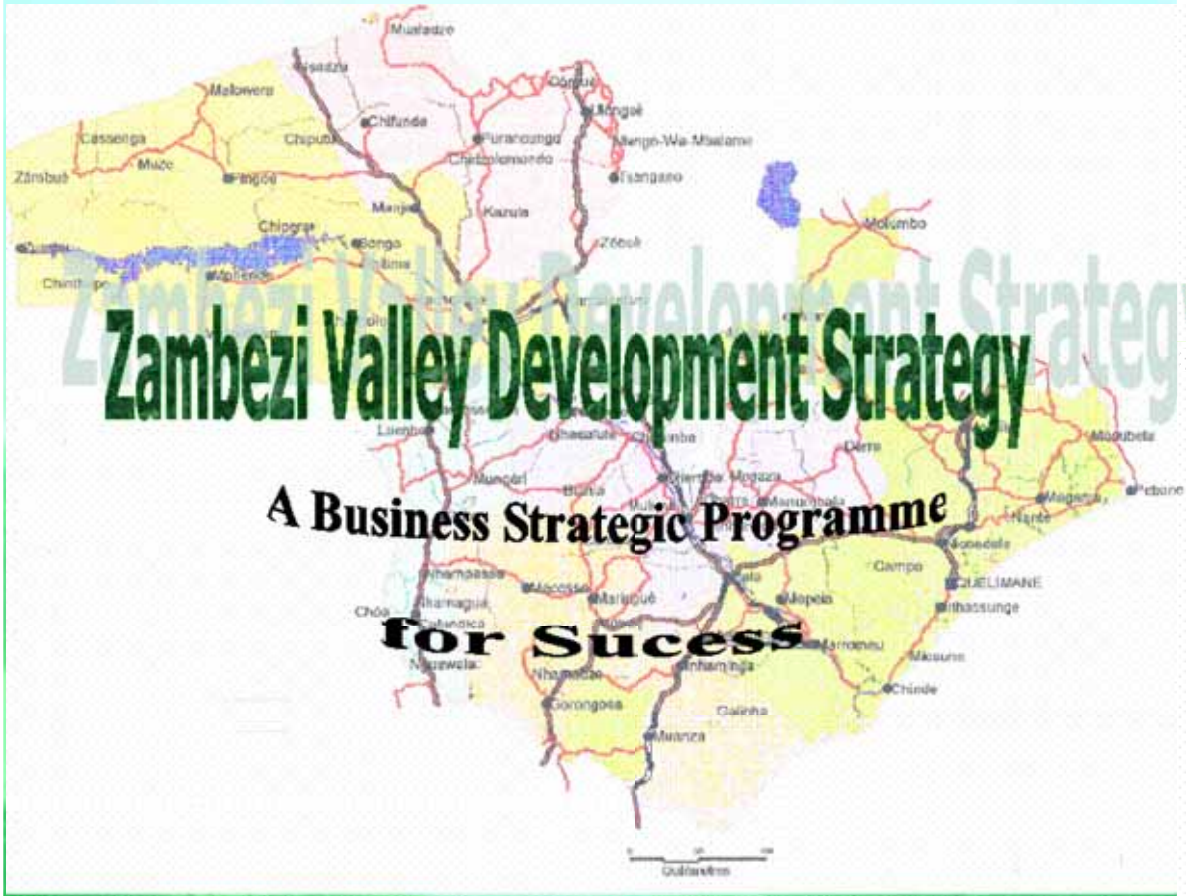
GABINETE DO PLANO E DESENVOLVIMENTO DO VALE DO ZAMBEZE

THE ZAMBEZI VALLEY SPATIAL DEVELOPMENT INITIATIVE




# FINAL REPORT

## MAPUTO

JULY 2004

# Index

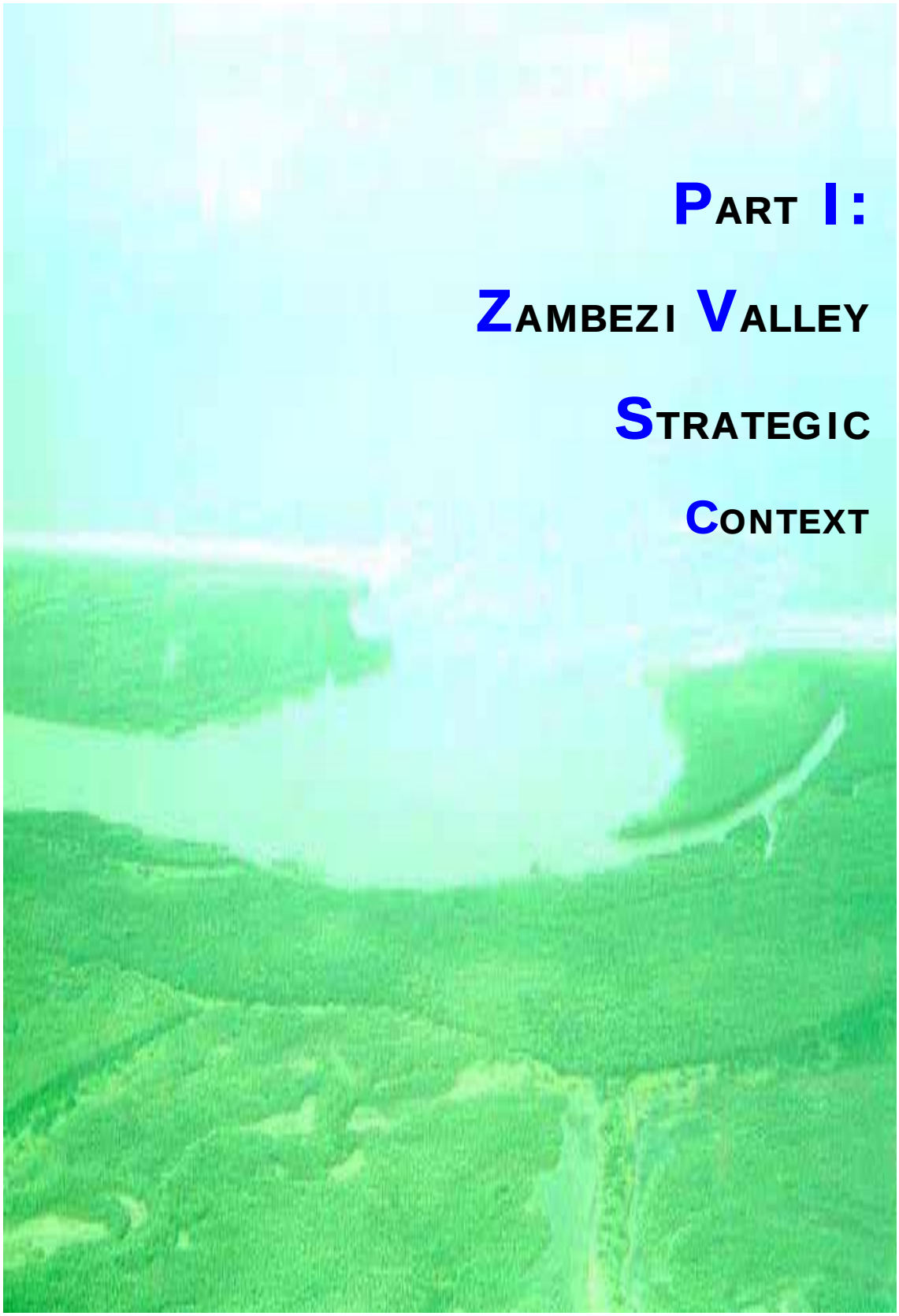
# List of Tables

# List of Figures

# List of Maps



# List of Boxes



# PART I:

# ZAMBEZI VALLEY STRATEGIC CONTEXT

# 1 THE ZAMBEZI VALLEY: Background

## 1.1 INTRODUCTION

The present document is the product of a long process of thinking and consultation among different Government stakeholders carried out by the Zambezi Development Planning Office (Gabinete do Plano e Desenvolvimento do Vale do Zambeze -GPZ)[1] in order to bring together a coordinated and integrated strategy and subsequent action plans to promote a harmonized and sustained growth of the Zambezi Valley region. The document was commissioned by the Inter-Ministerial Commission, following the approval of a former document entitled *Strategic Programme for the Zambezi Valley Region*, approved by the Council of Ministers on December 18, 2003.



With this work the GPZ does pretend to overlook or even duplicate the tasks and responsibilities at the sectorial level, but to provide a coordinating platform to ensure balanced inter and multi-sectorial interventions in the ZV development. Likewise, this work is neither intended to outline strategic programmes for specific entities or organizations, such as for instance the GPZ, nor even has been the pretension to be used for marketing the investment portfolio and specific projects next to the national and foreigner investors.

In short, this document is aimed at, fist of all, to the relevant public and private stakeholders, which have in the past been involved, or are soon likely to assume an active role in promoting the development of the ZV region. Of course, in this context, a document that clearly specifies the strategic focus for the development of a given region can become a very useful tool both for planners and technicians as well as investment promoters and entrepreneurs, among other things because it can prevent dispersion of efforts and resources.

[1] The document has been prepared under the mandate of the Inter-Ministry Commission, following a former document entitled Strategic Programme for the Zambezi Valley Region, which was approved by the Council of Ministers on the 18th December 2003. On the specific tasks of the GPZ see details in section 1.3.

In particular, the strategic programme for the development of the Zambezi Valley region in Mozambique is aiming at mobilizing a new investment fund worth about $US 10 billion, of which 30% represent public investment considered crucial to attract the wide range of private investments needed.

This investment fund is part of a comprehensive identification, conceptualization and packaging process, presented in this document as the strategic programme for the development of the Zambezi Valley region of Mozambique, and set up around three main interrelationships: 1) the interrelationship between the key anchor projects involving a close partnership between the public and private sectors; 2) the interrelationships between the spin off expected in the economic growth as a result of stimulus fostered by the infrastructures and changes business climate intended to be set up in the near future; 3) the interrelationships between the strategic pillars and driver, on the one hand, and the medium and long term regional economic impact and human development expected.



Such an investment fund includes some of the interventions already underway, or even recently concluded, which are taken here as part of a broader set of priority interventions to be carried out over a period of about two decades: 2000-2020. Thus, the investment fund indicated above comprises both new undertakings and on-going initiatives for the rehabilitation and expansion, as well as recent grass-root investment projects.

The investment fund under mentioned above is far from attempting to cover or exhausting the potentials existing in the Valley. Indeed, the criterion or principle underlying the selection of priorities for this strategic programme is the so-called 80/20 Principle, which says that in most cases 80% of production comes from 20% of producers and efforts. For this, a variety of pre-feasibility studies have been undertaken, which demonstrate the financial viability of certain projects and their potential to become anchor projects and, thus, attractive several other initiatives, both from private and collective investors.

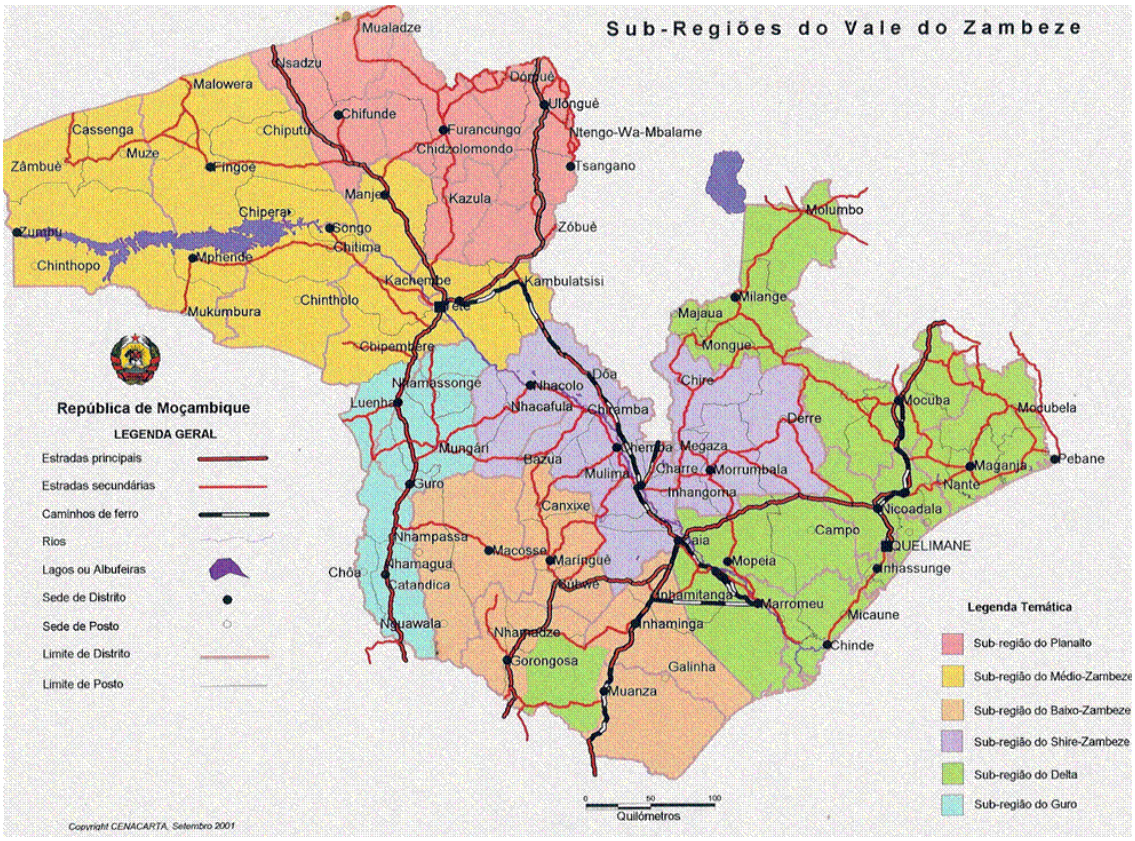
In this context, the document specifies, firstly, the strategic focus and, in particular, the vision and mission for the development of the ZV over the next two decades or so. Secondly, the document presents the key factors and determinants in the development of the ZV region. Thirdly, the document identifies the anchor projects closely related to the determinants of the regional economic development. Such projects include both those that should be promoted chiefly by the public sector, and those expected to be implemented by the private, national and foreigner, investors. Finally, the document presents a summary of the financial resources indispensable for the successful implementation of the strategy, and a brief outline for an action plan in the near future.



## 1.2 GEOGRAPHIC SCOPE OF THE ZV

The Zambezi Valley is a vast geographical feature that covers much of Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe. The central feature of the Valley is of course the Zambezi River, one of the largest in Africa, which runs for 2,700 Kms, twisting and turning through Victoria Falls, Kariba and Cabora Bassa, and receiving a boost from Lake Malawi to the north, before plunging into the sea in Mozambique.

In Mozambique, the Zambezi Valley spreads outwards from this great river to encompass its entire drainage area, occupying 228 thousand square meters, which represents 28% of Mozambique's land surface area and 68% of the Central region of the country.

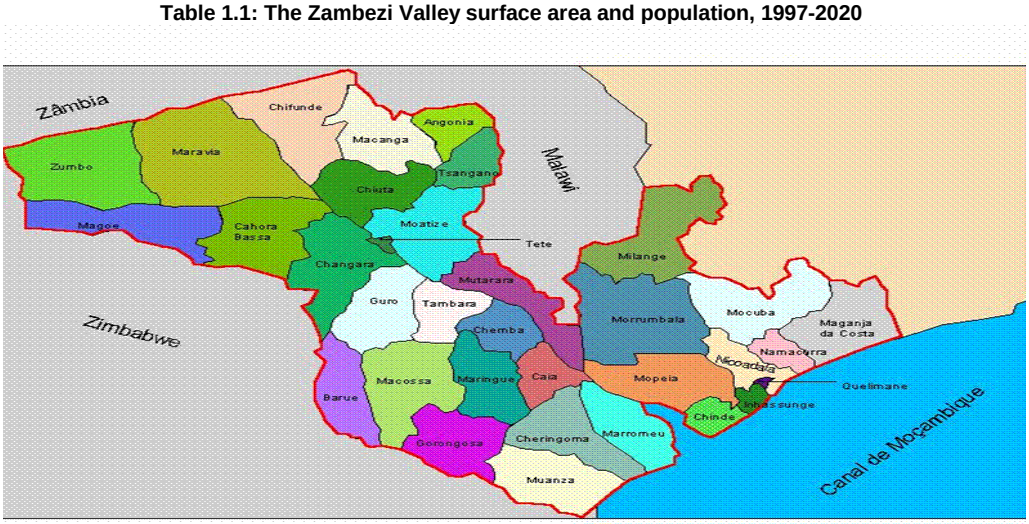





The Zambezi Valley covers the greater part of the four central provinces of Zambezia, Tete, Manica and Sofala, namely:

1. The whole Tete province, including teh capital, Tete City, and 12 districts;
2. About 55% of the 105.008 Km2 from Zambézia province, including Quelimane city, and 10 out of 16 disctrit: Chinde, Inhassunge, Maganja da Costa, Milange, Mocuba, Mopeia, Morumbala, Namacurra and Nicoadala.
3. About 43% of the 61.537 sq from Manica Province, including four of the nine districts: Barué, Guro, Macossa and Tambara; e
4. About 61% of the 67.415 sq from Sofala Province, comprising seven of the twelve districts: Caia, Chemba, Cheringoma, Gorongosa, Maringwe, Marromeu and Muanza.

**Table 1.1: The Zambezi Valley surface area and population, 1997-2020**




| District | Surface (1000 km2) | % | Population in 1997 (1000 peopl | % | Projected Population 2000 | % | 2005 | % | 2010 | % | 2015 | % | 2020 | % | Populatio Density 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Country** | **799.380** | **29%** | **16,076** | | **17,242** | | **19,436** | | **21,968** | | **24,771** | | **27,932** | | **22** |
| **Central region** | **334.778** | | **6,731** | | **7,228** | | **8,170** | | **9,263** | | **10,477** | | **11,846** | | **22** |
| **Total Valley** | **227.927** | 68% | **3,760** | 56% | **4,021** | 56% | **4,520** | 55% | **5,111** | 55% | **5,767** | 55% | **6,515** | 55% | **18** |
| **Zambezia Province** | 103.2 | 12.9 | 3,096 | **52** | 3,317 | **19%** | 3,734 | | 4,216 | | **4,747** | | **5,345** | | 32 |
| **ZV_Zambezia** | **57.6** | 56 | **1,968** | 64 | **2,129** | 64 | **2,438** | 65 | **2,802** | 66 | **3,209** | 68 | **3,676** | 69 | 37 |
| **Tete Province** | 102.6 | 12.8 | 1,226 | | 1,320 | | 1500 | | 1719 | | **1,958** | | **2,230** | | 13 |
| **ZV_Tete** | **103** | 100 | **1,226** | 100 | **1,320** | 100 | **1,500** | 100 | **1,719** | 100 | **1,958** | 100 | **2,230** | 100 | 13 |
| **Manica Province** | 61.5 | 7.7 | 1,039 | | 1,137 | | 1319 | | 1524 | | **1,766** | | **2,045** | | 18 |
| **ZV_Manica** | **26.6** | 43 | **179** | 17.2 | **183** | 16.1 | **190** | 14.4 | **195** | 12.8 | **201** | 11.4 | **208** | 10.2 | 7 |
| **Sofala Province** | 67 | 8.4 | 1,369 | | 1,454 | | 1617 | | 1804 | | **2,006** | | **2,231** | | 22 |
| **ZV_Sofala** | **41** | 61 | **388** | 28 | **389** | 27 | **392** | 24 | **395** | 22 | **398** | 20 | **401** | 18 | 9 |

**Source:** INE. 1999. *Demographic Projecções 1997-2010*



Likewise, while the whole population of Tete province is in the Zambezi Valley, as Table 1.1 shows for the other three province only part of the population is included: about 56% of the population in Zambezia, 17% in Manica and 42% in Sofala. In absolute terms, over four million people live in the area comprised by the Zambezi Valley.

With regard to the population, the ZV has currently about four million inhabitants, that is approximately 55% of the total population. Like in the case of its area, while all the people living in Tete are part of the ZV, the other provinces contribute with the following percentages: about 56% of the population from Zambezia, 17% from Manica and 42% from Sofala province (See district figures Table Annex1).

In turn, Table 1.2 comprises a few indicators on the demographic, macroeconomic, productive and social characteristics of the provinces that integrate the ZV:

- Zambezia e Tete provinces represent together 70% and 86%, respectively, of the total area and population in the ZV;
- In the last two decades Zambezia province has experienced the lowest income per capita, while Sofala exhibited the highest income per capita in the ZV. However, there is increasing evidence that in recent years Manica province is experiencing the highest economic growth rate in the Central region of Mozambique;
- Spoken languages, as key cultural and communication tools, comprise different sets including the official language, Portuguese, and several local languages which vary somewhat among the provinces.

# Table 1.2: A Statistical Snapshot of the Zambezi Valley

## Zambezia Province

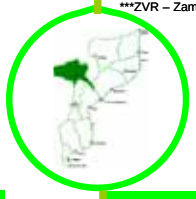
**Area (km²):** 103,240
**Borders:** Nampula and Niassa to the north, Sofala to the south, Malawi and Tete to the west, and Indian Ocean to the east.
**% of total area:** 13%
**Capital:** Quelimane
**Population (2000):** 3.3 million
**Main local languages:** Elomwe 42% Portuguese 5% Chuabo 31% Cisena 8%
**Average real GGP per capita ('96-2000)*:** US$ 100
**Variation of GGP in 1996-2000**:** 3.3%
**Main products:** Coconut, tea, shrimps and precious stones
**% of districts in the ZVR***:** 56%
Quelimane city and 10 out of 15 districts: Chinde, Inhassunge, Maganja da Costa, Milange, Mocuba, Mopeia, Morrumbala, Namacurra e Nicoadala.

*GGP (gross geographical product) = GDP of a region
** GDP (Gross domestic product)
***ZVR – Zambezi Valley Region

## Tete Province

**Area (km²):** 102,586
**Borders:** Zambia to the north, Manica and Sofala to the south, Malawi to the east, Zimbabwe to the west
**% of total area:** 12.8%
**Capital:** Tete
**Population (2000):** 1.2 million
**Main local languages:** Nyanja 48% Portuguese 3% Nyungue 28% Sena 12%
**Average real GGP per capita ('96-2000)*:** US$ 108
**Variation of GGP in 1996-2000**:** 12.5%
**Main products:** Coal, Iron, coton, tabacco, catle and Fishing (on the Cabora Bassa lake)
**% of districts in the ZVR***:** 100%
Tete city and the 12 districts: Angónia, Cahora Bassa, Changara, Chifunde, Chiúta, Magoé, Marávia, Macanga, Moatize, Mutarara, Tsangano and Zumbo

*GGP (gross geographical product) = GDP of a region
** GDP (Gross domestic product)
***ZVR – Zambezi Valley Region





## Manica Province

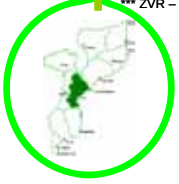
**Area (km²):** 61,537
**Borders:** Tete to the north, Inhambane and Gaza to the south, Sofala to the east, and Zimbabwe to the west
**% of total area:** 7.7%
**Capital:** Chimoio
**Population (2000):** 1.1 million
**Main local languages:** Cindau 29% Cisena 11% Chitwe 22% Portuguese 4% Cimanika 15%
**Average real GGP per capita ('96-2000)*:** US$ 152
**Variation of GGP in 1996-2000**:** 12.7%
**Main products:** Gold, mica, fluorite, chalcopyrite, tobacco, citrus and vegetables
**% of Districts in the ZVR***:** 43%
4 out of 9 districts: Barué, Guro,Macossa and Tambara.

*GGP (gross geographical product) = GDP of a region
** GDP (Gross domestic product)
***ZVR- Zambezi Valley Region

## Sofala Province

**Area (km²):** 68,415
**Borders:** Tete and Zambezia to the north, Inhambane to the south, Manica to the west and the Indian Ocean to the east
**% of total area:** 8.4%
**Capital:** Sofala
**Population (2000):** 1.4 million
**Most represented ethnic groups:** Cisena 47% Cindau 34% Portuguse 10%
**Average real GGP per capita ('96-2000)*:** US$ 254
**% of total GDP (1996-2000)**:** 3.6%
**Main products:** Gold, mica, fluorite, chalcopyrite, tobacco, citrus and vegetables
**% of Districts in the ZVR:** 61%
4 out of 9 districts: Barué, Guro, Macossa and Tambara.

*GGP (gross geographical product) = GDP of a region
** GDP (Gross domestic product)
*** ZVR – Zambezi Valley Region



## 1.3 INSTITUTIONAL SETTING3

### 1.3.1 The GPZ mandate for the ZV

The acknowledgement of the Zambezi Valley's economic potentials goes as far back as the 9th century, with trading of gold and ivory between Zambezians and the Swahili Arabs from the North Africa and Europe, followed by the Portuguese colonization. It was during the last years of colonial domination that the modern history of the Zambezi Valley started with the need to generate power through construction of the Cabora Bassa Dam. The energy project led to the creation of the "Gabinete do Planeamento e Povoamento do Vale do Zambeze" (GPZ) to oversee the construction of the dam and enlarge the prospectus of development of the area. During the negotiations for Mozambique's independence this body was replaced b



y "Hidroelectrica de Cabora Bassa" (HCB) as the company in charge for the energy generation and transformation.

GABINETE DO PLANO DE DESENVOLVIMENTO DA REGIÃO DO ZAMBEZE


www.gpz.gov.mz

However, the recognition that the development of the ZV does not stop with the generation of energy, led later on to the recreation of GPZ as a statutory agency of the Government. In 1995, the Council of Ministers Decree 40/95 of August 22 created the Zambezi Development Planning Office (GPZ). By law, the GPZ is responsible for overseeing the development of the entire Zambezi Valley, and in particular to facilitate planning, promotion, co-ordination,

leadership, and supervision of the overall management of the implementation process in the Valley.

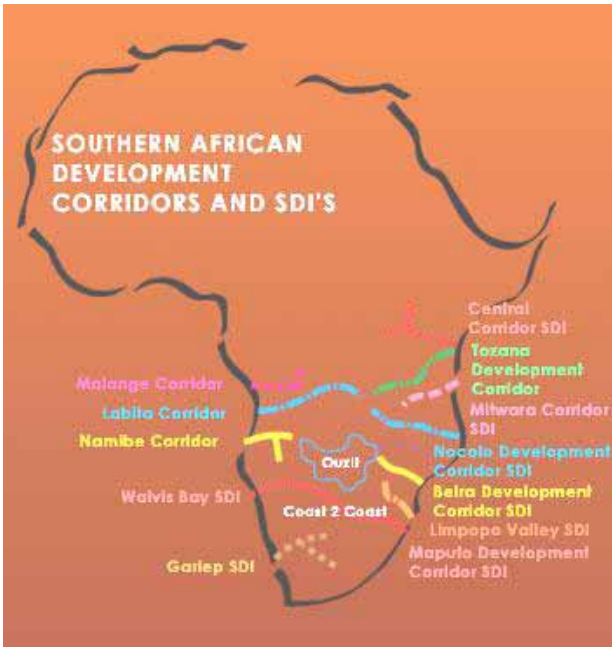
Moreover, the Inter-Ministerial Committee, chaired by the Primer Minister and comprising Ministers for the economy, foreigner affairs, public administration and environment, acts as the Consultative Council. Since 2002, the provincial governors of the four central provinces have become permanent invited members of the Consultative Council in its ordinary sessions.

There is also the Technical Council, chaired by the GPZ General Director, made up of national directors from the ministries that are members of the Consultative Council.

In the process of promoting coherent and coordinated development of the Zambezi Valley, GPZ has engaged in formulation of an integrated development strategy to accelerate the economic growth and development of the Valley.



As from 2002, the GPZ has been preparing inter and multi-sectorial plans, starting from the community and district levels. Provincial directors and key public and private enterprises have been invited for the regular meetings of the Consulting Councils in charge for the preparation of technical council. Moreover, since 2003, the GPZ has also tried to articulate its action plans with key stakeholders and partners in the region, such as the Spatial Development Initiatives (SDIs), set up within the framework of co-operation between SADC, and the PROINVESTE.




www.zambezivalleysdi.com

## 1.4 CONCEPTUAL, METHODOLOGICAL ISSUES AND BASIC OPERATIONAL DEFINITIONS

For a better understanding of the strategic approach underlying the present document, the section that follows provides a few analytical and methodological considerations, set forth around two simple but relevant questions: What is a good economic strategy, under the present circumstances of the Mozambican economy? What is a good strategic programme?

### 1.4.1 What is a good economic policy?

The notion of a 'good' or 'bad' economic policy presupposes a certain judgemental value seldom made explicit in documents such as this. In general, readers have to infer the assumptions and principles from the text itself. At best, it is taken for granted that it is more or less widely agreed that good economic policies are those with positive impacts and outcomes for the well-being of the society. However, a perspective such as this implies that one should wait for the policy to be implemented, and only then assess its impacts. This is problematic and far from satisfactory for policy makers, technical planners and government officials, as well as financial organizations, in much need to make reasonable and adequate decisions on several financial and non-financial issues.



Thus, for the purpose of this work, rather leaving the readers to deducted from the text what is presume here by a good economic policy or strategy it seems useful to suggest to take as a reference the nature of the economic advocated by the Constitution of Mozambique approved and enacted in 1990. In this perspective, for this document a good economic policy or strategy is the one that contributes for the development and strengthening of a healthy and sustainable market economy. On the contrary, bad economic policies are those that reject or difficult the development of a market economy in the country, as a whole, or parts of it, in particular.

This does not mean that in the next decades the Government should play no role in the process of economic management. On the contrary, the Mozambican Government will continue to determine the policies for a

variety of matters, to endeavour efforts to provision the basic legal, institutional and financial infra-structure on which the markets should operate. Indeed, the Government is expected to maintain, if not even increase, its responsibility and action to ensure the social order and increasingly support those in more and urgent need for support.

In any case, it is expected that like in several other parts of the world, in Mozambique the Government will also try to fulfil its goals and specific objectives, less through a direct intervention and more through regulation. Just as in the past decade, the Mozambican Government will continue to carry out its duties aiming at contributing for a better market performance rather than by trying to replace its role or even sideline them.



### 1.4.2 What is a good strategic programme?

The preparation of this document draws upon a perspective of "strategy"[2] seen as a deliberate plan, progressively worked out and improved throughout a continuous process of learning, comprising standards developed on the basis of the experience acquired by the intervening partners with the objective to overcome the bottlenecks found in the economy, in this case, of the Zambezi Valley region.

The emphasis given in this work to the term "strategic", starting from the very title, reflects the need to outline a clear vision on "what" the current situation in the Zambezi Valley, and what it should turn into, within a medium or long-term period, as well as determining the way forward. Obviously, what the Zambezi Valley will eventually become depends not only on its present situation and on its past. Another crucial factor for the future development of the ZV is the definition and setting up the purposes, goals and targets, management principles and methods, and the financial and non-financial resources available and required.

[2] There are several and many definitions of "strategy". Henry Mintezberg, one of the best known academics on management theory, identifies at least five definitions of strategy: 1) as a plan, a guideline for action in the future; 2) a standard, or a consistent behavour over time; 3) a position set up by certain in the market; 4) a perspective, the way enterprises do things; and 5) a trick, a way to full the competition.

Development, in this case, the region as wide as Mozambique, development of a the ZV in the bottlenecks of particular upon the requires acting upon the economy, and in simultaneously 1) variables where the region is important and 2) more fragile or weak.

**Development requires acting upon the bottlenecks in the economy, and in particular upon the variables simultaneously 1) important and 2) where the region is more fragile and weak.**

In this context, a strategic programme is needed to identify the important issues to tackle and to transform the weakness into strengths, in order to trigger the take off and accelerate economic growth. However, the process of outlining a strategic programme requires, firstly, the identification of the right strategic focus and, then, the definition of the right direction and variables that really matter. But, in the end, how to find out the right place to act upon?



It is not incidental that following popular assertion: What is the purpose of running fast if one takes the wrong direction?". Beneath this question lie two important analytical dimensions which are closely associated with the difference between strategic planning ad operational planning. Such dimensions can be better understood through the following two concepts: "effectiveness" (this is related to leadership issues like: "are we doing the right things?"; "do we have the priorities right?) and "efficiency" (are we doing things right?", "is implementation efficient?").

Related to the concepts mentioned above and their relevance for the purpose of this document, there an issue that deserves to be highlighted here, such as for instance the following: if development of a certain region requires acting upon the bottlenecks of its economy, namely upon the variables simultaneously important and where the region is more fragile or weak, what should then be the strategic focus and targets specifically for the ZV?

This issue is addressed by the present document, on the one hand, starting by defining the arrival point and goal (vision) that appears to be more adequate and realistic for the ZV. On the other hand, the document identifies the way forward, that is delineates the strategy on the basis of key projected economic growth scenarios, according to different options and involving crucial determinants for the wealth production, namely the investment of viable areas and the improvement of the institutional environment and the business climate.

### 1.4.3 Strategic Focus and Partnership

The notion of strategy outlined above leads, first of all, to the determination of the end result, the vision, and then the definition of the way forward. Obviously, it needs to be said to be success a strategy does not depend on its definition only; it also indispensable to implement it successfully.



The successful implementation of a strategic programme depends on several factors, such as the sort and magnitude of turbulence and disturbance in the market, the assertiveness of competitors and their preparation and efficiency, the business climate more or less favourable to economic growth, among many others. Indeed, studies specifically concerned with this matter have shown that, in general, most of the unsuccessful experiences are not so much due to the definition problems, but to inadequacies in the implementation process of the strategy:[3]

| Definition | Execution | Outcomes |
|---|---|---|
| Bad strategy (-) | Weak (-) | Collapse is eminent |
| Bad strategy (-) | Strong (+) | Situation of high risk |
| Good strategy (+) | Weak (-) | Failed Opportunity |
| Good strategy (+) | Strong (+) | Strategic success |

Public and private entities have increasingly joined effort around partnerships as in searching for excellence. In the context of public

[3] This draws upon the "Balanced Scorecard" aiming at translating strategy into action (Silva and Antunes, 2004: 24-28; The Balanced ScoreCard Institute, http://www.balancedscorecard.org

administration, partnership emerges as an agreement between the institution and one or more partners (internal or external) set up to fulfil the specific objectives of the government's policies. Such a partnership implies and investment of common resources (time, financing and expertise) and the delimitation of powers and responsibilities between the partners, in order to share the risks and mutual or complementary advantages.

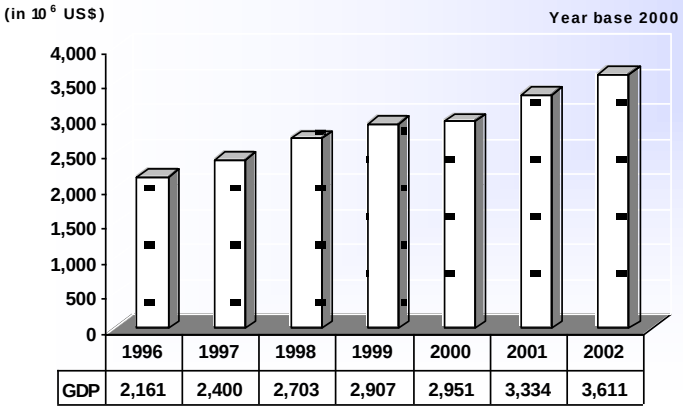
## 1.5 ECONOMIC AND SOCIAL SETTING OF THE ZV

Very often, countries of high latent **opportunity and demand** are, for a variety of reasons, not necessarily and immediately economically accessible. Until earlier in the 1990s the accessibility to and viability in the Mozambican economy were extremely low, but since the middle of the 1990s Mozambique became a rapid and radical reformer. The Government implemented a wide range of market-based economic policies namely a vast process of privatisation under which the state has retreated as a direct economic actor in favour of private entrepreneurs.



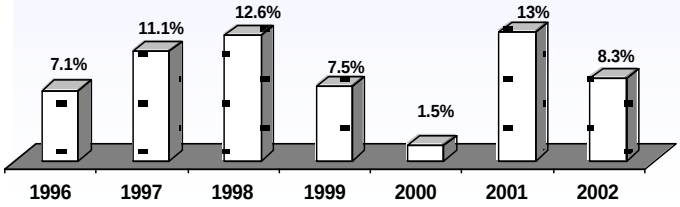
Financial and macroeconomic conditions in Mozambique have continuously improved since the second half of the 1990s. The real Gross Domestic Product (GDP) was US$ 2.2 billion in 1996 and rose to 2.9 billion in 1999. In 2000 there was a slowdown of economic growth, in part due to structural constrains and in part because of the devastating floods that hit the southern and central parts of the country earlier in the year. In 2000-03 economic growth resumed to about 8-9%, while inflation declined from 16.5% in 2000 to 9% to 2002.

**Figure 1.1: Real Gross Domestic Product, Mozambique 1996-2002**




| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|
| GDP | 2,161 | 2,400 | 2,703 | 2,907 | 2,951 | 3,334 | 3,611 |

Figure 1.2: Gross Domestic Product, Mozambique 1996-2002




Latte in the 1990s the primary sector, particular agriculture, which is not only the major source of food and the largest employer of the labour force, contributed with about 28% to the GDP. The secondary sector contributed 24% and the tertiary sector 48%. Although the recovery from the recent floods and previous economic setbacks for many years remain slow and fragile, there is hope that economic reforms and political stability will continue to strengthen.



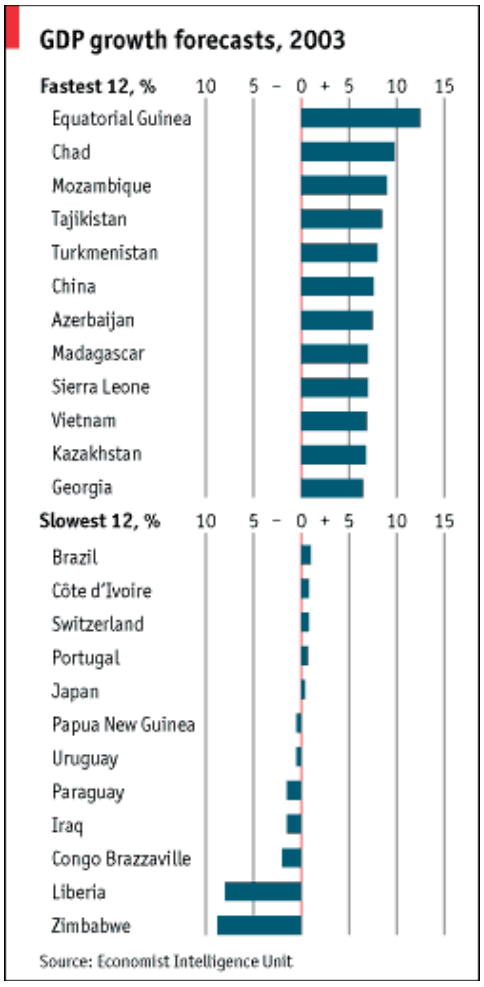
The macroeconomic policy objectives continue to be geared to achieving low inflation and exchange-rate stability, while promoting economic growth, exports and consolidating fiscal receipts, as a way to stabilize the economy and overcome domestic and balance-of payments difficulties.

One of the objectives of the economic reforms has been to establish a liberalized foreign exchange market. Until 1986 the local currency (Metical) was grossly overvalued. Nowadays, the value of the Metical approaches more realistic levels dictated by market demand, although the share of the development aid may be still slowing the move towards a more realistic exchange rate.

All these and other policies have converted Mozambique into a well-regarded model for economic development and post-war recovery by international agencies and observers. Mozambique is today placed among the fasted growing economies, immediately after two other African countries: Equatorial Guinea, boosted by oil and gas industries, and likely to see a 12.5% rise in its GDP, while Chad can expect economic growth to almost 10%.

The EI-Unit considers the economic outlook of Mozambique favourable: real GDP growth is expected to stay high, averaging 7% in 2003 and 8% in 2004, driven by higher aluminium production and the coming on stream of gas production.

**Table 1.3: Expected Fasted Growing Economies in 2003 by *The Economist***




This positive performance goes as far back as the middle of 1990s, and explains the perception among well-regarded international agencies and analysts, that Mozambique is a possible chosen and increasingly viable spot for investment (UNCTAD, 2001, 2002; World Bank, 2002, 2003?; T….).

The real GDP growth of Mozambique, driven by substantial foreign direct investment, is expected to average 9 percent in 2003–2004, and has grown consistently and at high rates since the middle of the 1990s, as can be shown in Figures 1.1 and 1.2. Moreover, U.N. Conference on Trade and Development data show that Mozambique was the fourth largest recipient of FDI in sub-Saharan Africa in 2001, with US$481 million ($228.7 million in net terms); between 1996 and 2001, it received a total of US$1,350 million in FDI.



The dramatic changes experienced by the Mozambican economy in the past decade or so is well captured by the economic freedom index (EFI), an index produced annually by The Heritage Foundation and the Wall Street Journal (O'Driscoll et al. 2002, 2003, 2004). As Figure 1.3 shows, the economic freedom in Mozambique improved from a score of 4.39 in 1995 to 3.28 in 2004. This means, according to the four broad categories associated with the EFI – Free (0 - 1.99), Mostly free (2 - 2.99), Mostly

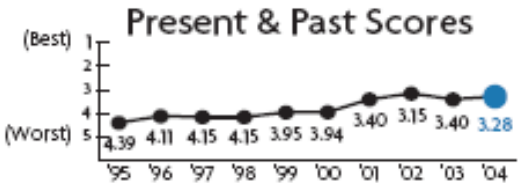
Unfree (3 - 3.99) and Repressed (4 - 5) – that in the middle of the 1990s Mozambique's economy improved from a "repressed" to a "mostly unfree".[4]

**Figure 1.3: Index of Economic Freedom in Mozambique, 1995-2004**

Rank: 95

Score: 3.28

Category: Mostly Unfree




Source: The Heritage Foundation, 2004



According to the 2004 report: "Mozambique's monetary policy score is 1 point worse this year; however, its fiscal burden of government score is 0.2 point better, and its government intervention score is 2 points better. As a result, Mozambique's overall score is 0.12 point better this year."

In addition to the above opportunities there is a strong political commitment to speed up the development of the Zambezi Valley. The creation of GPZ and establishment of fiscal incentives for private investment in the area are an expression of that political motivation. Several Programs are running or are under planning stage in Mozambique, including specifications for the Zambezi Valley. These Programs, (PROAGRI, PODE, PARPA, the Gross Triangle Initiative, etc.) constitute an additional steam for the take off of the Development of the Valley. Along with these domestic Programs/Initiatives there are others of regional and international nature that can be considered as good opportunities for the Valley. Among these it is important to highlight the AGOA, NEPAD and TICAD III initiatives.

[4] The *Index of Economic Freedom* draws upon a list of 50 independent variables divided into 10 broad factors of economic freedom. Low scores are more desirable. The higher the score on a factor, the less economic freedom a country enjoys. These 50 variables are grouped into the following categories: Trade policy, Fiscal burden of government, Government intervention in the economy, Monetary policy, Capital flows and foreign investment, Banking and finance, Wages and prices, Property rights, Regulation, and Informal market activity.

## 1.6 ZAMBEZI VALLEY: A RICH REGION ... BUT IMPOVERISHED

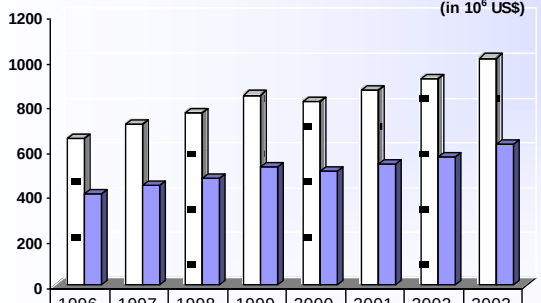
In order to have an idea of the size of the challenges faced by the Zambeze valley in the wider context of the globalisation of the economy a comparison is made between the Zambezi Valley and New Zealand just by the fact that the two are of similar size in land mass and populations terms. Yet, when one considers the wealth production and gross domestic product per capita, the gap between the Zambezi Valley and that developed country is huge. While in 2001 the Zambezi valley had an income per capita below US$ 200, New Zealand had about 19 times more. The figures show the huge gap in terms of living standards, which in themselves reflect the gap in terms of productivity and wealth creation.



The explanation for this can be found in the turbulent and complex history of colonization, and more recently the 26 years of war and military conflicts of multiple origins.

Before the national independence, and during the war until 1992, the people in Zambezi Valley and Mozambique in general were prevented from creating wealth from its own resources. However, in the second half of the 1990s, the economy of the Zambezi Valley experienced a substantial turnaround, thanks to the peace and political stability, as well as the economic reforms promoted by the Government, a few years before and after the approval of the new Constitution of the Republic in November 1990.

**Figure 1.4: Gross Geographical Product, Central Region and Zambezi Valley, 1996-2002**




| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Central Region | 653 | 718 | 769 | 847 | 819 | 868 | 920 | 1012 |
| ZambeziValley | 405 | 445 | 477 | 525 | 508 | 538 | 570 | 627 |

Values for 2001-2003 estimated

The combination of these factors led to an average real growth rate in the Zambezi valley, between 1996 and 2000, of six percent per year.

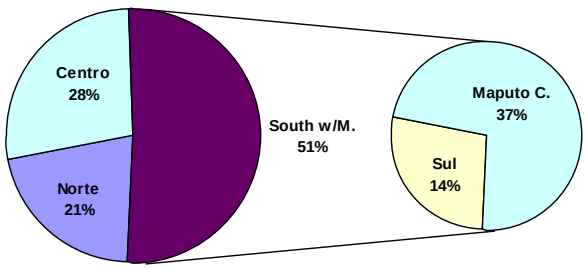
Although, for the international standards, such a real growth rate is quite reasonable, the same cannot be said for a region like Zambezi Valley, both in terms of its population's needs and the potential for wealth creation of its natural endowments.

Bearing in mind that the Zambezi valley comprises an area smaller than the central region of the country, a crude approximation of its proportion based on a factor comprising the percentage of land and the population in the Zambezi Valley is presented in Graph 1.3. Thus, the GGP of the Zambezi Valley can roughly be estimated at between 60 to 70% of the central region's GGP, which is estimated to current about slightly over one billion US dollars.

Considering that sizable proportion of the Zambezi Valley within the central region of Mozambique, and the limitations of the existing statistical data available, for the purpose of this strategic programme the Valley will be hereafter treated interchangeably and proxy of one another.



Figure 1.5: GDP of Mozambique, broken down by the three major regions and Maputo City, 2000




So, according to the available statistics, at the beginning of the current decade the central region produced about US$1 billion, representing 28% of the national GDP (Graph 1.2).[5] This means that the wealth produced by the central region in 2000 was about half the biggest single investment ever made recently in Mozambique ($2 billion) to build the

[5] The value of the GDP has been estimated from the sum of the added value at current prices of all economic sectors, including: agriculture, livestock, fisheries and extractive production, the food industry, construction, electricity and water, commercial services, transport, public administration and defence services, real estate, renting and business activity, and education, health and the provision of other services. The calculation of the GDP in Mozambique stands on the United Nations methodology and, in particular, the System of National Accounts adopted since 1993. In this work the term GDP is reserved for the national account, while in the regional and provincial cases the term Gross Geographic Product (GGP) will be used.

aluminium smelters (Mozal) in Maputo. This comparison gives a sense of the magnitude of the Zambezi Valley's economy.

From the viewpoint of the strategic programme outlined in this document a relevant feature refers to the speed and the composition of economic growth experienced recently in the Zambezi Valley. Though economic grow has generally been positive and around six percent per annum, such a trend cannot be regarded satisfactory for two reasons.

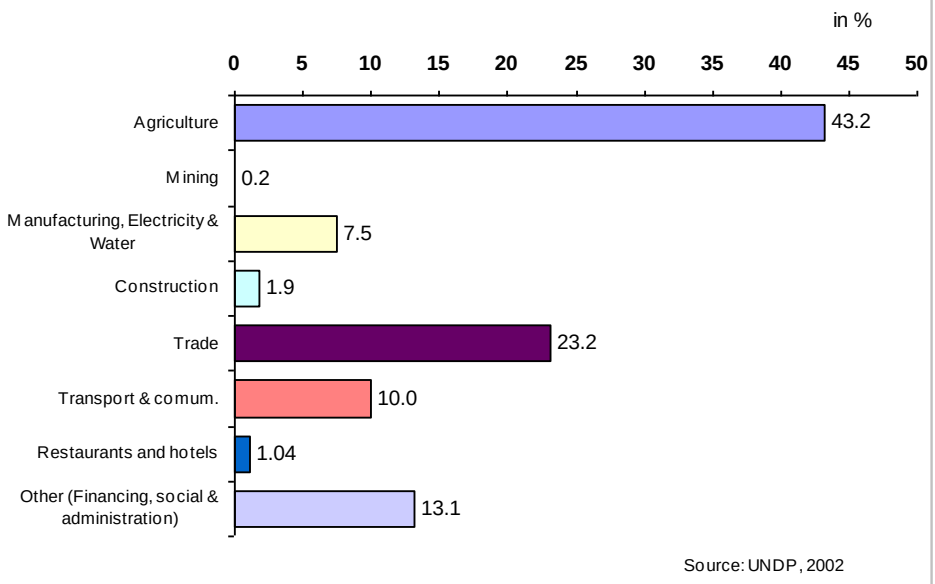
Firstly, the existing six percent growth rate happened from a very low basis and still stands vulnerable to natural conditions, and within an institutional rather weak and unstable.

Secondly, when one considers the determinants of the positive high economic growth rate, observe in the second half of the 1990s in the Zambezi Valley, it becomes apparent that such a positive and relatively high growth has stood upon a rather lop-sided structure. As Graph 1.3 suggests, the six per cent economic growth in the period 1996-2000 stood chiefly on the following economic activities: agriculture, manufacturing electricity and water, transport and communication, trade and other services.



In turn, economic activities such as mining, construction and tourism experienced negative, or very slow, economic growth, while in the year 2000, due to the devastating floods the whole central region of Mozambique had a negative economic growth rate (-3.4%).

**Figure 1.6: Zambezi Valley's GGP at Constant 2000 Prices**



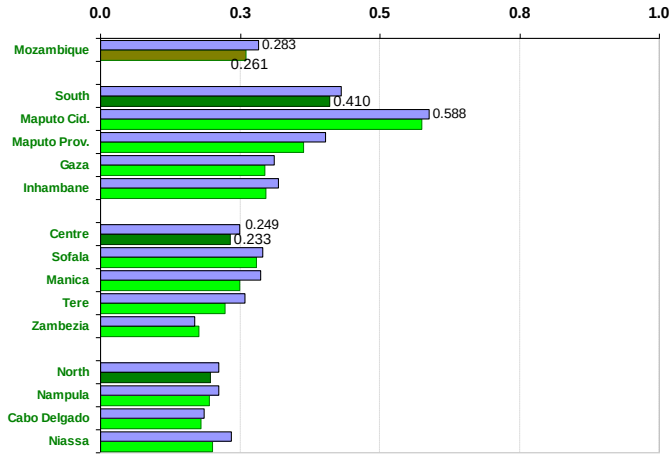



This shows that the economy of the Zambezi Valley remains rather fragile and lop-sided, and without adequate investment interventions and corrections most probably will not be able to keep the pace of its economic growth in the recent past. Moreover, however important the economic activities that have contributed positively to the relatively positive economic growth in the Zambezi Valley, they are certainly not the most suitable to add the most value to the available resources.

Along with economic growth, information available suggests that over the past decade or so human development and the well-being of the people in the central region of Mozambique has been slowly but persistently improving. At the beginning of the current decade, the Human Development Index (HDI)[6] was estimated to be 0.263, well bellow the national average of 0.290 and 2.3 times smaller than Maputo City alone.

[6] HDI is a very basic yardstick against which to measure the development of a country or its main regions. The HDI is part of a broader analytical framework, provided by the concept of human development defined as the process of enlarging people's choices (UNDP, 1990). The HDI is designed to measure human development according to the principal dimensions of well-being. On a scale from zero to one, a country or a region can be classified through the HDI as being low (0-0.5), middle (0.5-0.8) or high (0.8-0.1) human development.

**Figure 1.7: Human Development Index, Mozambique 1996-2000**




**Source:** UNDP, 2002

**Figure 1.8: Changes in poverty headcount, Central region versus Maputo City, 1996-2003**

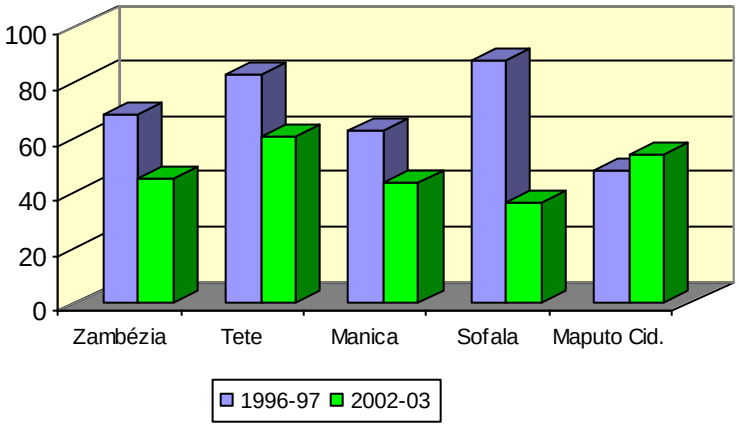
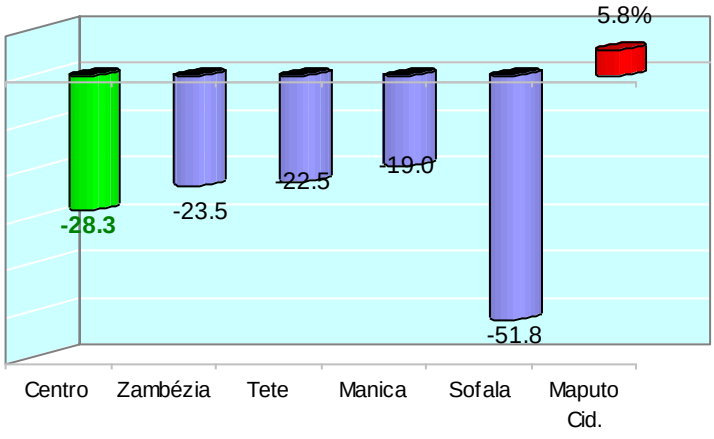
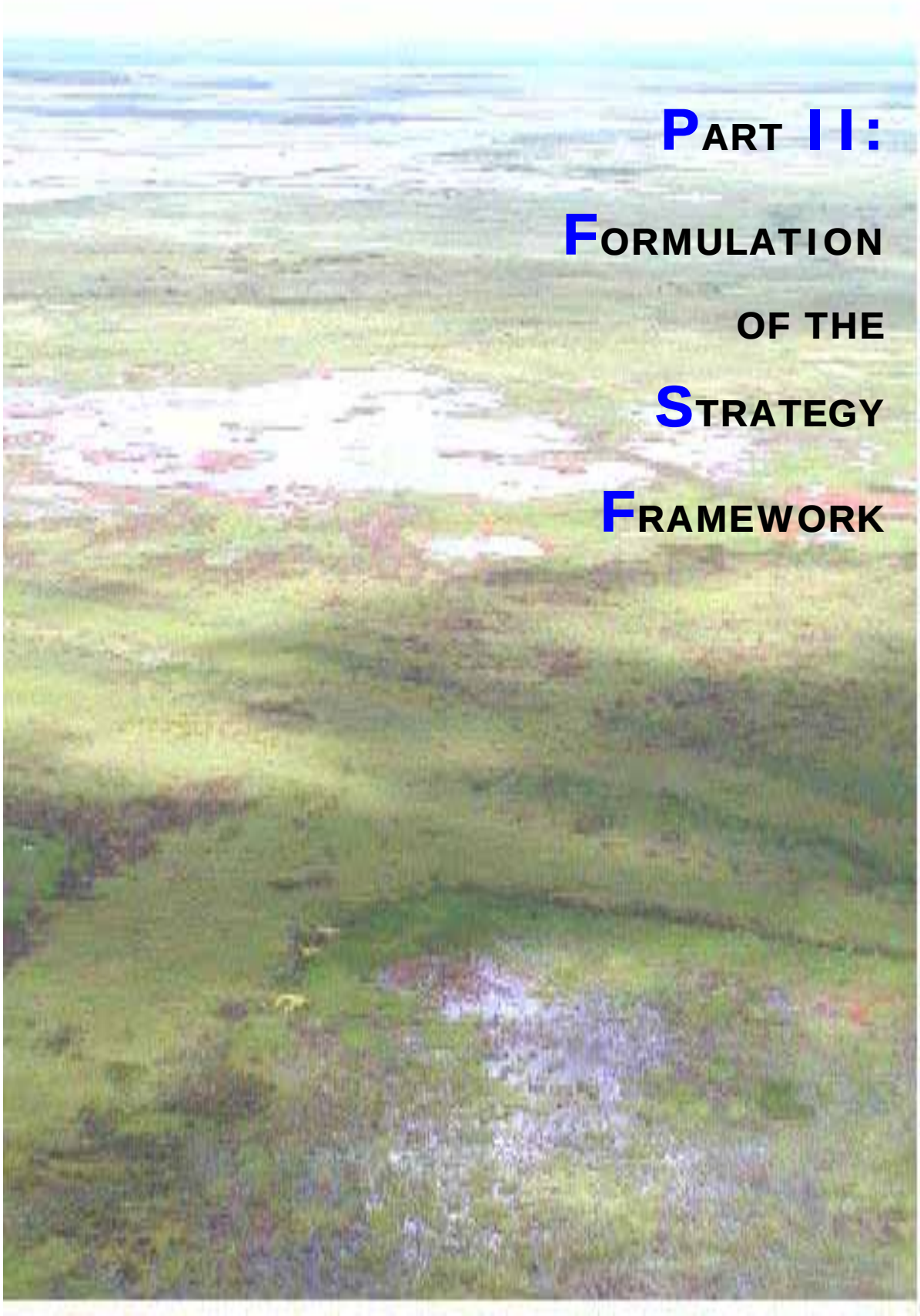





**Figure 1.9: Variations in poverty headcount in Central region and Maputo City between 1996 and 2003**



The gap between Maputo City and the Zambezi Valley reflects the global picture of uneven development of the country. Thus, it is desirable that the Zambezi Valley should at least reach the same HDI of Maputo within a reasonable period of time. The time framework in mind is the long-term plan of the Government within the AGENDA 2025.



# PART II: FORMULATION OF THE STRATEGY FRAMEWORK

# 2 DEVELOPMENT TARGETS

## 2.1 VISION AND MISSION 2020

With the above brief overview in mind, the first step in defining the strategy for the Zambezi Valley is to determine the arrival point (vision) by the year, say, 2020. The strategic focus is concentrated into the economic growth take off and improvement of human development in the region. To be more specific, the vision can be briefly enhanced as follows:

> By the year 2020, the Zambezi Valley region will have reached an average income per capita ten times and a human development index two and half times higher than the ones in 2000, fostered by an economy growing rapidly, restructured, adaptive able to fully explore the potential of all persons, communities and main geographic areas, supported by an environment of political stability and social justice, friendly and healthy business climate, and increasing technological capacity and efficiency of the Mozambican society in general.



For this vision to be realized it is important to seek for the adequate balance between the pressures emerging from the urgent or immediate demands and the longer-term requirements.

The above vision entails a relatively ambitious but achievable target for the Zambezi Valley Region. In the end, reaching the targets indicated means that the ZV will have reached by the year 2020 the living standards and the level of human development similar to those achieved by Maputo City at the beginning of the current Millennium that is twenty years before the envisaged time target. For a better idea of the effort

involved, Table 2.1 summarizes and compares the current and the targeted indicators by the year 2020, highlighting the variables comprising the human development index, as it has been currently measured nationally and internationally:

**Table 2.1: Current and Targeted Levels of Human Development for the Zambezi Valley Region, 2000-2020**

| Selected Indicators | Human Development | | |
|---|---|---|---|
| | Mozambique | Zambezi Valley Region | |
| | Estimated 2000 | Estimated 2000 | Expected in 2020 |
| Population (1000 inhabitants) | 17,242 | 4,020 | **6,515** |
| Human development index (HDI) | 0.283 | 0.249 | **0.588** |
| Real GDP per capita (USD) | 171 | 113 | **1,068** |
| Life expectancy at birth (years) | 44.2 | 43.5 | **60.3** |
| Adult literacy rate (% age 15 and above) | 43.3 | 41.0 | **87.0** |
| Combined enrolment rate (%) | 35.8 | 32.8 | **54.1** |



Obviously, the association of this mission statement to a target such as the level of human development in Maputo city does not mean that the Zambezi Valley region will, or should, ever aspire for an urbanization of the type observed in Maputo city. As many other countries have already shown, human development can very well be improved in predominantly rural settings without necessary having to be through the sort of population crowding as it observed in urban settings such as Maputo. This is possible because human development refers to the enlargement peoples' choices and opportunities, through improving the living conditions, heath and life expectancy, educational and professional levels, income generation and living standards.

Though achievable, it must be acknowledged that the target set for the development of the Zambezi Valley within the remaining 15 years is not an easy one, particularly when one considers the present conditions and the determinant economic factors in the recent past in the this region. The mission statement presented above translates itself in the following sub-targets based on an increase of the HDI of about 0.588:

- Increase the Human Development Index (HDI) from 0.283 in 2000 to 0.588 in 2020, which means to improve from a rather low level to the beginning of what is regarded as the medium human development level;
- Such an improvement will reflect the enlargement of people choices and opportunities, which can happen in a variety of ways and several combinations of the three components the index comprise: real income per capita, life expectancy at birth, and educational level. For instance, in order to achieve a real GDP per capita of about US$1068 per capita, that is the GDP per capita of Maputo in 2000, the ZV economy will have to grow at an average real growth rate of about 14% year until the year 2020;
- Increase of about 20 year in life expectancy at birth; that is, an additional gain of one year per year;
- Some 46 percent points increase in literacy rates, and 21 percent points in combined enrolment rate.



In order to pave the road map to achieving the above targets, the section that follows outlines an integrated approach and modelling exercise outlining the main alternative options given the recent growth performance of the ZV, and the growth task challenges it faces:

1) in attempting to achieve parity of living standards with the most developed part of Mozambique, that is Maputo City, twenty years earlier;
2) In preventing the absolute gap from widening between the ZV and the Maputo City, as in fact happened in the past decade.

## 2.2 IF YOU CAN MEASURE IT, YOU CAN MANAGE IT

If the principle highlighted in the title of this section is true, then an important step in outlining a strategy is to grasp the magnitude of the effort required in terms of time scale of the catching up process and economic growth, in this case, of the ZV economy.

### 2.2.1 The development absolute gap

To have an idea of the magnitude of the effort required and growth task the Zambezi Valley faces, let us put the issue in terms of the following two questions:

1. Given the recent growth experience of the Zambezi Valley, how long will it take for this region to reach the level of Maputo City's per capita GDP in the year 2000?
2. Given the recent growth experience of the Zambezi Valley relative to Maputo City, how many years would it take for the *per capita* income to be eliminated?

The answers for the above two questions involves little more than simple manipulation of the mathematical formula for compound interest.[7] In relation to the first question, if one assumes the Zambezi Valley will experience until, say, the year 2020, the same GDP growth rate as the one observed in the second half of the 1990s (6%) (see Table 2.2), it will take (with a per capita GDP of $113 in 2000) about 40 years to reach the living standards of Maputo City in the year 2000.



In turn, as Table 2.2 also shows, in the recent past Maputo city has experienced a faster growth rate (9%) than the central region of Mozambique (6%). This means, in answering to the second question rose above, that there is no better way for the ZV to prevent its absolute income gap from widening for ever than to make efforts to achieve in the next decades a faster income growth rate than the one observed in Maputo city. This is not the case up to know, at least according to the available data, which is

**Table 2.2. Growth rate of the GDP and GDP per capita, 1996-2000**

| | GDP growth | | Per capita GDP | |
|---|---|---|---|---|
| | 2000 | 1996-2000 | 2000 | 1996-2000 |
| **Central region** | -3.4% | 6.0% | 113 | 141 |
| **Maputo city** | 5.9% | 9.2% | 1,068 | 1,155 |
| **Mozambique** | 1.6% | 8.2% | 171 | 200 |

Source: UNDP, 2002

[7] The formula for compound interest: $S = P(1+r)^n$

undoubtedly one of the major challenges for a strategic programme such as this one.

### 2.2.2 How fast should the ZV grow to catch up?

There are at least two additional questions related to those posed above:

3. Given the rate of growth of Maputo City, how fast would the Zambezi Valley have to grow merely to prevent the absolute per capita income gap between them from being any wider in the year 2020 than now?
4. Given the rate of growth of Maputo City from now until the year 2020, how fast will the Zambezi Valley have to grow for per capita GDP to be equalised by that date?



The answer to these two questions is more or less the same, as far as the magnitude of the growth and effort involved. The required growth rate is 17 and 18 per cent per annum, respectively, which are both hardly feasible.

Clearly, the above calculations are sensitive to the assumed past and future growth rate of both regions, the choice of the target year in the future, and the base year level of per capita income taken for them. No one can possibly know with precision what the future rate of Maputo city will be, and 9.2% per cent per capita income growth – the historical average in the second half of the 1990s – would seem to be as reasonable and, indeed very good assumption.

However, the important issue that needs to be stress here is that the higher the growth rate, in the case of Maputo city, the more formidable the economic growth effort and the magnitude of the development task will have to be in the ZV region.

## 2.3 ECONOMIC PROJECTIONS FOR THE ZV: 2000-2020

It can be argued, of course, that the income equality between regions, such as in this case the ZV and Maputo city, is an impracticable ideal, and that the primary aim is not equality of living standards throughout the country but 'tolerable' living standards in the all regions of Mozambique, which is a very different matter. However, the time scale and effort involved to reach 'tolerable' living standards in a region like the ZV, remains clearly colossal and thus the issue can not be overlooked not only when one struggles for parity of living standards, but also in simply preventing the absolute and relative income gap from widening.

### 2.3.1 How fast can the ZV expect to grow until the year 2020?



To be more realistic, how fast can the ZV be expected to grow in the next two decades or so? This question will be answered using a conceptual and methodological method which compares three alternative scenarios:

1) Scenario 1 refers to the spontaneous growth, that is the economic growth experienced by the ZV the past decade *WITHOUT* a comprehensive strategic programme;

2) Scenario 2 already *WITH* a strategic programme initiative depicts an induced and relatively rapid economic growth, through a limited and partial strategic programme. That is, one that is expected to induce faster growth than in Scenario 1, but without changing the structure of the ZV economy;

3) Scenario 3, also *WITH* a strategic programme initiative, but now a more comprehensive and pro-active programme, which try concentrate and to maximize the advantages of the "vital" economic sectors and activities.

Thus, in short, the *conceptual approach* underlying this ex-ante assessment and project involves a comparison of project impacts on a *with and without basis*, i.e. with and without the strategic programme

initiative presented in this document.[8] The projection technique used here comprises four steps, as outlined below.

**Table 2.3: Four steps of the modelling economic projection for the ZV**

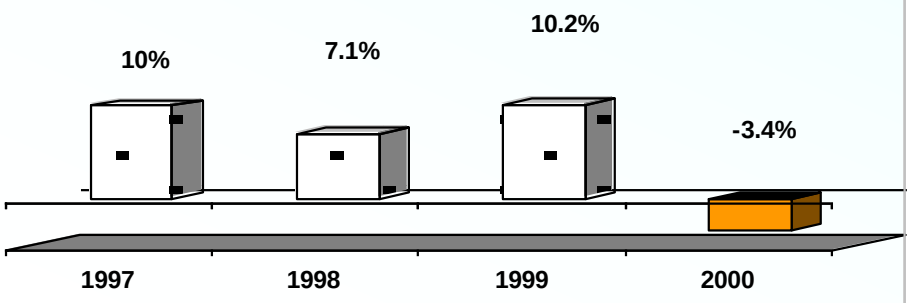
| |
|---|
| **Step 1: Base economic projections per sector**<br><br>This step involves the projection of future levels of economic geographic activity (GGP) *without* the Zambezi Valley Strategic Programme (ZVSP), using historical growth rates. This is done for the main sectors of the economy, using the data disaggregated by province for the period 1996-2000. This step also involves the conversion of GGP to production (output) to enable the application of input/output multipliers. |
| **Step 2: ZV sectoral growth scenarios**<br><br>This step consists of projecting future levels of economic activity in the Zambezi Valley, taking into account expected benefits likely to be derived from the ZVSP. |
| **Step 3: Contribution of sectoral inputs resulting from the ZVSP**<br><br>This step involves determining the contribution of the ZV to total projected sectoral output of the Valley. |
| **Step 4: Sectoral impacts of ZVSO scenario**<br><br>The final step involves interpreting the future impact of the Scenario 3 for ZVSP on sectoral economic performance in terms of the following:<br>• GGP<br>• Employment<br>• Capital investment<br>• Imports. |



Methodologically, the base economic projections were arrived at by applying the historical growth rates used to project Gross Geographic Product (GGP) in 1996 per sector to the current GGP values for the period specified, as depicted in Figure 2.1.

[8] This approach is consistent with the integrated approach and modelling technique outlined elsewhere by Capricon (1995), which offers an ex-ante assessment reference against which future and more in-depth and detailed studies can then take as a reference in their monitoring and assessment impact evalutions

**Figure 2.1: Real Groth Rate of GGP, Zambezi Valley 1996-2000**






### 2.3.2 Scenario 1: *WITHOUT* a strategic programme and a moderate growth rate

Under conditions where the ZV economy continues to be influenced by the same factors in similar proportions as was those in the second half of the 1990s, the annual growth rate of about six per cent appears reasonably positive.

However, as Table 2.4 shows, if such a growth rate were to take place in growth rate were to take place over the two decades considered here, by the year 2020 the real income per capita would improve about only two or three times more than the one in the year 2000. This means that in spite of the six per cent growth, this growth level can not be regarded as moderate, if nor even low, as far as a substantial economic and human development is concerned.

**Table 2.4: Scenario 1 (Crescimento Baixo) - Projected GGP for the Zambezi Valley in 2000-2020 Without the ZVSP at Constant 2000 Prices**

| | GGP em USD $10^3$ | | | | | | | Average |
|---|---|---|---|---|---|---|---|---|
| | 1996 | 2000 | 1996-2000 % | 2005 | 2010 | 2015 | 2020 | 2000-2020 % |
| **Total** | **652,741** | **818,849** | **5.8** | **1,087,132** | **1,418,736** | **1,917,577** | **2,637,634** | **6.0** |
| Agriculture, livestock, florestry, fisheries & | 281,777 | 345,001 | 5.2 | 444,338 | 572,277 | 737,054 | 949,275 | **5.2** |
| Mining | 1,214 | 1,062 | -3.3 | 898 | 760 | 643 | 544 | **-3.3** |
| Manufacturing, Electricit and Water | 48,639 | 94,137 | 10.7 | 156,261 | 259,382 | 430,557 | 714,696 | **10.7** |
| Construction | 12,091 | 24,793 | 10.2 | 40,233 | 65,290 | 105,950 | 171,933 | **10.2** |
| Trade | 151,256 | 187,727 | 5.5 | 245,921 | 322,157 | 422,025 | 552,851 | **5.5** |
| Transport & comum. | 65,155 | 64,344 | -0.3 | 63,343 | 62,358 | 61,389 | 60,434 | **-0.3** |
| Restaurants and hotels | 6,800 | 4,027 | -12.3 | 2,093 | 1,087 | 565 | 294 | **-12** |
| Other (Financing, Education, Health, | 85,808 | 97,758 | 3.3 | 115,060 | 135,425 | 159,395 | 187,607 | **3.3** |
| Population in Mozambique central region | 6,535 | 7,228 | 2.5% | 8,170 | 9,263 | 10,477 | 11,846 | |
| Population in the Zambezi Valley | 3,566 | 4021 | 2.4% | 4,520 | 5,111 | 5,767 | 6,515 | |
| **GGP per capital in Central Region** | **100** | **113** | | **133** | **153** | **183** | **223** | |

In turn, Figures 2.2 and 2.3 show the economic structure expected in Scenario 1. As can be seen it is a lop-sided economy, standing chiefly up agriculture, industry, electricity, water and trade. Other sectors, particularly those with the potential to add more value to the wealth creation, such as mining, infrastructures, and transport and communication services remain neglected.



**Figure 2.2: Scenario 1 - Projected Zambezi Valley's Economy Without a Strategic Programme, 2005-2020**

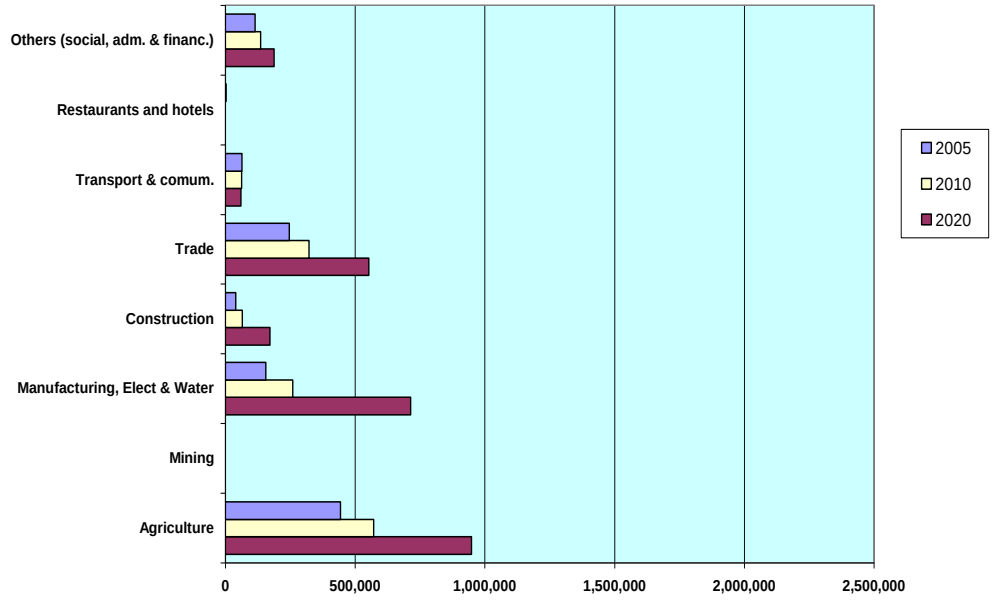
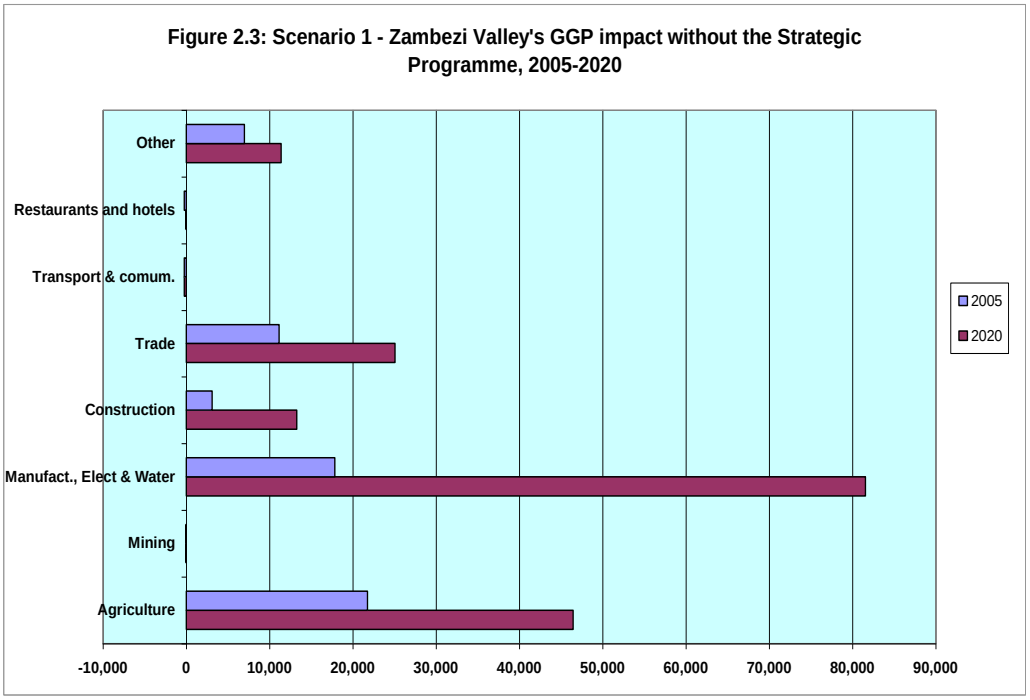


Figure 2.3: Scenario 1 - Zambezi Valley's GGP impact without the Strategic Programme, 2005-2020






### 2.3.3 Scenario 2: WITH a Partial programme and medium growth

Table 2.5 summarizes de results for Scenario 2, a scenario with a partial strategy programme in the sense that does not correct the lop-sided structure of the economy by making a better use of relevant sectors such as mining, tourism, transport and communications. Thus, the economy of the ZV is expected to grow at a medium growth rate, which in this case by medium it is meant about ten per cent per annum. If this level of economic growth rate does take place, by the year 2020 the ZV would have increased about six to five to six times its real income per capital.

**Table 2.5: Scenario 2 - Projected GGP for the Zambezi Valley in 2000-2020 With a Partial Strategic Programme at Constant 2000 Prices**

| | GGP | | Growth | GGP | | | | Average |
|---|---|---|---|---|---|---|---|---|
| | 1996 | 2000 | 1996-2000 | 2005 | 2010 | 2015 | 2020 | 2000-2020 |
| | | | % | USD'10$^3$ | USD'10$^3$ | USD'10$^3$ | USD'10$^3$ | % |
| **Total** | **652,741** | **818,849** | 5.8 | **1,303,658** | **2,119,845** | **3,523,202** | **5,989,302** | **10.5** |
| Agriculture, livestock, florestry, fisheries & | 281,777 | 345,001 | 7.5 | 495,294 | 711,058 | 1,020,816 | 1,465,513 | 7.5 |
| Mining | 1,214 | 1,062 | 25.0 | 3,241 | 9,890 | 30,182 | 92,108 | 25.0 |
| Manufacturing, Electricit and Water | 48,639 | 94,137 | 15.0 | 189,342 | 380,835 | 765,995 | 1,540,690 | 15.0 |
| Construction | 12,091 | 24,793 | 10.2 | 40,294 | 65,485 | 106,427 | 172,966 | 10.2 |
| Trade | 151,256 | 187,727 | 12.0 | 330,838 | 583,050 | 1,027,534 | 1,810,866 | 12.0 |
| Transport & comum. | 65,155 | 64,344 | 12.0 | 113,396 | 199,843 | 352,192 | 620,683 | 12.0 |
| Restaurants and hotels | 6,800 | 4,027 | 10.0 | 6,486 | 10,446 | 16,824 | 27,095 | 10.0 |
| Other (Financing, Education, Health, | 85,808 | 97,758 | 5.0 | 124,766 | 159,237 | 203,231 | 259,380 | 5.0 |
| Population in Mozambique central region | 6,535 | 7,228 | **2.49%** | 8,170 | 9,263 | 10,477 | 11,846 | |
| Population in the Zambezi Valley | 3,566 | 4021 | **2.39%** | 4,520 | 5,111 | 5,767 | 6,515 | |
| **GGP per capital in Central Region** | **100** | **113** | | **160** | **229** | **336** | **506** | |

**Figure 2.4: Scenario 2 - Projected Zambezi Valley's Economy With a Partial Strategic Programme, 2005-2020**

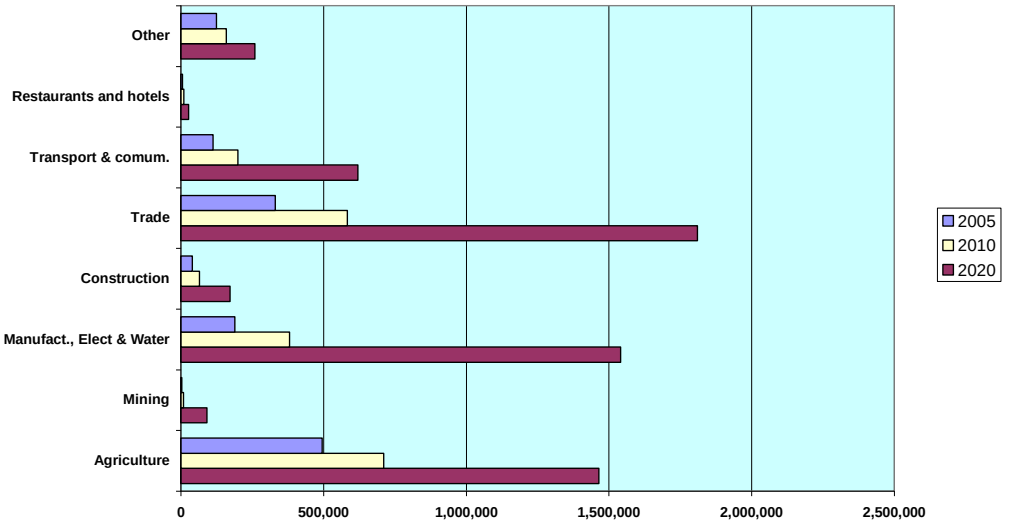
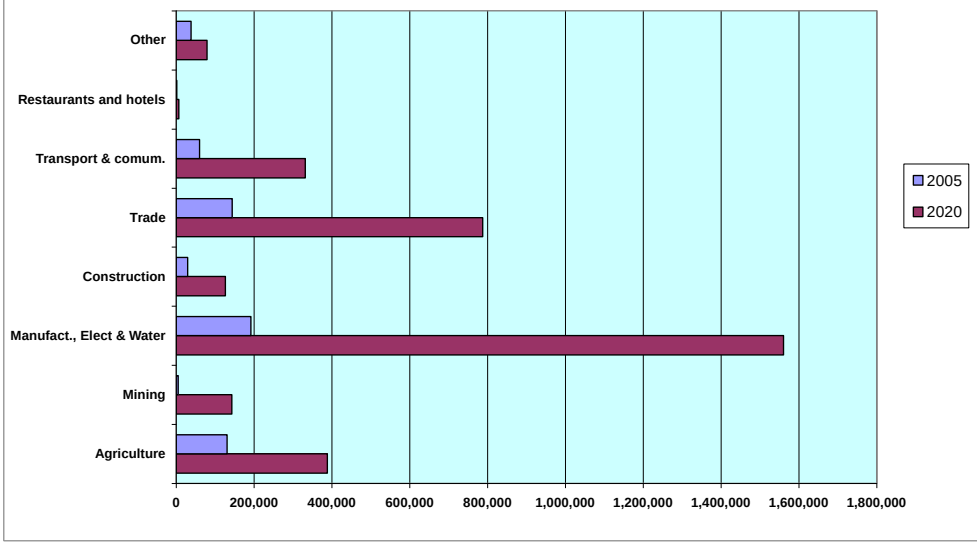





**Figure 2.5: Scenario 2 - Zambezi Valley's GGP Impact as a Result of a Partial Strategic Programme, 2005-2020**



### 2.3.4 Scenario 3: *WITH* a Pro-Active and Comprehensive Programme

Scenario 3 is undoubtedly the one that really depicts a comprehensive and pro-active strategic programme aiming at maximizing the advantages from the natural endowments available in the Zambezi Valley and a healthy and attractive business climate set up over the next decades.

Besides correcting the lop-sided and negative contribution of relevant sectors, Scenario 3 reflects a substantial acceleration of the growth rate drawing upon the Pareto Principle: that in most cases, 80% of production comes from 20% of the producers, the really vital producers.



The contribution to the regional GGP grows rapidly over the projected period and is expected to amount approximately 16% per year over the projection period.

**Table 2.6: Scenario 3 - Projected GGP for the Zambezi Valley With a Pro-Active and Comprehensive ZVSP at Constant 2000 Prices, 2000-2020**

| Sector | GGP in USD $10^3$ | | Growth % | GGP in USD $10^3$ | | | | Average |
|---|---|---|---|---|---|---|---|---|
| | 1996 | 2000 | 1996-2000 | 2005 | 2010 | 2015 | 2020 | 2000-'20 % |
| **Total Gross Geographic Product** | **652,741** | **818,849** | | **1,567,864** | **3,139,729** | **6,639,108** | **15,052,176** | **15.7** |
| Agriculture, livestock, florestry, fisheries & | 281,777 | 345,001 | 9.0 | 530,827 | 816,743 | 1,256,660 | 1,933,528 | 9.0 |
| Mining | 1,214 | 1,062 | 40.0 | 5,711 | 30,717 | 165,203 | 888,503 | 40.0 |
| Manufacturing, Electricit and Water | 48,639 | 94,137 | 17.0 | 206,390 | 452,499 | 992,080 | 2,175,083 | 17.0 |
| Construction | 12,091 | 24,793 | 25.0 | 75,662 | 230,903 | 704,660 | 2,150,450 | 25.0 |
| Trade | 151,256 | 187,727 | 15.0 | 377,585 | 759,459 | 1,527,543 | 3,072,435 | 15.0 |
| Transport & comum. | 65,155 | 64,344 | 20.0 | 160,109 | 398,402 | 991,352 | 2,466,802 | 20.0 |
| Restaurants and hotels | 6,800 | 4,027 | 30.0 | 14,954 | 55,522 | 206,151 | 765,423 | 30.0 |
| Other (Financing, Education, Health, Public | 85,808 | 97,758 | 15.0 | 196,625 | 395,484 | 795,460 | 1,599,953 | 15.0 |
| Population in Mozambique central region | 6,535 | 7,228 | 2.5% | 8,170 | 9,263 | 10,477 | 11,846 | |
| Population in the Zambezi Valley | 3,566 | 4,021 | 2.4% | 4,520 | 5,111 | 5,767 | 6,515 | |
| **GGP per capital in Central Region** | **100** | **113** | | **192** | **339** | **634** | **1271** | |

**Figure 2.6: Scenario 3 - Projected Zambezi Valley's Economy With a Comprehensive Strategic Programme, 2005-2020**

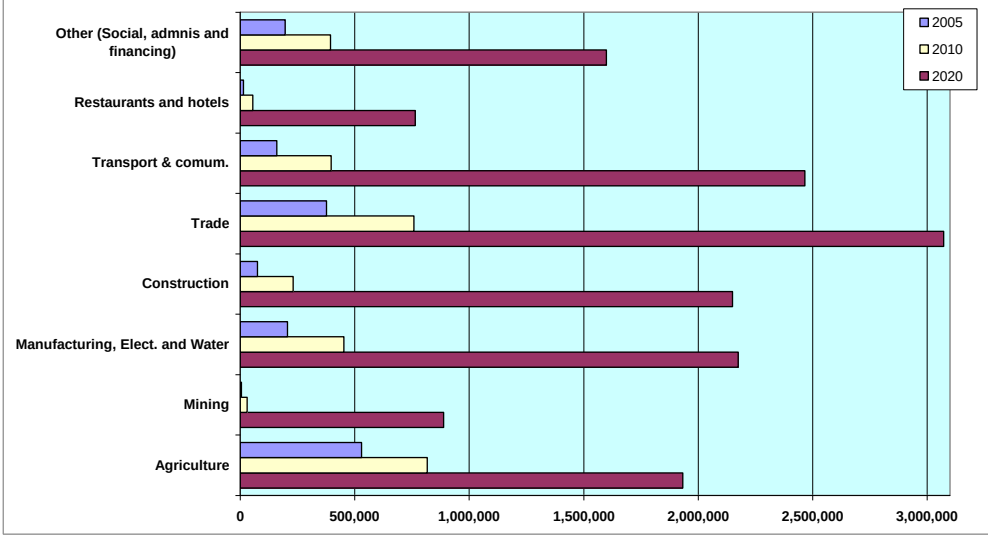
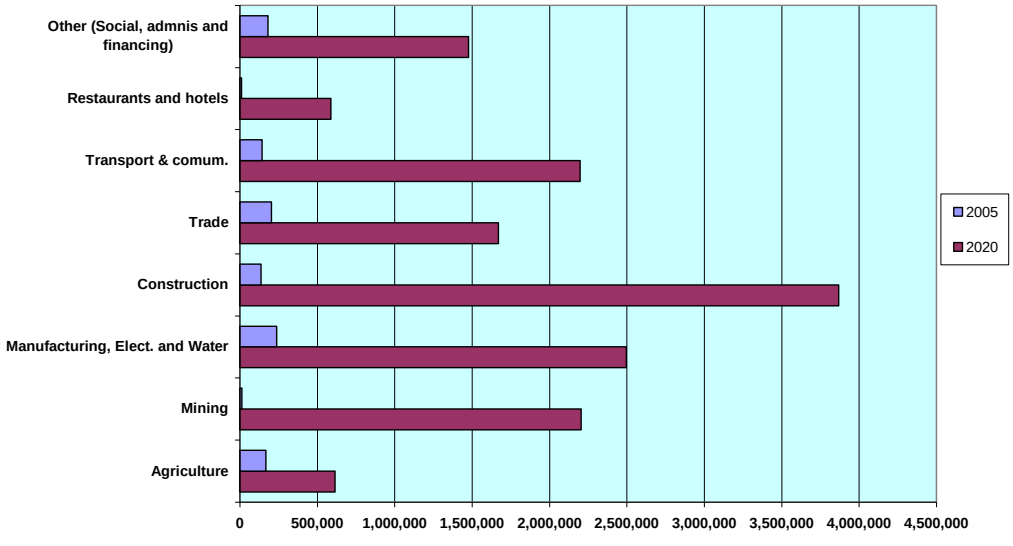



**Figure 2.7: Scenario 3 - Zambezi Valley's GGP Impact as a Result of a Comprehensive Strategic Programme, 2005-2020**






In summing up, o Scenario 3 is the one with the most consistent and suitable economic projection for the fulfilment of the vision outlined in Part I of this document. The likelihood to achieve the targets in Scenario 3 will very much depend on three fundamental determinants:

1. The magnitude of the productive investment, both public and private;
2. The substantial improvement of the institutional environment and business climate, and

3. The level of efficiency and performance of the projects undertaken.

The remaining of this document is focused exactly on issues regarding the strategy implementation, namely on the translation of the strategic focus and framework into more detailed policies that can be understood at the functional level of the organizations involved. The strategy should be translated into specific policies for functional areas, such as:

- Marketing
- Research and development
- Investment promotion and mobilization
- Production
- Human resources
- Information systems



## 2.4 RESOURCE BASE FOR GROWTH AND DEVELOPMENT THROUGH SCENARIO 3

The Zambezi Valley is endowed with a huge variety of resources that once unlocked can lead to a sustainable development. These are related to energy, minerals, agriculture and a variety of good ecological environment conditions for tourism. Such resources can only be transformed into wealth that is into useable and tradable objects with more value added, placed within an adequate macro- economic and micro-economic environment.

### 2.4.1 Energy

**Energy** is probably one of the resources that confer to the Valley a strong comparative advantage. Clean, reliable and cheap energy can

alone constitute an attracting factor for investment that can lead to an industrialization process. The Zambezi River is an excellent source of hydropower due to high runoff combined with a fall of more than 1,000 meters in its course towards the ocean. Likewise, its tributaries have relatively long stretches with weak slopes resulting in low velocities, wide riverbeds and meandering stream channels. Such stretches are often extremely suitable for the construction of reservoirs for hydropower installations, allowing relatively small dams to form large storage with very high volumes of water and little surfaces to cause evaporation. The only existing hydropower plant in Mozambique within the Zambezi River is Cabora Bassa with an installed capacity of 2,075 MW. However, investigations indicate that potential power generation is above 9,000 MW (Appendix).



### 2.4.2 Minerals

A large variety of both metallic and non-metallic minerals occur within the area. The more important of these are: coal, natural gas, rare metals, (niobium-tantalum etc), gold, fluorite, tin, heavy mineral sands and pegmatite minerals. Numerous exploration and evaluation programmes carried out have identified and defined many of the potential mineral deposits.

Early alluvial gold discoveries were made in the Luenha River and its tributaries: Mazoe, Medzi and Cauresi. Evidence of workings have been found in the vicinity of Changara and extend to the Zimbabwe border. Upstream of Changara, pockets of gravel contain up to 0.09 oz/t Au. In the Chiuta and Macanga districts of the Northern Tete Province, several gold deposits occur in gold-quartz veins. Approximately 95 km north of Tete, a small gold vein deposit occurs just north of Cazula.

Other metals include iron occurrences and deposits, magmatic iron skarn and magmatic titanomagnetite deposits. The most important of these deposits seems to be the Monte Muande that occurs approximately 25 km northwest of Tete. The deposit hosts both magnetite and apatite mineralization (magnetite content: 26.9%; apatite content: 9.2%).

Numerous copper and nickel occurrences occur in the Tete Complex located just north of Tete City, the Atchiza Complex, also situated in the Tete Province, just north of the Cabora Bassa dam. The Atchiza Complex holds Cr, Fe, Co, Ti, V, Ni, Au and Platinum Group Element potential.

The Muenguè iron skarn deposit, located approximately 35km southwest of Fingoe in the Tete Province, also hosts copper, while several lead and copper occurrences exist west and northwest of Changara in the Tete Province.

Three Heavy mineral sand deposits occur within the Zambezi Valley. The Micaúne, the Muio and the Deiza deposits are situated approximately 35 to 60km south of Quelimane and in close proximity to Micaúne. The deposits are estimated to hold 2.5 million tonnes in 19 $km^2$ between Micaúne and Deiza. Of the total resource, Ilmenite constitutes approximately 90% and minor concentrations of rutile, zircon and monazite were recorded.



The Zambezi Valley is rich in high quality coal reserves in the Moatize-Minjova and Chicoa-Pangura basins. The Moatize–Minjova basin occurs north of Tete, between the Moatize and the Minjova rivers. This basin includes the Moatize coal mines and several other coal deposits occurring in the Productive Series rocks bordering the Tete Complex and extending to the border with Malawi.

In the Chicoa-Pangura basin, two regions of coal deposits have been recognized, each with specific characteristics: The Mucanha-Vuzi and the Muánzi-Luangua regions. The former comprises coal outcrops of the Mucanha, Bohozi, Massinduè, Vuzi, Mucangádzi and Mecúcoè rivers. The latter includes the coal outcrops of the Sige, Messamba, Morondoè, Luangua and Muánzi rivers.

All diamond occurrences reported in Mozambique are in the Zambezi Valley. Diamondiferous bodies were reportedly discovered in the Zumbo. Two small diamond bearing kimberlite pipes have also been identified at Changara and Guro.

A deposit of dumortierite rich quartzite is to be found near the village of Estima. Currently about 500 tonnes of dumortierite are exported annually at $700 per tonne.

There are huge deposits of building sand at the mouth of the Buzi and Zambezi rivers. Crushed aggregate is another building material widely available in the area.

Granite, gabbro, limestone and clays are widely available as building material in the Zambezi Valley.

Of the industrial minerals, the Zambezi Valley is endowed with nepheline syenite, guano, phosphate, barite, bauxite and fluorite, among others. A number of nepheline syenite are concentrated along the eastern margin of the Rift Valley in the region of the southern Malawian border with Mozambique. These include the Monte Mauzo, Chiperone, Morrumbala and Tumbine massifs. The intrusions occur in the Milange and Morrumbala districts of the Zambézia Province.



The Mauzo Mountain deposit is a large nepheline syenite deposit situated approximately 32km north-northeast of Milange. In addition to nepheline syenite, feldspar and a small resource of bauxite have been recorded to occur.

The Chiperone deposit forms part of the mountain range that straddles the Morrumbala and Milange districts of the Zambézia Province. This deposit includes the following nepheline syenite massifs: Derre, Pandibuè, Muebili, and Conguene. The Derre, Pandibuè and Meubili deposits also contain feldspar, while the Congune deposit hosts a medium-sized resource of the rare earth metals columbite and tantalum as well as zircon and corundum.

The Serra Morrumbala deposit is situated approximately 25 km southwest of Morrumbala.

The Tumbine massif has been classified as a nepheline syenite occurrence and occurs just east of Milanje.

On the western margin of the Rift Valley there are two further deposits. Salambidua lying about 100 km NE of Tete is characterized by a relatively low alumina and higher silica. The Cheneca massif is around 150 km due

north of Salambidua. Some estimates indicate that Mozambique could alone meet world demand for nepheline syenites in the glass and ceramic industries and that the Conguene material is a potential raw material for alumina and other products.

Apatite has been recorded from the carbonatites near Monte Muambe (Tete) and Cone Negose on the banks of the Cabora Bassa dam. In addition, apatite formed by replacement and metasomatism in crystalline limestones has been found at Monte Muande-Monte Fema (Tete).

The Monte Muande deposit lies about 30 km N-W of Tete on the north bank of the Zambezi River. Its extension, Monte Fema, is situated on the river's south bank. The apatite occurs in the marble. The apatite is subordinate to an extensive magnetite deposit. The magnetite is in the form of sills or disseminated in marble while the apatite is more homogenous. According to two sources at Monte Muambe the carbonatite contains up to 2.73% phosphate in apatite. At Cone Negose phosphates occur in several minerals and although the average grade of $P_2O_5$ is in the area of 1-2%, layers of unknown continuity and about 1m thick do occur which may contain 60% apatite.



Barite occurs together with apatite, fluorite, rare earths and niobium at the Cone Negose carbonatite, near the mid-Zambezi rift in central Tete province. A further occurrence is at the Monte Muambe fluorite deposit.

Bauxite occurs at Monte Salambidua in the Tete Province, and Monte Mauzo, Monte Derre (associated with nepheline syenite) and others in the Zambézia Province.

Within the Zambezi Valley, fluorite occurs in hydrothermal deposits either associated with fracture zones in veins and fissures or with alkaline and carbonate magmatic rocks. Blue and yellow fluorite with estimated resources of about 1.1 Mt occur in Mesozoic fractures in association with the rift evolution and in carbonatitic bodies.

A known deposit of fluorite, covering an area of some 2.6 $km^2$ occurs approximately 150 km southwest of Tete on the road to Changara. The deposits contain approximately 65% $CaF_2$, with very low proportions of

Fe and $BaSO_4$. Estimated reserves of the Djanguire deposit are around 700 kt, estimated to a depth of 200 m.

Graphite deposits of the Zambezi Valley have been known in Angónia. The graphite body has a gneiss-like character with distinct foliation, and occurs in lenses and veins up to 3 mm thick. These veins follow the foliation of the rock and have a dip of $45^{o}$. Calculated ore reserves are some 475 000 $m^3$. The Satèmua deposit has a small graphite resource and is considered to be the most important and best known graphite deposit in the region. Graphite is disseminated in laminae and veins of different thicknesses and opencast mining of the deposit is considered feasible. The Nhankar graphite deposit is also small and of the disseminated type. This deposit occurs 14km northwest of Ulonguè.

Outside Angonia graphite occurrences do exist just north of Gorongosa, and three unnamed graphite occurrences approximately 30 to 50km southeast of Guro. The Nhamassonga graphite occurrence occurs approximately 35km northwest of Tete.



Other known minerals in the area are kyanite deposits located in Fingoe, Mavuzi and Tsangano, and magnesitealong the Monte Atchiza north of Cabora Bassa dam.

### 2.4.3 Agriculture

If agriculture is the mainstay of Mozambican economy, than, the Zambezi Valley is the place to lead the Mozambican economy. The combination of climate, soils and topography confers to the Valley an area of over 5.5 million hectares of arable land, making up about 15% of Mozambique's total arable land. Of this, about 2.5 million are thought to have potential for intensive farming. While the majority of the valley's agriculture is rain fed, the total potential of irrigated area is estimated at around 1.5 million hectares, which makes up about 45% of Mozambique's total irrigation potential. The present land use in the Zambezi Valley is summarized on Tables 2.7 to 2.9.

| Table 2.7: Land Use in the Zambezi Valley | | | | | | |
|---|---|---|---|---|---|---|
| **Land Cover Units** | **Area (hectares) per Province** | | | | | |
| | **Manica** | **Sofala** | **Tete** | **Zambézia** | **Total** | **% of Total** |
| Commercial Timber Units | 543.6 | 2131.6 | 4156.8 | 2991.6 | 9823.6 | 42.6 |
| Bare soil | 5.0 | 14.2 | 32.0 | 20.1 | 71.3 | 0.3 |
| Dam Lake | 0 | 0.0 | 233.2 | 0.0 | 233.2 | 1.0 |
| Dry land agric | 29.3 | 90.8 | 472.7 | 899.0 | 1491.7 | 6.5 |
| Grassland | 56.4 | 35.0 | 356.8 | 170.3 | 618.5 | 2.7 |
| Grassland flood | 10.2 | 732.6 | 107.5 | 806.7 | 1657.0 | 7.2 |
| Irrigated agric | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 |
| Lake | 0.0 | 2.9 | 2.3 | 1.6 | 6.8 | 0.0 |
| Low thicket | 18.0 | 0.0 | 199.4 | 901.9 | 1119.4 | 4.9 |
| Mangrove | 0.0 | 27.1 | 0.0 | 118.1 | 145.2 | 0.6 |
| Open thicket | 0.0 | 0.0 | 1512.7 | 0.0 | 1512.7 | 6.6 |
| Plantations | 0.0 | 0.0 | 0.2 | 0.9 | 1.0 | 0.0 |
| Rivers | 0.0 | 12.3 | 0.0 | 11.5 | 23.8 | 0.1 |
| Shrub vegetation | 36.9 | 31.7 | 365.3 | 4.8 | 438.7 | 1.9 |
| Urban & settlements | 0.0 | 1.0 | 0.0 | 2.1 | 3.1 | 0.0 |
| Wooded grassland | 1882.9 | 1009.0 | 2614.0 | 424.4 | 5930.4 | 25.7 |
| **TOTAL** | **2,582.4** | **4,088.2** | **10,052.9** | **6,353.0** | **23,076.5** | **100.0** |



A general increase in agricultural production is taking place in the area as communities re-establish themselves after the war and the economy begins to function more effectively. At present, most production is undertaken for subsistence purposes with little trade occurring out of the area owing to low levels of production, limited infrastructure as well as low demand. Low demand is a function of low-income levels in the country and lack of processing capacity to utilize the food and industrial products that are produced.

New projects being implemented on a significant scale include those associated mainly with the sugar and cotton sectors. The largest development taking place is the re-establishment of sugar production at Marromeu by Sena Sugar, with a total investment of at least US$ 110 million. Cotton production is being increased by a number of cotton companies. Production areas and programmes of involving small-scale farmers are being increased, and upgrading of gins and processing capacities is being undertaken. Upgrading in the coconut sector is taking place by improving plantations and laying down plans for the

development of a desiccated coconut and oil plant. The old rice schemes in Zambézia have been earmarked for upgrading by the Ministry of Agriculture. Likewise, the tea estates remain to be upgraded and some low level upgrading has already occurred.

In the case of livestock, a number of development programmes are underway to restock the area with cattle and goats and increase production. Pig and poultry production is being increased within the family sector, with some commercial production taking place near major towns and cities.

**Table 2.8: Area under Crop Production in 2000-2001 Harvest and Potential Highly Suitable and Suitable Areas for Crop Production in the Zambezi Valley Area**

| | Total Area (ha) | Total Production (t) | % of area under cultivation | Area (ha) highly suitable and suitable for crop production | % area suitable highly suitable for crop production in the SDI area |
|---|---|---|---|---|---|
| Maize | 389,056 | 372,777 | 1.72 | 11,872,300 | 49 |
| Sorghum | 147,481 | 86,624 | 0.65 | 9,214,600 | 40 |
| Rice | 93,276 | 105,036 | 0.41 | 2,084,500 | 9 |
| Millet | 52,091 | 30,398 | 0.23 | 13,627,300 | 60 |
| Beans | 87,367 | 37,784 | 0.39 | | |
| Groundnuts | 41,376 | 19,016 | 0.18 | 13,808,400 | 61 |
| Cassava | 189,771 | 1,114,597 | 0.84 | 1,620,600 | 7 |
| Temperate Fruit | N/A | | | 121,100 | 0.54 |
| Total | **1,000,418** | **1,766,232** | **4.43** | | |



**Table 2.9: Areas for Various Crops According to Land**

| SUITABILITY CLASSES | Very suitable | | Suitable | | Moderately suitable | | Marginally suitable | | Not suitable | |
|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCTS | Area (ha, 1000) | % | Area (ha, 1000) | % | Area (ha, 1000) | % | Area (ha, 1000) | % | Area (ha, 1000) | % |
| Maize | 733 | 3 | 10,406 | 46 | 10,785 | 48 | 509 | 2 | 132 | 1 |
| Cassava | 0 | 0 | 1,621 | 7 | 7,088 | 31 | 0 | 0 | 13,857 | 61 |
| Sorghum | 3,697 | 16 | 5,518 | 24 | 4,692 | 21 | 7,366 | 33 | 1,292 | 6 |
| Cotton | 0 | 0 | 10,721 | 48 | 6,120 | 27 | 0 | 0 | 5,724 | 25 |
| Temperate Fruits | 0 | 0 | 72 | 0 | 1,584 | 7 | 0 | 0 | 20,860 | 93 |
| Millet | 4,320 | 19 | 9,308 | 41 | 5,134 | 23 | 3,598 | 16 | 205 | 1 |
| Rice | 2,085 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 20,481 | 91 |
| Groundnut | 3,266 | 14 | 10,542 | 47 | 4,944 | 22 | 2,965 | 13 | 848 | 4 |

The total timber production potential of the region is estimated at 187,2x1000-$m^3$ per annum. Excluding conservation areas, the available timber in the region is estimated at 150.0x1000-$m^3$ p.a. Despite large forest areas in the Tete Province, the most commercially valuable timber species and best yields can be found in the Sofala and Zambezia Provinces. Forest activities consist of timber exploitation and fuel-wood harvesting.

Upgrading of the commercial extraction and processing of timber within and adjacent to the Basin Area has recently been completed. This involved investments of some US$205 million over the period 1996 to 2000. Investment has been made in logging equipment and machinery, transportation equipment, sawing machinery and infrastructures.

Limited wildlife based tourism development is presently being undertaken on a large scale. Projects underway include the following the Gorongosa National Park, Tchuma Tchato community based natural resource management, Coutadas (controlled hunting areas) 6, 7, 9 (Manica Province), 13 and 15 (Sofala).Agriculture in the Zambezi area contributes 68% to local GDP 23% to the national output. It employs about 75% of the population of the valley, thus ranking number 1 in the economy of the area.



## 2.5 INSTITUTIONAL AND BUSINESS FRAMEWORK

### 2.5.1 The Investment's environment in the Zambezi Valley

It seems to be paradoxical that the Zambezi Valley houses a huge potential for growth and development, yet still continues the poorest area of Mozambique. Several historical, structural and conjectural problems are associated with this situation. Nowadays, the main bottlenecks for development arise from existing physical and non-physical barriers. Physical barriers are related to lack of transport and communication infrastructures. Even the infrastructure that were in place few years ago such as the Sena Railway, the primary and tertiary road network, have been destroyed by the war and are not operational today. Non-physical

barriers related to human capacity and skills that translate in low administration capacity.

**Table 2.10: SWOT Analysis: Key Factors in the Mozambican Investment Climate**

| Strengths | Opportunities |
|---|---|
| ▪ One of the fastest growing economies in the sub-Saharan Africa with a high average growth (up to 10 per cent) over the last 5 years; | ▪ Infrastructure development, including power generation, water development management, rail and air transport, and telecommunication; |
| ▪ Relative political stability; | ▪ Wide range of natural resources available; |
| ▪ Government commitment a business-friendly economic environment; | ▪ A variety of unexplored mineral deposits including petroleum and heavy sands; |
| ▪ Access to a potentially significant regional market | ▪ The AGOA and EBAS initiatives |
| ▪ | ▪ The revitalization of GPZ |
| **Weaknesses** | **Threats** |
| ▪ Poor physical infrastructure, especially in the south-north direction; | ▪ Tensions between the two main political parties, deriving from their history of civil war |
| ▪ Weak institutions of private property | ▪ HIV/AIDS epidemic and its impact on the availability and productivity of labour; |
| ▪ A lack of skilled and technically trained labour; | ▪ Political instability in neighbour countries and the sub-continent, which direct or indirectly affect the regional investment climate; |
| ▪ Weak and non-transparent administration, especially as regards land rights; | ▪ |
| ▪ Low productivity of the labour force due to illiteracy and lack of professional skills; | ▪ |
| ▪ Strong dependency on international resources, both for public and private investments; | ▪ |
| ▪ High level of vulnerability to natural disasters, including droughts and floods. | ▪ |

Source: GPZ, 2004; UNCTAD, 2001: 29.



The human capacity is worsened by limited access to health, education and training. As far as health is concerned HIV is a huge threat to the development of the Valley. Pure sectoral planning in line with

Government Ministries with little consideration in integrating planning constitutes an institutional weakness that dilutes the responsibilities of GPZ and creates space for gap and duplication.

### 2.5.2 Hurdles of setting up a new business in Mozambique

If the macro-economic conditions are friendly for investment in Mozambique, the same cannot be said for the micro-economic situation. Indeed, while the macro-economic framework in Mozambique still needs strengthening and consolidation, and in some case even improvement, the business culture at the micro-level environment demands radical changes and upgrading.

This is crucial, as far as the sustainability of economic growth is concerned. While in the short-run mega-projects, which enjoy special facilities and conditions, make up for the bottlenecks and difficulties medium and small enterprises face, in the long run the latter are the ones which will determine the nature and quality of economic growth. The business environment in Mozambique is far from effective, satisfactory or even friendly.



A recent World Bank (2004) report entitled, Doing Business in 2004: Understanding Regulation, shows data on over 130 countries, in which Mozambique does not fair well. The report provides perhaps the most comprehensive and updated international quantitative comparison on business regulations, drawing upon assessments of each country's laws and regulations, with input from local experts who assist entrepreneurs with starting and closing businesses, hiring and firing workers, enforcing contracts, and securing credit.

While in some economies the process of starting a business is straightforward and affordable, in others, including Mozambique, the procedures are so burdensome that entrepreneurs have often hesitate between giving up, bribing officials to speed up the process, or yet simply try to run the business informally and at the margin of the official setting. According to the report, Mozambique takes 153 days to register a new business, being ranked between Brazil and Indonesia, but among the worst out of 113 countries. Worse than these three countries there were only five countries: Lao PDR, Haiti, Congo democratic, Burundi and Central African Republic (see Table??).

On the other end of the scale, a new business takes two to four days in Australia, Canada, New Zealand, Denmark and the United States to open, which are the most efficient countries in the world.

***Table 2.11: Procedures to start a business***

Because of the draw, the 133 country include in the survey have been reclassified in 78 positions. Mozambique is ranked 5º from the bottom between Brazil and Indonesia.

| Ranking | Country | Duration (Days) |
|---|---|---|
| 1º | Australia | 2 |
| 2º | Canada | 3 |
| | New Zealand | 3 |
| 3º | Denmark | 4 |
| | United States | 4 |
| 4º | Porto Rico | 6 |
| 5º | Singapore | 8 |
| 6º | Hong Kong | 11 |
| | Leetonia | 11 |
| | Holland | 11 |
| 7º | Ireland | 12 |
| 8º | Swedish | 16 |
| 9º | England | 18 |
| 10º | Panama | 19 |
| 27º | South Africa | 38 |
| 63º | Botswana | 97 |
| 73º | Brazil | 152 |
| 74º | **Mozambique** | **153** |
| 75º | Indonesia | 168 |
| 78º | Congo, Dem. Rep. | 215 |

*Source: **World Bank.** **Doing Business 2004***

Moreover, in Mozambique there are fifteen procedures that must be undertaken to register a business, much more than South Africa and Lesotho (with nine) and Botswana (ten).

When it came to enforcing business contracts, Mozambique remains very inefficient, taking an average of 540 days (one year and half) to go through the legal process, while in Tunisia it takes 27 days only.

**Table 2.12: Contract enforcement**

| Ranking | Country | Duration (Days) |
|---|---|---|
| **1º** | Tunisia | 7 |
| **2º** | Holland | 39 |
| **3º** | Nova Zealand | 50 |
| | Singapore | 50 |
| **4º** | Botswana | 56 |
| **5º** | Japan | 60 |
| **6º** | Armenia | 65 |
| **7º** | Lithuania | 74 |
| **8º** | South Korea | 75 |
| **9º** | Haiti | 76 |
| **10º** | Denmark | 83 |
| **77º** | Colombia | 527 |
| 78º | Mozambique | 540 |
| **92º** | Guatemala | 1460 |

***Source:*** *World Bank.* Doing Business 2004

Mozambique also scores rather unfavourably in the employment laws index, with 74 points. The index takes an average of three indices - flexibility of hiring, conditions of employment, and flexibility of firing - and assigns a value between 0 and 100, with higher values indicating greater regulation.[9]

Credit information systems have credit histories on almost every adult in New Zealand, Norway, and the United States, but cover less than 1 percent of the population of Mozambique, China, Nigeria, and Pakistan.



***Table 2.13: Labour regulations***

| Ranking | Country | Index |
|---|---|---|
| 1º | Singapore | 20 |
| 2º | United Estates | 22 |
| 3º | Denmark | 25 |
| | Malaysia | 25 |
| 4º | Nova Guinea | 26 |
| 5º | Hong Kong | 27 |
| | Zimbabwe | 27 |
| 6º | England | 28 |
| 7º | Austria | 30 |
| 8º | Nova Zealand | 32 |
| 9º | Canada | 34 |
| | Jamaica | 34 |
| | Kenya | 34 |
| 10º | Botswana | 35 |
| | Ghana | 35 |
| 11º | South Africa | 36 |
| **45º** | **Mozambique** | **74** |
| 46º | Venezuela | 75 |
| 47º | Belarus | 77 |
| | Mexico | |
| 48º | Angola | 78 |
| | Brazil | |
| 49º | Portugal | 79 |
| | Panama | |

***Source: World Bank.*** **Doing Business 2004**

While in Denmark, one pays nothing to start a business, in Mozambique an investor pays almost the correspondent to the average income per capita. This evidence confirms, now more precisely and quantitatively, the widespread perception that poor countries regulate business the most, and their regulation are rather cumbersome for all aspects of business activity.

In short, the survey found that poor

[9] Singapore was the least regulated country in respect of employment legislation, with 20 points, followed by the United States (22 points), Denmark (25) and Malaysia (25). Zimbabwe scored 27 points.

countries tend to regulate business the most, and that "heavier regulation typically brings bad outcomes". Cumbersome regulation, the report finds, is associated with greater inefficiency in public institutions, longer delays and higher costs, and often results in higher unemployment, increased corruption and less productivity and investment. Overall, poorer countries such as Mozambique and Burkina Faso regulated business the most, while wealthier ones, including Australia, Canada, the Netherlands and the UK,

regulated the least.

### 2.5.3 Regional differences in setting up a new business



The data mentioned refer to Mozambique as a whole correspond to average national aggregates and are not disaggregated by main regions or provinces. However, such data are consistent with for instance the CTA's study entitled *Mozambique Industrial Performance and Climate Assessment 2002* (Nasir et al., 2002)

This study provides data on the marked regional differences. As Nasir et al. (2002: 39) point out:

> There are marked differences between the business conditions of the different regions in Mozambique. Because of the long distances, the underdeveloped transportation network, and strong provincial governments, the north, south and center of the country can be viewed as distinct economic environment. Regional trade patterns reinforce these differences, with the natural trade routes in the south running from Maputo to South Africa; in the center from Beira through Chimoio to Zimbabwe; and in the north from Nacal to Nampula and to Malawi (Nasir et al., 2002: 39)

To understand the regional differences and how their local investment climate may differ, Nasir et al.'s included firms in all three of the major regions. The survey appears to provide data that justify the reputation of the central region, and Sofala province in particular, for being a less business-friendly environment and for suffering from a higher level of bureaucratic burden. By many measures, Nasir et al.' study assert, the

center seems to suffer more from overly bureaucratic business regulation than either the north or the Maputo regions. Central region companies reported that it took an average of 215 days to register, but the median time was only slightly higher than reported in the other regions. In the north and the center, a few companies reported that it took almost two years to register, but in the Maputo area no firm reported more than a year. As Table 2.14 shows, the average number of permits required to open a business was also reported to be higher in the center than in the north or Maputo.

**Table 2.14: Days to Register and Required Permits by Region in Mozambique, 2002**

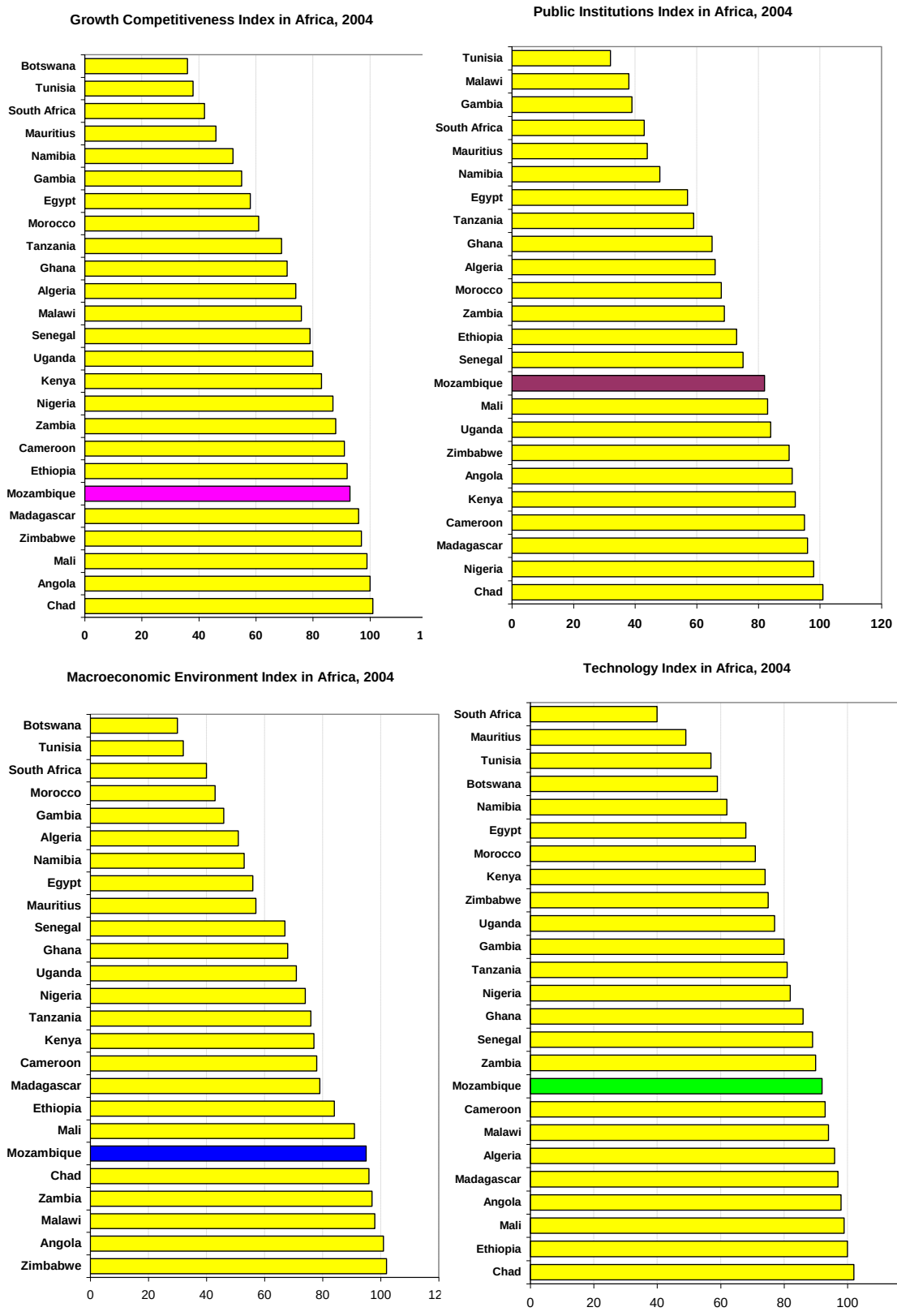
| | Mozambique | Maputo | Center | North |
|---|---|---|---|---|
| **Days to register a new company** | | | | |
| Mean | 167 | 172 | 215 | 167 |
| Median | 137 | 141 | 165 | 103 |
| **Nº of permits required to open** | | | | |
| Mean | 2.4 | 2 | 3 | 1.3 |
| Median | 1 | 1.5 | 3 | 1 |

**Source:** CTA/RPED Survey 2002



The above scores and international classifications, like usually any international or regional classification, may be questioned because of their statistical biases or subjective operational definitions, or even the value judgements inherent to them. In any case, the indicators and indexes that form, for instance the economic freedom index (EFI) or employment laws index, synthesise and capture important aspects of business activity; in many cases, they find empirical testimony in the day-to-day economic life, in this case in Mozambique or in the Zambezi Valley, in particular. The following set of four graphs published in the 2004 report on competitiveness in Africa and recently made public at the World Economic Forum held in Maputo City illustrate the difficulties associated with investing in Mozambique..

**Figure 2.8: Mozambique in the Context of Afica's Economic Competitiveness in Africa, 2004**



## 2.6 Institutional and Business Climate Improvement

The sizable investment foreseen applied in areas likely to generate the best results, particular more value added or wealth is a necessary but not sufficient condition for the development of the ZV. Indeed, if the institutional environment and business climate in country as in general, and the center or ZV in particular, it is unlikely that the ZV will gather the investment underlining the economic growth projected in Scenario 3.

Some indicators on the current microeconomic condition in Mozambique have already been highlighted above, including the areas in much need to be converted into favourable factors for economic growth. For instance, the index of economic freedom (IEF) referred above testifies the improvement of the macroeconomic environment for investment over the past decade. However, when such an improvement is placed into the wider regional (compared to Botwana, South Africa and Mauritius) and international (compared to Hong Kong, Singapore and New Zealand) it is possible to notice better, as Figures 2.9 and 2.10 illustrate, that the there is a long way to go to achieving a more widespread, robust and stable economic freedom in the country.



**Figure 2.9: Index of Economic Freedom for Selected Countries, 1995-2004**

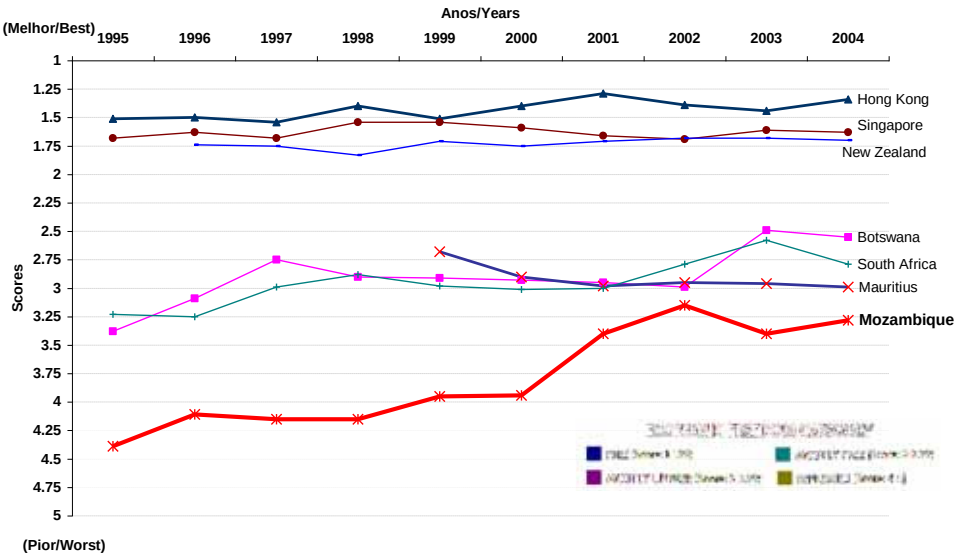
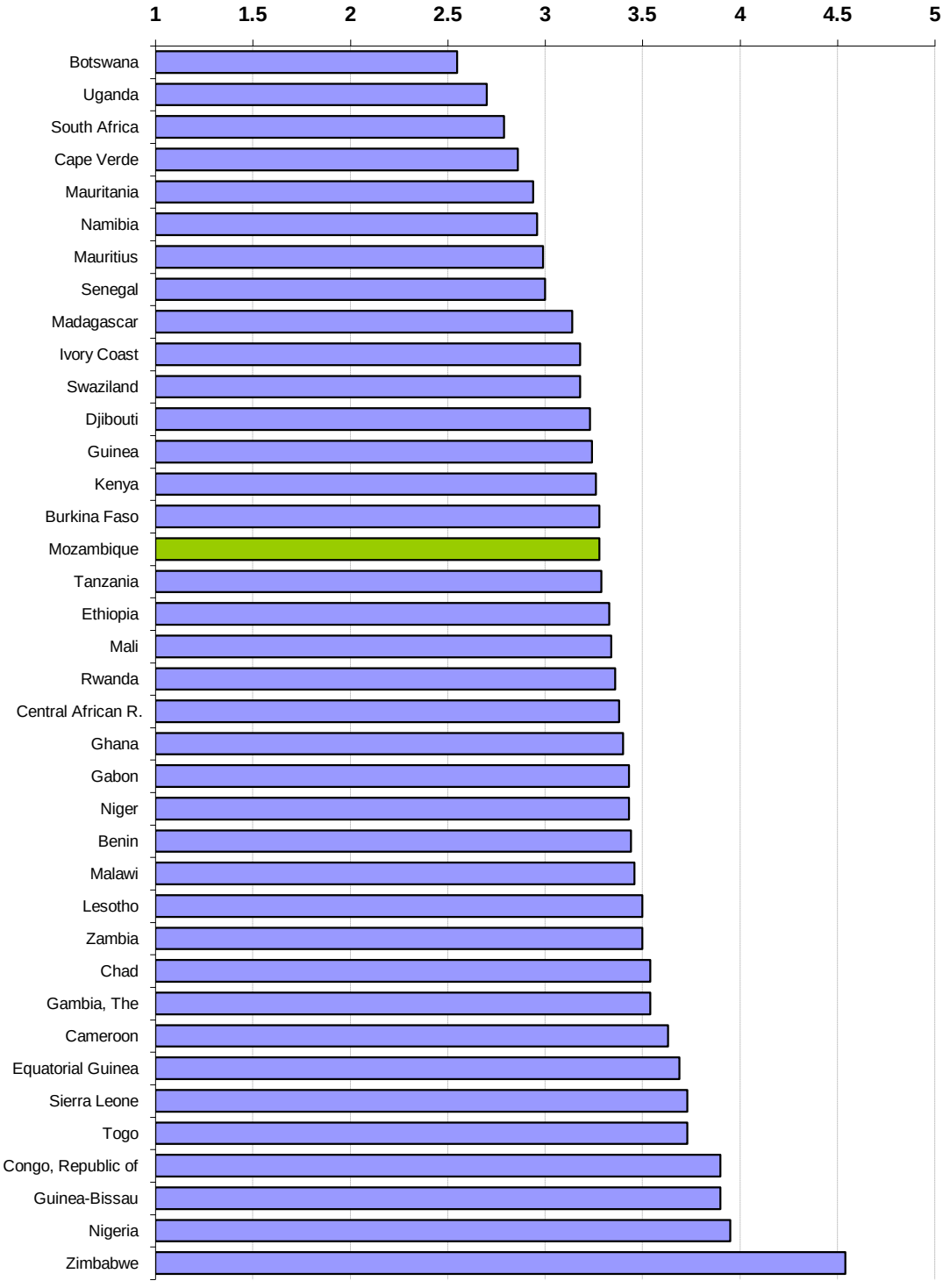


**Figure 2.10: Index of Economic Freedom in Sub-Sahara Africa in 2004**






Between 1995 and 1998 the economy of Mozambique was classified as "repressed", while from 1999 has been classified as "mostly unfree". This is due chiefly to its high level of regulation, informal market activity and

protectionism e certain areas of trade policy, as well as low level of property rights.

Now, just as in the case of the projection simulated above for economic growth until the year 2020, it seems useful that a strategic programme such this complements its forecast and ex-ante assessment of the desirable arrival point needed for the magnitude of investment aspired in Scenario 3. For the time being the simulations are based on the aggregated data at national level, but in the next future the result of more in-depth research should allow for disaggregated and detailed scenarios specifically for the ZV.

Table 2.15 and Figure 2.11 summarize the result of the simulations[10], which foresee the following:

1. Mozambique will continue to improve its economic freedom and by the year 2010 can be expected to move from a "mostly unfree" to a "mostly free" economy. This can be achieved in a variety of ways through the 10 aggregated variables comprising the IEF, but the overall target proposed is to improve the IEF from 0.48 in 2004 to about 2.85 in 2010, by improving the institutional framework of the ZV as discussed below.



2. As can be seen in Table 2.15 the economic freedom improvement does not need to be understood as complete withdrawal or no government intervention. For instance, the fact that the score of government intervention in Botswana and Mauritius is higher than the one of Mozambique does not prevent them from being more economically free.

3. The improvement of economic freedom is expected to continue and by the year 2020 Mozambique should be placed at the threshold between "mostly unfree" and "free".

[10] Details can be provided by the consultants involved in the preparation of this document.

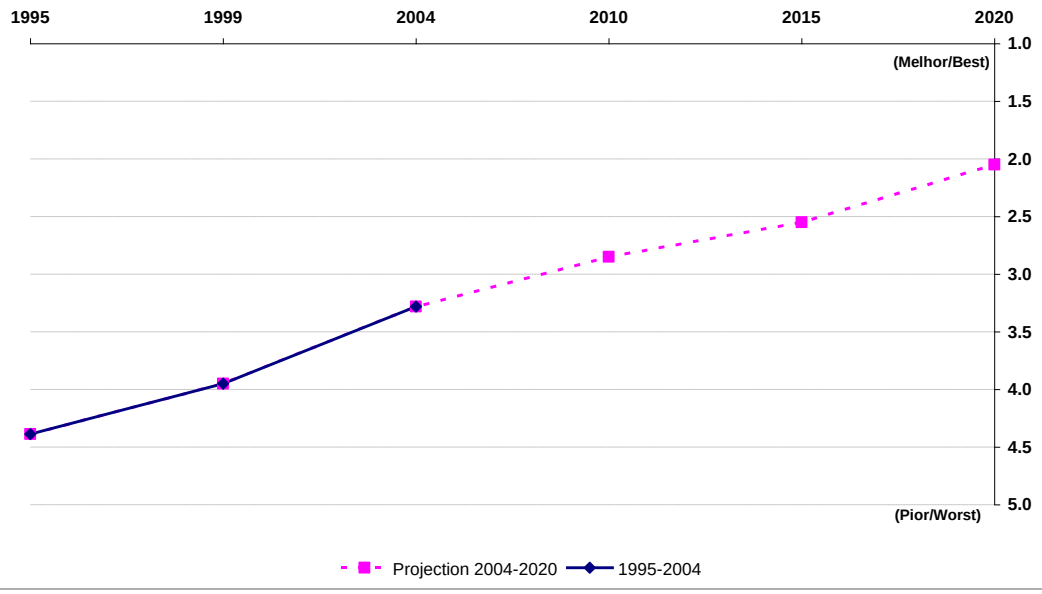
**Table 2.15: Desired Improvement in the Index of Economic Freedom in Mozambique and the ZV Between 2004 and 2020**

| | Past Trend of the IEF, 1995-2004 | | | | | Projected Improvement of the Index of Economic Freedom, 2004-2020 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | 1995 | 1999 | 2004 | 1995-2004 Change | | 2010 | Evolution 2004-2 | | 2015 | | 2020 | |
| | Repressed | Mostly Unfree | | Scores | % | | | % | | | | |
| | 4.39 | 3.95 | **3.28** | -1.1 | **34%** | 2.85 | -0.43 | **15%** | 2.55 | | 2.05 | |
| Trade | 5.0 | 3.0 | **4.0** | -1.0 | **25%** | 3.5 | -0.5 | **14%** | 3.0 | 33% | 2.5 | 60% |
| Fiscal Burden | 3.9 | 3.5 | **3.8** | -0.1 | **2%** | 3.5 | -0.3 | **9%** | 3.0 | 27% | 2.5 | 52% |
| Gov't Intervention | 5.0 | 4.0 | **2.0** | -3.0 | **150%** | 2.5 | 0.5 | **-20%** | 3.0 | -33% | 3.0 | -33% |
| Monetary Policy | 5.0 | 5.0 | **4.0** | -1.0 | **25%** | 3.0 | -1.0 | **33%** | 3.0 | 33% | 1.5 | 167% |
| Foreign Investment | 4.0 | 4.0 | **2.0** | -2.0 | **100%** | 2.0 | 0.0 | **0%** | 2.0 | 0% | 1.5 | 33% |
| Banking | 4.0 | 3.0 | **2.0** | -2.0 | **100%** | 2.0 | 0.0 | **0%** | 2.0 | 0% | 1.5 | 33% |
| Wages & Prices | 4.0 | 3.0 | **3.0** | -1.0 | **33%** | 2.5 | -0.5 | **20%** | 2.0 | 50% | 2.0 | 50% |
| Property Rights | 4.0 | 4.0 | **4.0** | 0.0 | **0%** | 3.0 | -1.0 | **33%** | 2.5 | 60% | 2.0 | 100% |
| Regulation | 4.0 | 5.0 | **4.0** | 0.0 | **0%** | 3.0 | -1.0 | **33%** | 2.5 | 60% | 2.0 | 100% |
| Informal Market | 5.0 | 5.0 | **4.0** | -1.0 | **25%** | 3.0 | -1.0 | **33%** | 2.5 | 60% | 2.0 | 100% |

ECONOMIC FREEDOM CATEGORY
FREE (Score: 1-1.99) | MOSTLY FREE (Score: 2-2.99)
MOSTLY UNFREE (Score: 3-3.99) | REPRESSED (Score: 4-5)



**Figure 2.11: Required Reforms Towards an Increasing Economic Freedom, 2004-2020**



# PART III:

# THE

# STRATEGIC

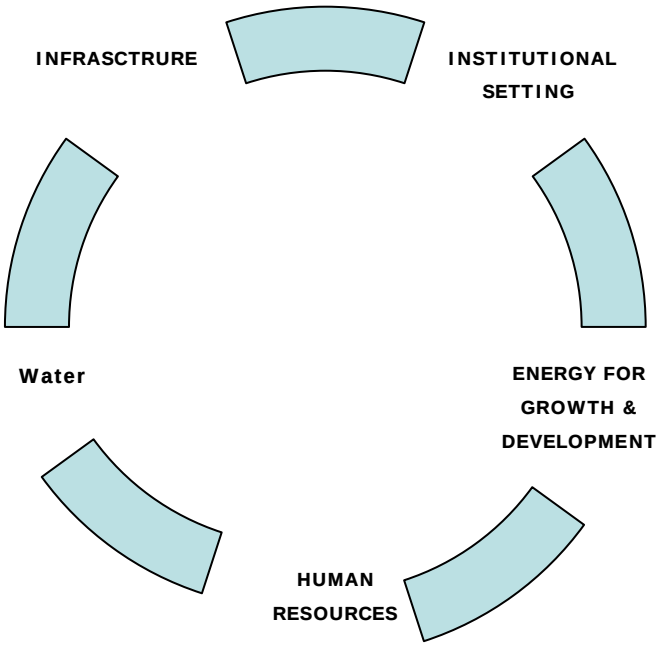
# DYNAMICS

# 3 PILLARS FOR THE DEVELOPMENT STRATEGY

Input costs drive competitiveness, for they impact on all economic activities across the economy. As discussed above the Zambezi Valley possesses some of the basic resources that should be firmly within the ambit of the state's priorities, as these sectors will enable private investment to undertake business opportunities created in mining and mineral beneficiation, agriculture and tourism. To ensure greater access to these resources there is a need to add critical inputs such as infrastructure, human resources and institutional setting. The combination of these will bring the cost competitiveness and efficiency of services and business development.



**Figure 3.1: Prioritising Growth and Input Sectors**



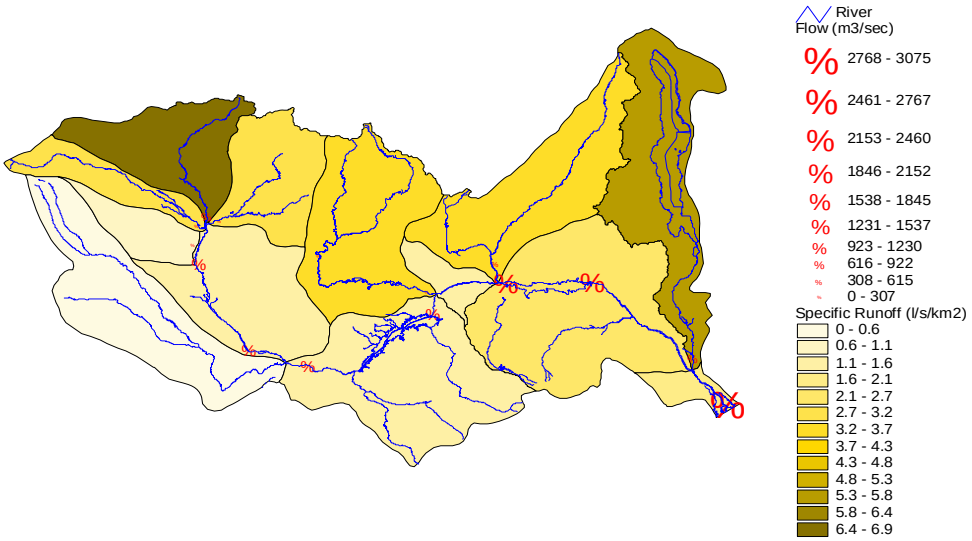
## 3.1 WATER

One of the most important asset of the Zambezi Valley is water. The ZACPLAN Report divides the Zambezi River in sub-basin and on the Table bellow depicts the key hydrological parameters derived from water balances for the individual sub-basins and representing mean annual conditions. The overall runoff condition for the Zambezi River Basin under annual mean conditions is shown on subsequent Figs. These figure show the runoff from the catchments areas and the discharge of the Zambezi in key gauging station locations along the Zambezi River at which data have been available.

**Table 3.1: Runoff and flow characteristics in Zambezi River.**

| Sub-basin | Name | Area | Rainfall | Potential Evapo-ration | Run off | Actual Evapo-ration | Runoff Ratio | Specific runoff | Outflow | Acc flow |
|---|---|---|---|---|---|---|---|---|---|---|
| | | km2 | mm | mm | mm | mm | | l/s/km2 | km3 | km3 |
| 1-13 | Kabompo River | 78,942 | 1209 | 1337 | 98 | 1111 | 0.08 | 3.11 | 7.74 | 7.74 |
| 1-12 | Upper Zambezi | 91,267 | 1165 | 1410 | 218 | 947 | 0.19 | 6.90 | 19.90 | 27.63 |
| 1-11 | Lungue Bungo River | 44,368 | 1181 | 1472 | 95 | 1086 | 0.08 | 3.00 | 4.20 | 31.83 |
| 1-10 | Luanginga River | 35,895 | 1125 | 1666 | 35 | 1090 | 0.03 | 1.10 | 1.26 | 33.09 |
| 1-09 | Barotse (upstream Katima Mulilo) | 84,260 | 835 | 1578 | 41 | 794 | 0.05 | 1.31 | 3.49 | 36.58 |
| 1-08 | Cuando/Chobe River | 148,993 | 704 | 1599 | 1 | 703 | 0.00 | 0.03 | 0.14 | 36.72 |
| 1-06 | Kariba | 167,527 | 653 | 1780 | 40 | 613 | 0.06 | 1.25 | 6.62 | 39.25 |
| 1-07 | Kafue River (Hook Bridge) | 95,053 | 1011 | 1523 | 113 | 898 | 0.11 | 3.59 | 10.77 | |
| 1-07 | Kafue River(Total) | 141,000 | 1011 | 1523 | | | | 1.99 | 8.83 | 48.08 |
| 1-04 | Mupata | 23,483 | 724 | 1798 | | | 0.00 | 1.25 | 2.00 | 50.08 |
| 1-05 | Luangwa River | 139,683 | 968 | 1555 | 117 | 851 | 0.12 | 3.71 | 16.34 | 66.42 |
| 1-02 | Tete (Cahora bassa) | 59,310 | 796 | 1643 | | 796 | | | 0.00 | 65.21 |
| 1-02 | Tete | 141,595 | 796 | 1643 | | 796 | 0.00 | 2.30 | 10.27 | 75.48 |
| 1-03 | Shire/Lake Malawi | 149,031 | 1191 | 1436 | 135 | 1056 | 0.11 | 5.13 | 20.12 | 95.60 |
| 1-01 | Zambezi Delta | 18,116 | 1074 | 1652 | | | | 2.00 | 1.14 | 96.74 |

**Zambezi Basin: Runoff and Flow Characteristics**






When seen from the Mozambican side, Zambezi water resources are considered from the confluence with Luanguwa River to the confluence with the Shire River, covering an area of approximately 200,000 km$^2$ with a number of major tributaries, in particular on the southern side of the river. This includes the 2,500 km$^2$ large Cahora Bassa reservoir, which influences the flow regime in the lower section of Zambezi River. Based on ZACPLAN report it is assumed that the specific runoff from the catchments areas is approximately 2.3 l/sec/km$^2$ contributing with a flow of 10.3 km$^3$ in the Zambezi River downstream of Cahora Bassa. From the Shire River to Lake Niassa the basin is broadly divided into two distinct parts, the part of the sub-basin draining into Lake Niassa with a catchments area of 98,000 km$^2$, and the Shire River sub-basin downstream of the lake until the confluence with Zambezi River with an area of 23,000 km$^2$.

Lake Malawi itself covers an area of 28,000 km$^2$ and is the third largest freshwater lake in Africa. It is used for many purposes including navigation, lakeshore water supply, irrigation, fishery, recreation and hydropower generation.

The runoff from the Shire River sub-basin has been determined from two gauging stations:

- Shire River at Liwonde (the catchments area downstream of the lake is 3,700 $km^2$);
- Shire River at Chiromo (the catchments area downstream of the lake is 18,300 $km^2$);

With a long-term annual mean runoff of 546 $m^3$/sec and 467 $m^3$/sec at Chiromo and Liwonde respectively. This yields a specific annual runoff of 5.41 l/s/$km^2$. The mean annual rainfall is 900 mm, which gives a runoff ratio of 0.28 and a mean annual actual evapotranspiration of 729 mm. Because of the location downstream of Lake Niassa, the seasonal variation in mean monthly flow is small, but the discharge from Lake Niassa can vary significantly.

The quantity and quality of the water resources occurring in the surface and subsurface systems depend basically on the natural features and climatic conditions in the catchments areas. It is estimated that the average annual rainfall in the Zambezi River Basin is in the order of 1,200 $km^3$ of which nearly 1,100 $km^3$ returns back to the atmosphere by evaporation and evapo-transpiration. 8-10 % is therefore available for usage. The available water if used rationally can assist in the development of the Valley in:



- Urban and rural domestic water supply;
- Industrial water use;
- Agriculture, fisheries etc.;
- Hydropower;
- Navigation;
- Wildlife, recreation and tourism

These demands will vary with location, level of development and during seasons. This document will concentrate at this stage with usage for agriculture and energy generation. However, the balanced use of water has to be analysed further in order to avoid conflicts and sustains its use over time while keeping it within ecologically accepted standards.

### 3.1.1 Water for Energy

Growth can be accelerated in the Zambezi Valley if the needed "ingredients" are put in place. Energy is one of the basic factors for development and the Zambezi Valley. The already known sites and

projects for power generation are summarized on the table bellow. Energy interventions should address two issues: (a) unlocking the potential by investing in generation and distribution, and (b) appropriate policies and incentives.[11]

**Table3.2: Energy, Generation and Distribution**

(in Million USD)

| | |
|---|---|
| CABORA BASSA NORTH | 340 |
| MEPENDA UNCUA | 755 |
| COAL FIRED POWER STATION | 827 |
| ROVUBUE MULTIP DAM | 105 |
| **TOTAL** | **2,027** |



### 3.1.2 Unlocking the Energy Potential

The process of unlocking the potential is under way although at slow pace. It includes the construction of the second phase of Cabora Bassa (known as Cabora Bassa North), Mpenda Uncua and Moatize Coal Fired Power Station. For all these three ventures, studies have been conducted, lack of funds is the main bottleneck. The visible way to de-bottleneck shortage of funds is partnership between selected SADC countries that rely on Zambezi River for Energy, namely South Africa, Malawi, Zimbabwe, Tanzania and Zambia. However, most of these countries are also short in financing capacity. Thus, the partnership should be extended to the private sector that is either in energy business as such or is involved in high intensive energy utilization. These include the manifested interest of BHP-Billiton and the Brazila smelter giant CVRD. Mozambique and South Africa signed recently an agreement for what is known as the Northern Mozambique Power Pool. It is desirable that the countries mentioned above and the private sector be invited to be part of the agreement. Under these circumstances the power pool would be

[11] These Projects are considered on the Northern Mozambique Power Pool to be undertaken by a joint effort between Mozambique and South Africa. GPZ or SOGIR would be shareholders with at least 20% shares to contribute to through Government endowment.

extended to new generation in Lupata and Boroma as well as the rehabilitation of Chicamba and Mavuzi.

### 3.1.3 Energy for Industrial Development

Mozambique has been exporting its energy to South Africa. Plans are underway to supply other countries such as Malawi. No doubt that provision of energy to neighbouring countries is an important ingredient to regionalize SADC economy and thus creating foundations to cope with a globalized economy. However, in this document, the Zambezi Valley development strategy strongly considers the use of the energy to promote local and national industrialization process. One possible way for this direction is to structure energy tariffs rates based on energy-use-purpose. This could be done with two orientations, namely (a) national use for industrialization versus export and (b) industrialization platform. The first orientation would consider lower rates for local (Zambezi Valley use), followed by national use outside the Zambezi Valley and international market. For local and national use there would be a subdivision between exploitation and export of raw material and beneficiation (the higher you go in industrialization the cheaper the price). This approach would create incentive for investors to prefer the Zambezi Valley and beneficiation of raw materials.



### 3.1.4 Water for Agricultural Irrigation

The generation of energy can be combined with irrigation and water supply for human consumption if multipurpose dams are considered. Considering that some of the concluded energy studies do not contemplate multi-purpose dams, the alternative should be to consider on major tributaries of the Zambezi River, such as the Rovubue River. In the case of this river, a potential dam site is located tentatively along the lower reach of the river constituting the border between the districts of Moatize and Chiuta. A few other potential dam sites are possible in the upstream. At this tentatively selected dam site, the catchments area is some 8,000km² and the average annual discharge may be about

60m³/sec. With a dam of some 80m height, storage volume of 200 million m³ may be obtained. Power generating capacity of 60-100MW may be installed. Also several thousand hectares may be irrigated in downstream areas. Eventually, the Rovubue dam should be installed as a pilot project to be extended to others such as Boroma and Lupata.

## 3.2 INFRASTRUCTURE FOR TRANSPORT AND COMMUNICATIONS

The lack of adequate infrastructure in the Valley results in increasing transport costs that create difficulties in value-adding process. The provision of adequate and cost-effective infrastructure will underpin the development and facilitate lower-cost production and marketing to enable responsiveness to market demand. Improvement in infrastructure and trade related capacities will unleash the dormant potential and trigger the development process.



A fundamental issue for the long-term development of the Zambezi Valley is a reliable, predictable and cost effective transport system. This system should be conceived in a multi-modal arrangement in which all modes strengthen each other in a mutual complementarity. Moreover, the development of the transport system in the Valley should be complementary to the development of the inter-territorial corridor in order for the region to take advantage of its strategic location and to contribute to the national spatial and socio-economic integration. A vital infrastructure to serve as the backbone of the multi-modal transport system is the rail way linking the port of Beira and the interior of the Zambezi Valley and Malawi—the Sena Line. During the war, the railway was targeted by RENAMO and by 1986 was totally inoperational after having reached the peak of 2 million tons of cargo in 1981.

The rehabilitation of the Sena Line has been linked to the rehabilitation of a coal mine located in Moatize that was closed down also during the war. It is understood that in economic and financial terms, only the mine in full activity would justify the operation of the line. In turn, the Moatize coal mine is linked to a thermal power station. The reason for the Moatize coal mining development being linked to a thermal power station is

because the yield of the higher-priced saleable coking coal is only 30% of the run of mine production from the open cast operation. A further 30% of low grade steam coal can be extracted from the discard material, but the price is too low to justify export. If this material is transferred to an adjacent thermal power station, the additional income to the mine would be of the order of USD 25 million p/a, representing about 25% of the total income of the mine and being critical to the project's viability. The linkage of the Sena Line with Moatize cocking coal and the thermal power station led to a deadlock. In order to break that deadlock the Ministry of Transport and Communications in association with the Ministry of Energy and Mining is conducting a bidding process to rehabilitate the line in a BOT arrangement. In case the process does not yield the desired output the rehabilitation of the line could follow an incremental rehabilitation process considering that the projected traffic levels between Dondo and Sena (Malawi) indicate that it should be possible to justify the reconstruction of the railway line to an acceptable operating and safety standard for this distance of approximately 330km. The railway could be constructed as an incremental development, on the basis of the projected tariff income from the identified traffic en-route. The major milestones would be Muanza, 90km, (limestone), Inhamitanga, 88km, (sugar spur to Marromeu), Caia, 47km, (timber, cotton ,rice, N1 connection), Sena, 65km,(timber, cotton Malawi connection), and Villa Nova, 39km, Malawi Traffic. It is this development that will bring immediate economic benefit to the area covered by the Sena Line.



The *incremental reconstruction of the Sena Railway Line* could be based on lower traffic levels. The initial focus should be to open the railway line between Dondo and Sena/Villa Nova, connecting to Malawi, and the standards should be adjusted in accordance the traffic levels, with the intention of balancing the capital and operating costs with the income derived from the movement of freight. Ideally the project should be self financing, but it is likely that an element of soft or donor financing will be required, together with private sector risk financing.

The railway line will be constructed in incremental sections with each section relying on serving a specified freight traffic component. Access from the customers to the railway line is therefore a critical part of the

project and the construction of efficient and maintained *Feeder Roads* must therefore be included as an essential part of the railway reconstruction contracts. The planning of construction access roads may be done with the view for creating permanent access feeder roads. Another very important positive economic aspect of the incremental development of the Sena to link up with the Malawi rail system, is that it would provide *a railway link between the SADC system and the Malawi system* which has missing since the closure of the Sena line. This will allow flexibility in the movement of locomotives and rolling stock between the systems.

## 3.3 OTHER INFRASTRUCTURE



The Rehabilitation and operation of the Sena Line is a necessary condition for the development of the Zambezi Valley, but not a sufficient one. In order to complete the multi-modal transport system there are a number of other transport infrastructures that need to be considered. Of the most important and urgent ones the following are highlighted:

### 3.3.1 Inchope-Gorongosa-Caia Highway

The highway from Inchope to Caia is vested not only with importance for the Zambezi Valley, but also for the country as a whole. It links directly three provinces of the Valley (Sofala, Manica and Zambézia) and these with the southern part of Mozambique. It also feeds the Sena Line with cargo generated along its catchments area and improve the conditions of the Inchope-Quelimane corridor for investments through facilitating trade and distribution. The rehabilitation of this important road has been concluded. Its maintenance to keep the high standard may require in a near future to consider it as toll road, even if the traffic levels do not pay for the maintenance (yet) toll fees will assist the road agency to finance maintenance.

### 3.3.2 Highway Linking Tete, Moatize, Chiuta and Chifunde

The above road linkages constitute important part of international arteries linking neighbouring countries and the port of Beira. As the economy develops in the region as well as in neighbouring regions and countries, transit traffics will increase rapidly. The Angonia region, particularly the Tete – Moatize corridor, is expected to take advantage of its strategic location on the crossroads of the two arteries to establish more processing, trade and distribution activities and contribute to cargo generation for the Sena Line. The rehabilitation of this artery link is under the planning consideration of the Road and Brigdes Agency. Like the one before, the transformation of this highway in a toll road should also be considered.



### 3.3.3 The New Zambezi River Bridge at Caia.

This bridge is of crucial importance in order to link the North and the South of Mozambique. With the development of the Zambézia and Sofala Provinces it is clear that traffic levels between the two provinces will increase. The existence of the bridge will also facilitate increase in traffic and cargo flow between the North and South of Mozambique and strengthen the multimodal transport system linked to the Sena Line. The impact on the leaving conditions of the population of the area will improve quasi immediately.

### 3.3.4 Zambezi River Transport Development

The improvement in outward-oriented production of goods and services requires the rapid expansion of local and inter-regional transactions. Under the multimodal transport system, the river may be used for local transport of some goods and, to a limited extent, inter-regional transactions. Presently, the Zambezi River is hardly used even for local transport of goods. Reasons include low level of economic activities and low needs for local transactions, and shallow and unstable flow of the Zambezi water. The river, however, is navigable with small ships of up to 100 tons with one meter draft. A small river port should be provided to

facilitate embarking and disembarking of various goods. Shipping services should be provided by private operators to be registered for commercial transactions. Small private ships to transport personal goods may also use the facilities. With these facilities, river cruising may also be possible to serve the tourism industry that has potential for development in the area. Port facilities may be upgraded to accommodate pleasure boats, and waterfront development undertaken in the port area as part of amenity creation.

### 3.3.5 Tete International Airport Upgrading

If new investments are to take place in the Zambezi Valley area, and considering that Tete is and will be the heart of the development of the area, then, port facilities and services in Tete need to be upgraded. Passenger terminal facilities should be improved and cargo terminal facilities newly constructed. In parallel with these, a study may be undertaken to improve the airport operation, especially in view of establishing a local air services network linked with neighbouring countries. New institutional arrangements and service facilities would be required for such an expanded operation, including immigration, customs and quarantine.



### 3.3.6 Telecommunications

The Zambezi Valley telecommunications systems are not well developed. FDI will find it difficult in investing in areas where communications are still problematic. Establishing reasonable telecommunication links within the area as well as with major cities and towns outside is a pre-requisite to pursuing the regional development. While the basic telephone services should cover all the districts as a matter of urgency, high quality services should be introduced in steps for limited areas. Therefore, the basic strategy for telecommunications in the Zambezi Valley area is proposed to have three phases namely (i) accelerating telephone lines expansion, (ii) increasing public card phones in rural areas and (iii) improving city's telecommunication linkages with the outside world.

Plans to expand the telecommunications network are under implementation and in steady progress with the National Utility TDM and the two mobiles company Mcell and Vodacom involved. Thus, investment in this area will remain under the sole responsibility of these companies.

## 3.4 HUMAN RESOURCES DEVELOPMENT ABSORPTION CAPACITY

It was indicated above how low is the Human Development Index of the area covered by the Zambezi Valley. The level of this index tells us that any private investment in the area will not have significant impact on local population. The education level of the population is so low that local population would not take advantage of the available employment opportunities and technology supply triggered by the investment. Healthy services limitation is another blockage to the local capacity initiative to leverage on any investment to be made in the area. In fact, large public and private investment in the area is bound to become enclave economies with no linkage or significance for the local population. In order to avoid this situation it is important to take strategic actions that will elevate the leaving standards of the population, giving them opportunities to diversify their choices and become active subjects and objects of the Zambezi Development Strategy. The required actions shall meet the objective of achieving self-sufficiency in order to satisfy the basic needs of population. These needs are translated by creation of opportunities for better food, health and education.



## 3.5 FOOD SECURITY

### 3.5.1 Irrigation based-agriculture

To meet food and nutrition needs of the population of the Zambezi Valley, agriculture production has to be improved. It is understood that agricultural production in the Valley has a high degree of risk associated with erratic rainfall. Thus, the challenging base for agriculture development in the area is the management of the "water-risk" factor by unleashing the irrigation potential that is already there, but very much

underutilized. Further technology development will be based on developing irrigated schemes as anchors for development of small to medium scale agriculture.

The irrigation strategy could be within the lines of a study done in the 70's by Loxton, Hunting and Associates, but never implemented. The study considered the areas to be irrigated divided into Eastern and Southern Region. The Eastern Region was in turn divided by blocks 4, 5 and 6, and the Southern Region, Blocks 9, 10, 11.

### 3.5.2 Eastern Region

The Eastern Region is roughly composed of the following districts:

Block 4: Mutarara, Chinde, Mopeia
Block 5: Tambara, Chemba, Caia, Marromeu
Block 6: Morrumbala, Milange, Mopeia



Irrigation Potential for this region was measured in terms of Category 1, 2, and 3 schemes.

**Category 1 schemes** refer to areas with suitable soils within 1,5 – 2 km from potential water supplies that do not require pumping lifts of more than 60m to place water into fields. Potential water supply refers to perennial sources of water or streams with minimum catchments in excess of 5km$^2$ in the higher rainfall areas and 10km$^2$ in lower rainfall areas. Catchments of these sizes are considered to yield sufficient water for small irrigation projects provided suitable dam sizes can be found.

Schemes in this category have the advantage that they could be developed on an ad hoc basis at short notice as small and relatively independent projects, as funds become available.

Schemes such as these along the Zambezi and Chire rivers would have definite potential and could be developed without fear of water shortage. The terrain along these rivers is generally flat, though there is some variation in micro-relief, particularly along the Zambezi. Such projects would have very good prospects for viable development. The total gross area along these rivers is 37 500 ha. The approximate gross areas suitable for such schemes are summarized in the Table bellow

| Table 3.3: Category 1 Irrigation Potential in Eastern Region | | | | | | |
|---|---|---|---|---|---|---|
| Irrigation Potential of Soil Association | River and Block | | | | | |
| | Zambezi | | | Chire | | Ruo |
| | Block 4 | Block 5 | Block 6 | Block 4 | Block 6 | Block 6 |
| High | - | - | - | - | - | 2 500 |
| Moderately High | 2 500 | 2 500 | - | 2 500 | 500 | - |
| Moderate | 5 000 | 12 000 | 2 500 | 3 500 | 1 000 | 1 000 |
| Rice Only | - | - | - | - | - | 2 500 |
| Total | 7 500 | 14 500 | 2 500 | 6 000 | 1 500 | 5 500 |

The Muse, which is the largest of the minor rivers, could potentially provide enough water for the irrigation of about 1 000 of the approx. 7 000ha of suitable soils adjoining it, while the smaller Missonge could potentially irrigate about 200-300 of the 900ha of suitable soils in its catchments area.



Block 5 has considerable areas of suitable soils along the banks of its larger rivers. These rivers are not perennial and have unreliably erratic flows, compensated for by wide, deep sandy beds with good water storage capacity. Based on this assumption, at least 5-10 ha of irrigable land per kilometre of river could be supplied with water every year. Supplementary irrigation from sand storage in the Pompue, Muira, M'Sangadze and Mepuse river beds could provide water for a further 5000 of the total 35000ha of suitable land along their river banks.

**Category 2 Schemes** consist of areas of suitable soils of reasonable size lying further than 2km from perennial water supplies. Water would have to be pumped into canals, or long pipelines would be required to reach these areas. The costs of canals, pipelines and, in most cases, higher lifts, make these potential schemes more costly per unit once developed, though no cost is involved for water storage.

Schemes of this category must be fairly large to justify the necessary infrastructure to develop them. Detailed planning and investigation would be essential to determine the true extent of such projects, while elaborate studies would be required to establish the individual economics of such schemes. The economic implications of such schemes mean that only high or moderately high potential soils would justify their implementation.

In Block 4 about 20 000ha of soils with moderately high and 100 000 ha with moderate potential soils have been classified as category 2 potential irrigation. Water from the Zambezi and Chire rivers is available to irrigate this area. The scope for Category 2 schemes in Block 6 is limited by the availability of water. Water from the Ruo could supplement Category 1 schemes obtaining limited water from the Melosa, Melungusa and other tributaries in the northern sector. This would provide several thousand hectares of high potential soils to be considered for irrigation. The rift valley of Block 5 shows considerable potential for category 2 irrigation schemes. Here about 75 000 ha of suitable soils can be found, mostly about 10m above the Zambezi.

**Table 3.4: Category 2 Irrigation Potential in Eastern Region**



| Block and river | Gross Potential | | | Total |
|---|---|---|---|---|
| | High | Moderately High | Moderate | |
| Zambezi –Block: | | | | |
| 4 | - | 10 000 | 80 000 | 90 000 |
| 5 | - | 12 000 | 70 000 | 82 000 |
| 5 | - | - | 5 000 | 5 000 |
| Chire – Block: | | | | |
| 4 | - | 10 000 | 20 000 | 30 000 |
| 6 | 8 000 | 1 000 | 22 000 | 31 000 |
| Total | 8 000 | 33 000 | 197 000 | 238 000 |

Category 3 Schemes refer to areas with the necessary requirements for the establishment of a agricultural industry. Under irrigation, the high temperatures in the Zambezi valley provide excellent growing conditions for sugarcane. Necessary area for category 3 schemes occur in compact blocks of at least 10 000 ha. Inhangoma island could provide about 40 000 ha for sugarcane production, while the extensive flat River Valley in Block 5 has about 75 000 ha which could be considered for sugarcane.

### 3.5.3 Southern Region

The Southern Region is divided into blocks 9, 10, and 11, roughly covering the following districts:

- Block 9: Maringue, Caia, Macossa, Chemba

- Block 10: Marromeu, Cheringoma, Caia
- Block 11: Chinde, Mopeia, Inhassunge, Quelimane, Nicoadala, and Mocuba

The surface water resources for Blocks 10 and 11 of the Zambezi Delta are excellent. The main source of water is the Zambezi River which, as a major perennial river is capable of supplying vast volumes of water without the provision of expensive storage works. On the contrary, the water resources of Block 9 are poor, and can only be developed from the Zambezi River as part of a major regional plan in the portion of the Rift Valley. Other than the Zambezi there are no substantial rivers in Block 10. Much of Block 10 and 11 consist of Zambezi floodplains and delta in which there are numerous interconnected flood channels, which could be considered as rivers, but obtain most of their water from overflow of the Zambezi. The water resources of the northern plateau of Block 11 are good. The main rivers are the Tambiza, Lima, Longoza and Cuacua, which drain into the Luala river system. Many of the rivers in this area have their sources in the higher rainfall regions in the north and are perennial.



The main drainage of Block 9 is onto the flat Rift Valley, where the drainage is diffuse, leaving many water courses ill defined. The Rift Valley is drained by the Mucua, which becomes the Zangue near the boundary between blocks 5 and 9. Approximately 75% of block 9 drains into the Rift Valley (about 6 000km$^2$ from the north-west and 1 200 km$^2$ from the south-east). The main river flowing into the Rift Valley is the Nhamapaza, which drains the western sector of block 9. Lesser rivers: the Mombezi, Nhaqnzazo and Fudeza, drain the centre section, while the Muerera drains the extreme southwestern sector.

Food security will in principle be based on private sector investment. However, GPZ and associates will have to invest in creating conditions to attract that private investment. Besides the investment in community and the technology and information centre, GPZ shall associate itself with the private sector to invest in irrigation scheme by putting together the primary infrastructure. The costs associated with that are summarized in the Table 3.5. It is important to note that the following:

- Costs bellow are a rough estimate. Further studies should be necessary;
- The building of the irrigation schemes is conceived to be taken either in a partnership between public and private sector or in a BOT arrangement depending upon profitability of the scheme;
- The southern region schemes are not included here at this stage. They could be considered in the second phase to start after 2015

**Table 3.5: Costs for Food Security**

(in 1000 USD)

| SCHEME | AREA | COST/ HECTARE | TOTAL | PRIVATE SECTOR | PUBLIC SECTOR |
|---|---|---|---|---|---|
| Category 1 | 38 | 0,500 | 19 | 3,8 | 15,2 |
| Category 2 | 238 | 1,0 | 238 | 119,0 | 119,0 |
| Category 3 | 50 | 1,5 | 75 | 75,0 | 0,0 |
| TOTAL | 326 | | 332 | 197,8 | 134,2 |

## 3.6 AGRO-INDUSTRY



The establishment of irrigated agriculture will create large surplus of agricultural products that will be largely unutilized; if there is still limited marketing opportunities for processing. The situation suggests that the agricultural development strategy should also be associated with agro-processing as to add value to crop outputs, thus strengthening linkages between agricultural production and the industrial sectors and improving market access. Agro-processing will also establish a distribution system for logistics to support the trade and distribution sector.

In order to jump-start the process of agricultural development that will maximize the potential for inter-project linkages that could collectively better give rise to the creation of shared resources (e.g. infrastructure), it is suggested that initial agricultural development drivers should be these that would bring immediate financial, economic and social benefits to the Zambezi area. In order to select this number of issues has to be considered.

The primary consideration on selection of these agro-processing development drivers is the availability of a market of sufficient size to ensure that it can be supplied sustainable and profitably. In connection to the market demand, the degree of processing is one of the first choices that must be made. While the value addition and stability of the

products increase with the level of the processing, the sales criteria change according to technical specification and consumer demands. The capital investment and infrastructure demands also increase with the level of processing.

Another consideration to be made is the degree of diversification of the products. While a large plant processing one or few products, has the advantage of focus, economy of scale and the ability to invest more in production, it is limited by the seasonality of the product and lack of other agro-industries supplying inputs and utilizing by-products. A more integrated enterprise could overcome many of these disadvantages.

Foreign exchange earnings are important for any economy as they are critical to an economy's balance of payments and currency stabilization. Last, but not least the consideration of "job creator" is important one to take into account.



All the above taken into consideration and based on an assessment of the Valley it looks like that rice and fruit processing should lead the way for agro-industry. This consideration does not in anyway exclude any planed initiative by the private sector in the cotton, sugar, coconut and tobacco industries.

## 3.7 HEALTH AND EDUCATION DEVELOPMENT

Health development component aims at improving access to health care as essential part of basic human needs through a community-based approach. The focus is on raising the level of primary health care. As available health resources are quite limited, focusing on preventive health care would be the most efficient and effective way to improve the overall health status. This is to be done through community empowering process that would include at least building, organizing and training in health care services and basic life skills education.

### 3.7.1 Improving Access to Health Services

Although the number of health facilities and health manpower has been increasing, the provision of health services is absolutely insufficient. Considering the shortage of Government funds to expand and improve health network, at this stage it is suggested to adopt a quick and cost effective delivery provision of primary health care services based on mobile health centres, a concept that has been used in other parts of the world with success. The concept is suited for community health care awareness and rapid introduction of equal access to the health care services in points within established radium. Under this strategy, GPZ, in partnership with the private sector (mostly companies investing or planning to invest in the area) and civil society at large, will establish as a pilot project 8 hubs of mobile health unities. Associated cost is estimated at US$ 1,000,000. In order to permanently improve the delivery of health care services using mobile unities, it is necessary to attach the implementation process with research and development programs in terms of logistics, long term business strategy, improvement of the mobile units and the patient care methods used by the health care professionals.



In line with the basic strategy for social development, more specific strategies are derived for education and training. They are (1) improving primary school facilities, (2) promoting non-formal education and skill training, (3) developing the human resources base, and (4) supporting specialized training institutes.

Initially, existing primary schools should be further improved with associated facilities such as adequate classrooms, toilets, and school furniture and supplies. Priority for the school improvement should be consistent with the improvement of rural infrastructure. The integrated rural development approach is quite relevant to improve the overall living conditions in selected rural areas to facilitate the deployment of teachers. In the medium to long term, primary school facilities should be much expanded in steps to realize the universal coverage within the planning period. Capacity of the teacher training school should be expanded to generate more qualified teachers.

Non-formal education should be much emphasized to enhance human capacity in rural areas in general and to cope with the gender disparity in education and training attainment in particular. Teaching methods should be carefully developed to increase the effectiveness of the education and training.

Community skill training should be undertaken to enhance the chance for rural people, especially women, to obtain part time employment during the off-farming season. It may cover basic community skills such as masonry, carpentry, cooking, baking, knitting and crocheting. These activities may also support small business development in communities. Local artisans should participate in teaching rural communities, and farmer-extension workers should provide training for trainers to teach and evaluate their skills and knowledge.



Considering the existing limited financial and manpower resources, the process of building social infrastructures should take in consideration partnerships between communities, Non-Profit Organizations, private sector and Government. Such partnerships should focus on community mobilization and empowerment because the building of strong foundation for human development with a sense of self-governance and self-determination should be strengthened among communities. Empowered communities would support various projects and programs proposed in different sectors. Existing social organizations in communities should be utilized and re-vitalized to serve effectively their respective membership population. In order to strengthen the roles of these social organizations, their missions should be reviewed thoroughly. Respective committee members should be responsible for the reviewing process.

Self-help efforts of villagers should be mobilized to improve rural roads to improve communications between villages and to improve access to markets and social services. Local governments should support such efforts with technical guidance and provision of equipment and other materials.

To maintain existing rural water supply systems, communities should become their owners. For a new water system, establishment of a self-governing "water committee" should be a prerequisite for installing

facilities. Training should be provided to community members to be selected by the committee for basic maintenance of wells and pumps, and for organizational leadership and basic bookkeeping. Training should be provided also for dug-well construction and sanitation practices.

## 3.8 Development Drivers and Institutional Framework

The realization of the present strategy has to lead to a situation where the Zambezi Valley reaches:

- A geographic spread of social and productive investment.
- An integrated manufacturing economy capable of high degrees of value addition.
- A high degree of knowledge and technology capacity.
- Greater diversity of enterprise type and size.
- Skilled, informed and adaptable citizens.
- An efficient, strong and responsive state structure.

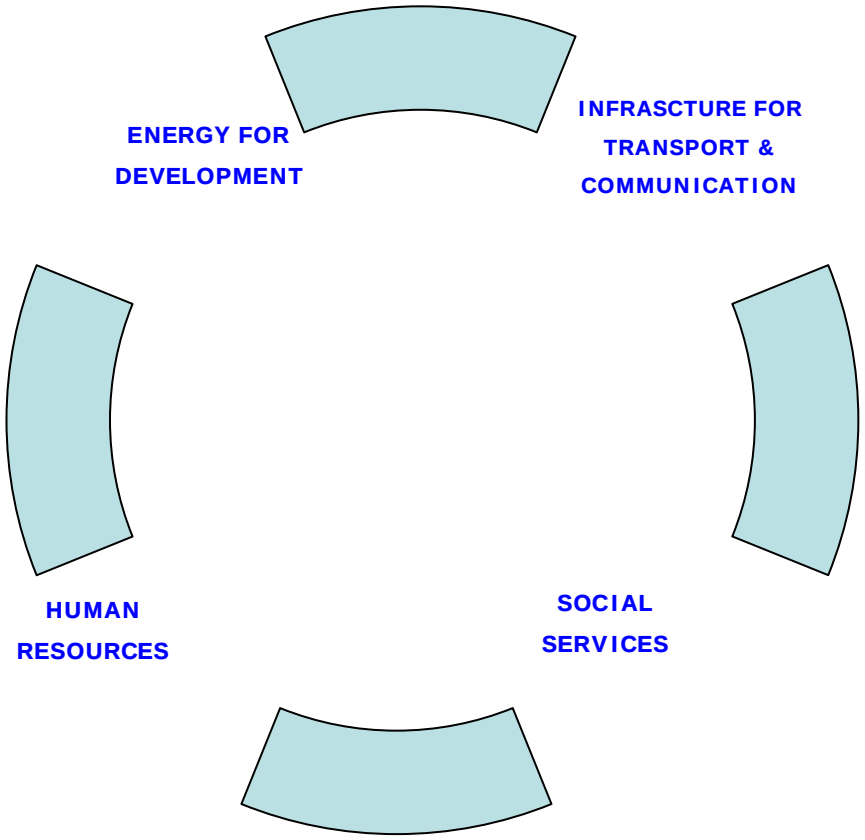


In order to advance this vision for the transformation of the Zambezi Valley economy, the state will have to focus especially on setting up basic infrastructures, structures and reforms at the micro level of the economy, as the majority of the remedies to the factors limiting accelerated growth and development lie within the micro-economy.

A new phase of intensive microeconomic reform is needed, so as to support and consolidate the macroeconomic environment already created, building on the achievements of initiatives

This strategy needs to take into consideration that the Mozambican economy and the ZV economy in particular, suffer from a lack of cost competitiveness in relation to the Southern African and global economies.

**Figure 3.2: Development Drivers**






## 3.9 Institutional Framework and Services

### 3.9.1 Institutional Framework for Investment Facilitation

It was discussed before that although the macro-economic environment in Mozambique is improving at a stead pace the same does not happen ant implementation level. A major constraint in initiating and expanding business in Mozambique in general, and in the Zambezi valley in particular, is the time consuming and complex bureaucratic process for authorizing a business proposal.

Improvement in administrative procedures will be as equally important as the development of physical infrastructure. Overcoming these aspects requires dedicated staff, strong motivation, knowledge, skills and

capacity. The general idea is to secure a smooth and steady implementation of this strategy by involving high level skilled participants in the process of unlocking the potential of the Valley and bringing in public and private investment. In this process, private sector investors and communities shall be actively involved in order to secure their stake in the output and improve a climate of confidence.

Leadership and vision are an important aspect of the process. As such, it should be exercised by both public and private sector in a partnership arrangement. However, Leadership, skills and vision will not make things happen if an appropriated structure is not in place.

It is within this concern that the Government of Mozambique re-created the Zambezi Valley Development Authority (GPZ) with view to:



- Promote, coordinate, plan and supervise the integrated economic development of the Zambezi Valley in accordance with Government policies and strategies;
- Promote the development of needed infrastructures to support the overall investment and economic growth;
- Facilitate private sector investment, sustained improvement of living conditions of rural communities at large and creation of job opportunities.

At top level GPZ is led by an Inter-Ministerial Commission chaired by the Prime Minister and constituted by all economic Ministers and the Minister of Foreign Affair. Bellow this Consultative Body there is a Technical Council constituted by the National Directors of the Ministries indicated above and chaired by the Director General of GPZ who has the mandate to manage GPZ at execution level. Internally GPZ is organized in 5 Divisions, namely Planning, Community Development, Studies and Program Implementation, Physical Planning and Information Technology. GPZ adopted a strategy to sub-divide the Valley in 5 regions for management purposes:

**The Highlands** of Angónia, Macanga, Chifunde and Tsangano plus Cazula, Chiuta and Zobué;

**The Middle-Zambezi** constituted by Tete City and the districts of Cabora Bassa, Changara (excluding Cazula), Magoe, Maravia, Moatize (excluding Zobue), Zumbo and Guro;

**The Chire-Zambezi** area that includes the districts of Chemba, Morrumbala, Mutarara and Tambara;

**The Delta** comprising Quelimane City and the districts of Caia, Marromeu, Chinde, Inhassunge, Maganja da Costa, Milange, Mopeia, Mocuba, Nicoadala , Namacurra and the Gorongosa National Park;

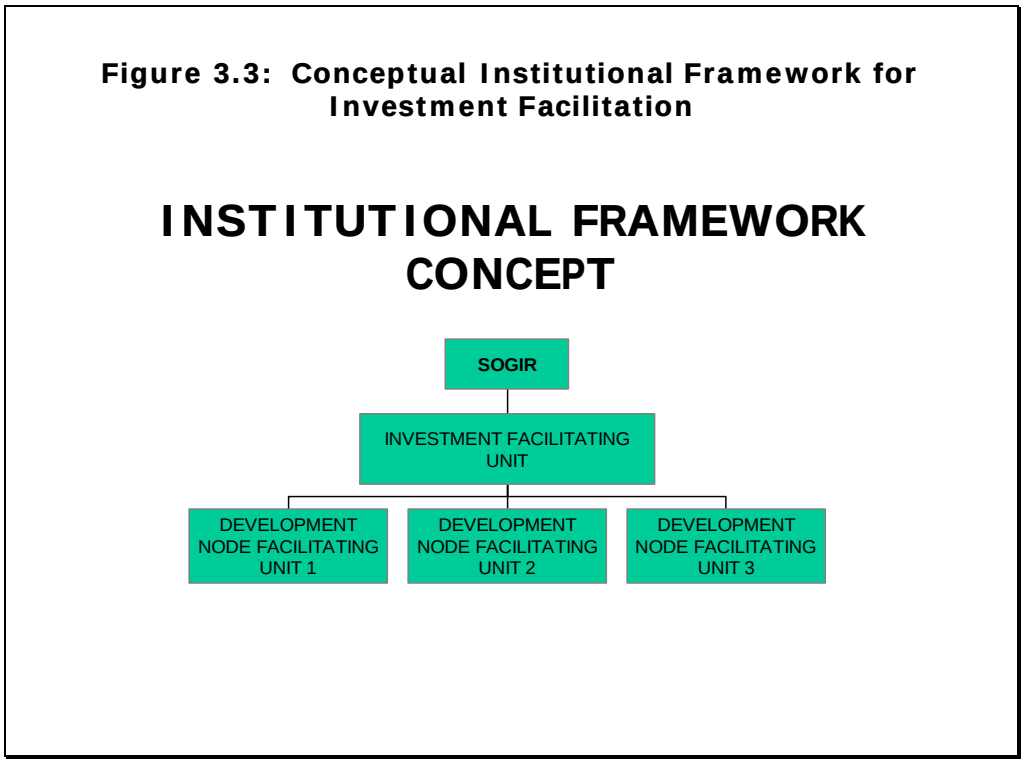
**The Lower Zambezi** with the districts of Barué, Macossa, Cheringoma, Gorongosa, Maringwé and Muanza.

GPZ provides a comfortable institution framework to speed up the process of creating an enabling environment to the development of the Zambezi Valley. However, its nature as a pure public institution limits its involvement in the business side of development. In order to fill the business capacity gap, GPZ created SOGIR as its arm to deal with business development and project management. However, SOGIR has no technical and financial capacity to undertake its mission. SOGIR his made-up of different parastatals and its involvement with private sector is very limited. It is suggested that in order to provide the framework under discussion SOGIR be restructured to reflect a decentralized approach based on development nodes as well as to play the facilitating role for FDI. Figure bellow suggests the institutional concept under which SOGIR should operate.



In this set up there are identified Development Nodes that coincide with a geographic area that is under the positive influence of a leading investment process. For instance Marromeu could be considered a Development Node under the influence of investment in sugar. Morrumbala would be another Development Node under influence of investment in cotton, etc. In each Development Node there should be institutionalised a Development Node Facilitating Unit (DNFU) constituted by Representatives of SOGIR, Private Sector, Local Government and Communities. The main role of DNFU would be development planning, issues identification, de- bottlenecking, linkage programs between private sector and communities, etc. In order to effectively implement its mandate, the DNFU would adopt the SDI methodology as a planning and investment facilitating tool.

**Figure 3.3: Conceptual Institutional Framework for Investment Facilitation**






The Investment Facilitating Unit (IFU) would be made up of Representatives of SOGIR, Government, Key Parastatals, the Investment Promotion Agency (CPI), Private Sector and DNFU's. The main role of this organization is to act as a Business Centre with one-stop-investment centre. The IFU would in general allow the private business initiatives to be smoothly and quickly processed and authorized at one location. In order to be more effective, SOGIR or GPZ should be vested with the power of a Government operating and managed as a business. This will require that the Government empowers SOGIR over the resources under exploitation within the Zambezi Valley, i.e. SOGIR should be the "owner" of the resources in the Valley, allowing it capacity to manage projects, negotiate, take loans, and investment capacity. The present set-up in which GPZ is the Valley authority, but is kept hostage of sectoral decisions at central level is the approach of a King without Kingdom. It breaks up the regional integrated vision, dilutes responsibilities and allows for duplication of efforts as well creation of gaps in the structure. This frequently sends conflicting messages to private investors and Donor Community. The empowerment of SOGIR will transform GPZ into a Board that establish policies and strategies as well as oversee the

implementation of these by SOGIR. This Board should as well be structured in such a way to include the private sector and the communities.

### 3.9.2 Development Support Services/Technology and Research

The need for dedicated development support services and technology research is dictated by two main circumstances. One is related to the need for competitiveness and the other is concerned with stimulus for investors.

International competitiveness is ensured by the capacity for technology innovation, with the implication for a need to continuously combine technology opportunity with market demand. In this combination, market and technology are modelled in such a way that one stimulates the other. The development approach proposed in this document is based on exploitation of natural resources. However, this growth model cannot be sustained for long time if it has no access to knew sources of growth that are translated in modern and efficient technologies.



Investors in many cases require support in public goods and services. Unfortunately, at this stage Mozambique does not provide much support to business development. In most cases, investors complain of Government posing difficulties to their business management. It is predictable that considering the low development of public services in the Zambezi Valley, investors are likely to have more complications than facilitation if specific actions are not considered and implemented. On the other hand, establishment of FDI in the Zambezi area may bring conflicting situations between the foreign investor and the local business community if a proper arrangement and support is not in place as to take the advantage of the FDI to promote local business community. Thus, GPZ should in collaboration with other Government Departments and the private sector establish a capable Industrial Technology and Information Research Centre. The role of this Centre is to support the engagement of local private sector by encouraging partnerships between foreign

investors and the local emerging private community. The Centre would also provide the private sector with needed support. The specific objectives of the centre would be:

- Creation and maintenance of a database for production technology and products;
- Promotion of interchange among enterprises in the region and other regions;
- Encouragement of partnerships between FDI's and local investors;
- Identification of downstream business opportunities created by mega-projects;
- Preparation of information for investors,
- Intermediary services for local enterprises and investors,
- Dispatch and reception of investment missions,
- Planning and hosting of investment seminars and symposia, and
- Solicitation of potential investors.
- Provision of production technology and information necessary for business management.



The Industrial Technology and Information Research Centre also provide the industrial technology and information necessary for development of the regional industry, namely:

Technology development; General technology, production control, quality control, maintenance of facilities, industrial designing, packing design, and standardization of products. Technology research for selected industries such as food processing, metal working.

Business information: Domestic market information, administrative information from Central and Provincial Governments, and enterprise information through a questionnaire survey. International market information, cooperation with foreign information centres, and collection of market information from magazines and the Internet with translation.

Research and analysis Market trend by products, market analysis, research on prospect business and products; and periodical publication, symposium for research works, etc.

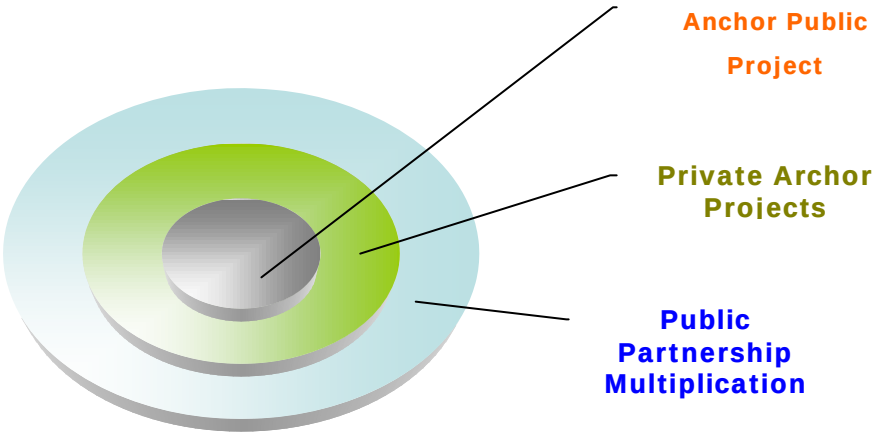
## 3.10 Public and Private Partnership

Foreign Investors are likely to invest in places where there is a high sense of confidence. One of the most common way of showing commitment today is the establishment of a framework for partnerships

between Government and the Private Sector. On the one hand, although today Mozambique is one of the fastest growing economies in the world, the country remains poor, and Government budget is very small to face all the posed challenges. On the other hand, the local private sector is very small with many different problems. In order to achieve the designed development goals, the Government and the Private Sector, as well as the communities at large must work hand-in-hand, by combining resources and capacity to bring alive the dream of developing the Zambezi Valley. The way partnership is to be set-up may vary. However, there are three directions to be considered: (a) a consultative mechanism, (b) the establishment of dedicated development structure that includes the public and private sector as well as (c) the improvement of the already established concession policies and mechanisms. The institutional framework discussed above may respond to the need of triggering partnership.



**Figure 3.4: Public-Private Partnership in the ZV**



Mozambique's strategic approach to sustainable economic development is enshrined in two key documents: the Programme of Action for the Reduction of Absolute Poverty, widely known as PARPA, and the Agenda 2025, a national development strategy, recently approved by the National Assembly. These two comprehensive strategic documents embody the short and the long-term national socio-economic development vision, with the framework broadly defining the direction for key sectors, guiding principal role players in their programmes for action. In particular, they represent the Government's commitment to create and improve business environment needed for private sector to generate faster economic growth and more job opportunities. Through a consultative and participatory process, specific objectives within the various ministries have been mapped out.



Connected to this, two initiatives have emerged recently. On the one hand, the Government of Mozambique re-created the Zambezi Valley Development Authority (GPZ) with view to: i) Promote, coordinate, plan and supervise the integrated economic development of the Zambezi Valley in accordance with Government policies and strategies; ii) Promote the development of needed infrastructures to support the overall investment and economic growth; iii) Facilitate private sector investment, sustained improvement of living conditions of rural communities at large and creation of job opportunities.

On the other hand, within the framework of co-operation between Southern Africa Development Community (SADC) the Governments of Mozambique (through G.P.Z.) and South Africa (through the Department of Trade and Industry) have established a Spatial Development Initiative Project for the Zambezi Valley (ZVSDI) in order to speed up the process of unleashing the enormous economic potential identified.

The Spatial Development Initiative (SDI) methodology was developed in South Africa in 1996 as an integrated planning tool aimed at promoting investment into regions of the country that were underdeveloped but had potential for growth. The key aspects of the methodology are concerned with configuration of investments to ensure the viability of infrastructure through sustainable revenue streams at the same time that Public Private

and Community partnerships play a catalytic role. Thus, SDIs leverage both public and private sector investment as the basis for economic development, and facilitate the objectives of achieving international competitiveness, a more diversified ownership base in the economy and regional cooperation and economic integration in the African sub-continent.

The ZVSDI in Mozambique was placed under the authority of G.P.Z. In South Africa the Department of Trade and Industry (DTI) lead the Program and the Implementing Agency is the Development Bank of Southern Africa (DBSA).

### 3.10.1 Institutional Capacity



In previous chapters of this document it was argued that the institutional framework for the development of the country based on private investment is in most cases so unfriendly that scares investment away. It is understood that changes in institutional capacity and building up the needed human capacity will take time. However, if the Zambezi Valley is to act as a leading region for the development of the country, special attention has to be paid in this area so that GPZ and associated institutions become a centre of excellency and reference for the rest of the country and why not the SADC region. It is with thought in mind that the strategy considers the institutional framework the number one driver to be considered.

The institutional framework is here considered in two dimensions, namely the reorganization of GPZ and SOGIR and the set-up of the delivery system with associated sub-systems.

As discussed above the reorganization of GPZ and SOGIR implies the transformation of these institutions in "de facto" development authorities for the Valley. This means the progressive and fast building of financial autonomy as well as project management capacity. The financial autonomy and capacity will allow the creation of project management capacity and the combination of the two will empower GPZ and SOGIR to act as a financial development institution as well. In order to achieve this

goal, the Government shall provide "seed money" that can be used as funds aimed to attract more funds. This could be done in three ways:

- Initial cash for operation and investment for the first two years[12];
- Shares in the Government owned business ventures in the Valley;
- Part of income taxes of companies investing in the Valley.

The delivery systems includes among other sub-systems, the community capacity building, information management systems (including Zambezi River Data Base Management), the establishment of a Business Centre and the Industrial Technology and Information Centre.



[12] It is assumed that in two years GPZ would be able to mobilize commercial funds considering that it would have assets to serve as collaterals.



# PART IV:

# STRATEGY

# IMPLEMENTATION

# 4 STRATEGY IMPLEMENTATION APPROACH

## 4.1 OVERALL APPROACH

The realization of the present strategy has to lead to a situation where the Zambezi Valley reaches:

- A geographic spread of social and productive investment.
- An integrated manufacturing economy capable of high degrees of value addition.
- A high degree of knowledge and technology capacity.
- Greater diversity of enterprise type and size.
- Skilled, informed and adaptable citizens.
- An efficient, strong and responsive state structure.



In order to advance this vision for the transformation of the Zambezi Valley economy, the state will have to focus especially on setting up basic infrastructures, structures and reforms at the micro level of the economy, as the majority of the remedies to the factors limiting accelerated growth and development lie within the micro-economy.

A new phase of intensive microeconomic reform is needed, so as to support and consolidate the macroeconomic environment already created, building on the achievements of initiatives

This strategy needs to take into consideration that the Mozambican economy and the ZV economy in particular, suffer from a lack of cost competitiveness in relation to the Southern African and global economies.

It is clear that the development of the Zambezi valley, as with all development will happen through investment, mainly private sector investment associated with the exploitation of the resources that were presented above. However, private investment is entirely contingent on that of infrastructure and structural framework as indicated above as development drivers. The financial indicators of profitability of investment projects (IRR, NPV) are highly sensitive to capital gearing, infrastructure requirements and investment facilitation process. This is even more sensitive in remote locations and inevitably forms a major

component of a project's capital expenditure. This leads to the argument that, if there is to be a coherent and integrated development plan in the Zambezi Valley, the cost of the infrastructure and investment process to investing projects should be as low as possible, failing which many of the projects that are economically possible will either not proceed or be deferred.

In looking at the economic benefit from mining, agriculture and tourism projects the economic multipliers, which can range from 2.5x to 4x are frequently overlooked. It is these benefits that are ultimately important to the sustainable economy. These include, amongst others the direct and indirect influence on suppliers of goods and services and the first order direct employment. The demands of secondary industries reliant on mining, agriculture and tourism will further this impetus, and the needs of first and second order direct and indirect employment and will catalyse a tertiary sector that will do likewise. These linkages are logical and tangible and can be quantified.



The above logic leads to the conclusion that the implementation of this strategy has to follow a clear sequencing of activities in order to make it more effective. The sequencing advises that the implementation approach of this strategy as to be broadly divided in two main phases. The first phase will deal with critical infrastructure, structural change, Investment promotion and improvement in the living conditions of populations.

## 4.2 PHASE I

### 4.2.1 Critical Infrastructure

At this stage the critical structure is the Sena Railway. Its rehabilitation is now undergoing the process of negotiations for the involvement of the private sector in a BOT arrangement. A BOT arrangement requires the link between the Railway itself and the Moatize Coal Mine, considering that only the full operation of the mine will justify financially the railway. As discussed elsewhere in this document the operation of the mine, in

turn, is linked to a coal fired power station. At present moment, the three components (rail, coal and power) are treated as separated components of the system, in obedience to the Ministerial divisions (Mining and Energy, and Transport). Although this division of work make sense and it has to be there, there is a need of strong coordination in order to speed up the process. The general coordination mechanism of the development of the Zambezi Valley has been in place for many years, but its operation ground is full of gaps. It is proposed that within the GPZ technical committee, a specific task-force should be used to coordinate the implementation of the rail rehabilitation, the open of the Moatize coal mine and the coal fired power station. This task-force should report to a similar committee drawn from the Inter-Ministerial committee in charge of GPZ. The focus of the task-force should be the facilitation of the bidding and negotiation process with the private sector until the initiation of the implementation of rail rehabilitation, reopening of the coal mine and the issue surrounding coal fired power station.



### 4.2.2 Institutional Framework

It was discussed before that although the macro-economic environment in Mozambique is improving at a stead pace the same does not happen ant implementation (micro-economy) level. There an unquestionable need to promote institutional changes nationwide. This work is being implemented by the Government through the Ministry of State Administration. However, while these overall changes are taking place there is an urgent need to capacitate GPZ to take full control of its coordination mandate in order to speed up the on-going process around the Zambezi Valley. In line with the institutional change framework outlined in the previous chapter, GPZ should formulate and implement an institutional strategy in which the proposed institutional change here, are to be examined in detail. During phase I the focus would be in drawing a strategic plan for GPZ and SOGIR and their relationship with local Governments at provincial and local levels. This could be done with technical assistance of specialized companies in management changes and institutional development strategies.

**Table 4.1: Institutional Framework Cost Estimate Phase I**

(in 1000 USD)

| COST CATHEGORY | PUBLIC | PRIVATE | SUB-TOT |
|---|---|---|---|
| GPZ/SENA & MOATIZE TASK FORCE | 2,000 | 0 | 2,000 |
| INVESTMENT PROMOTION | 200 | 0 | 200 |
| LAND USE PLANING | 1,000 | 0 | 1,000 |
| **TOTAL** | **3,200** | **0** | **3,200** |

### 4.2.3 Investment Promotion

In order to justify the cost of rehabilitating infrastructure and facilitating structures, the commitment to and by investors is crucial, but that investing companies in these sectors cannot be relied upon to provide the bulk of the funding required for this purpose. Thus, this strategy includes developed projects for the consideration of the private sector, once the appropriate infrastructure and institutional framework is in place. A summary of identified private sector investment projects is provided bellow with more detailed information in the following chapter.



**Table 4.2: Summary of the Immediately Viable Investment Projects**

| | | **Capital** (USD $10^6$) | IRR **(%)** |
|---|---|---|---|
| Project 1 | Coal fired power station | 995 | **16** |
| Project 2 | Moatize coal mining | 289 | **12** |
| Project 3 | Monte Muande Magnetite | 507 | **12** |
| Project 4 | Limestone quarry and lime burner | 39.4 | **18** |
| Project 5 | Potential exploration of Nepheline Syenite | | |
| Project 6 | Exploitation of the heavy mineral deposits at Micaune, Muio and Deia | 432.0 | |
| Project 7 | Production of acid grade fluorspar at Mont Muambe | 16.6 | |
| Project 8 | Agri-processing 1: Rice development project | 9.4 | |
| Project 9 | Agri-processing 2: Fruit production and processing | 23.1 | |
| Project 10 | Agri-processing 3: Timber harvesting and processing | 7.3 | |
| Project 11 | Tourism: Cahora Bassa | 209.2 | |

GPZ in association with CPI should develop a concerted strategy to expose and market these projects to investors, by using international conferences, investment promotion forum, Mozambique investment representations abroad, etc. This should be constructed around an aggressive promotion campaign. Some of the projects already identified and formulated are summarized bellow. Details of these projects can be found in the next chapter, and some promotional materials have been already produced.

### 4.2.4 Social Infrastructures

It was suggested above that the addressing of social problems is part of the National Government Agenda. However, under this strategy, localized actions could be taken to minimize the social conditions and creation of absorption capacity of the investment. This could include developing conditions to expand vocational training in areas that are focus of public and private sector investment, as well as seeking the best practices in health mobile unities. Agriculture is another priority area that will quickly improve the social conditions with a possibility of being stimulated by investment in other sectors.



**Table 4.3: Social Infrastructure Cost Estimate**

| COST CATEGORY | Public Sector | Private Sector | TOTAL |
|---|---|---|---|
| Mobile Health Unities | 3,500,000 | 3,500,000 | 7,000,000 |
| Mining School | 3,000,000 | 2,000,000 | 5,000,000 |
| 4 Agricultural Schools | 8,000,000 | 0,000 | 8,000,000 |
| Development of Irrigation scheme | | | |
| **TOTAL** | **14,500,000** | **5,500,000** | **20,000,000** |

## 4.3 PHASE II

### 4.3.1 Other Infrastructure

Once the rehabilitation of the Sena Line has started and investors are committing to take over some of the identified business opportunities, the rehabilitation of other infrastructures should start to take shape. The priority setting for these investments should be lined up with the priorities being considered by the private sector. However, this strategy has identified few of them and discussed them elsewhere in this document. The cost estimate for these infrastructures is provided bellow with more details on appendix….

**Table 4.4: Summary of Investments in Infrastructures**



| | |
|---|---|
| Inchope-Gorongosa-Caia Highway | 18.2 |
| International highway upgrading | 24 |
| Tete-Moatize corridor (20 Km) | 80 |
| New Zambezi river bridge | 2 |
| Zambezi river transport development system | 105 |
| Rovubwe multipurpose dam | n/a |
| Tete international airport upgrading | n/a |

### 4.3.2 Improvement and Consolidation of Service Delivery Systems

The initiation of private sector investment in the Zambezi Valley will require a more sophisticated delivery system of services in support and facilitation of investment. GPZ will require an outward structural organization that accommodates planning, coordination, implementation and facilitation. At this stage it would be required to conclude the institutional changes proposed above by restructuring SOGIR and setting up the Investment Facilitating Units and Development Nodes Structures. Along with that all the proposed development support services and research should be established during this phase bearing in mind that whenever possible a private sector partnership will enhance the

performance of the delivery system and reduce public sector funding. Finally, this phase will also embrace the development of mechanisms of water resources management through establishment of Zambezi Basin Data Base Management.

**Table 4.5: Institutional Framework Cost Estimate Phase II**

(in 1000 USD)

| COST CATHEGORY | PUBLIC | PRIVATE | SUB-TOT |
|---|---|---|---|
| GPZ/SOGIR | 12,800 | 0 | 12,800 |
| COMMUNITY DEVELOPMENT | 2,000 | 0 | 2,000 |
| LOCAL ADMINISTRATION | 2,000 | 0 | 2,000 |
| BUSINESS CENTER | 150 | 150 | 300 |
| INDUST. TECHNOLOGY AND INFORMAT. CENTER | 5,000 | 10,000 | 15,000 |
| LAND USE PLANING | 3,000 | 0 | 3,000 |
| **TOTAL** | **24,950** | **10,150** | **35,100** |

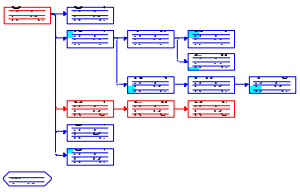


### 4.3.3 Social Services and Infrastructure

During phase II, public and private sector investment will trigger downstream development and business opportunities. Thus, it will be necessary to supplement the work done during the previous phase by conceptually examining synergies and symbioses, and providing the readjustment of the planning process with some point of reference for identifying (and quantifying) those secondary and tertiary industries that are likely to develop spontaneously as a result of investments made or in process, and those others which may be encouraged. Once this has been done, it is possible to extrapolate the overall economic justification for further development of social infrastructure and services. It would also serve to highlight the extent to which investment is critical to decisions affecting such infrastructure, and the nature of the respective contributions that should be made primary sectors and the Mozambique government to the capital and operating costs of this infrastructure. All this considered it will lead to readjust all plans for development of small to medium scale enterprises (SMSE) guided by linkages with public and private sector orientation, leading to a more integrated planning of social infrastructures and development of projects to be taken by the SMESE's.

Along with these developments the need to strengthen local administration and community based institutions will need an extra effort.

The Figure bellow attempts to exemplify the sequencing of activities as part of the implementation approach of this strategy.



# 5 EXPECTED IMPACTS TRIGGERED BY THE ANCHOR PROJECTS

The realization of the above investments and plans will trigger the development of the Zambezi Valley by attracting investments, thus increasing production and productivity and creating conditions for a long term sustainable integrated development.

## 5.1 INCREASE IN PRODUCTION

### 5.1.1 Agriculture



The Zambezi Valley has enormous potential in agriculture that is actually the mainstay of Mozambican economy and holds great potential for growth. It contributes 34% to GDP while services and industry contribute 44% and 22% respectively.

Within the agricultural sector, the Zambezi Valley is considered the zone with the largest potential for it has natural conditions that are suitable for the cultivation of a wide variety of crops arising from a good combination of climate, soils and topography. This confers to the Zambezi Valley an area of over 5.5 million hectares of arable land, making up about 15% of Mozambique's total arable land. Of this, about 2.5 million hectares can hold intensive farming including irrigation for 1.5 million hectares. However, the present land use for agriculture accounts only for the use of about 1.5 million hectares of rain fed agriculture and less than 200 hectares of irrigated farming (Table 48). The existing agriculture activities on a significant scale include those associated mainly with the sugar, cotton and coconut production, and the rest of crops are cultivated in small scale, mainly for subsistence. The largest agricultural development taking place in the Valley is the re-establishment of sugar production at Marromeu by Sena Sugar, with a total investment of US$ 110 million planned by 2003. Cotton production is also being increased by a number of cotton companies that are involving small-scale

farmers and upgrading of gins and processing capacity. Madal leads the upgrading of the coconut sector by improving its plantations and considering development of a desiccated coconut and oil plant. The old rice schemes in Zambézia have been earmarked for upgrading by the Ministry of Agriculture and Madal has investigated the establishment of a husking plant although limited development has taken place at this stage. Likewise, the tea estates (although outside the Zambezi Valley area, but with considerable influence in its economy) remain to be upgraded and some low level upgrading has already occurred. In the case of livestock, a number of development programs are underway to restock the area with cattle and goats and increase production. Pig and poultry production is being increased within the family sector, with some commercial production taking place near major towns and cities.



In the forestry sector there also activities taking place to upgrade the commercial extraction and processing of timber within and adjacent to the Basin Area. This involves an investment of some US$205 million in logging equipment and machinery, transportation equipment and sawing machinery/buildings.

Overall, the upgrading of former large agricultural activities is small compared to the existing potential. There are much more opportunities for raising agriculture's contribution to the economy through intensification of existing farming activities. Currently, yields are much lower than the agronomic potential for the crops grown in the area and are about half the yield levels achieved for some crops in neighbouring countries. The major limiting factors to increase production are technology and access to market. With establishment of irrigation infrastructure and improvement in market access (roads and transport services) that has been discussed above the crop production would increase at least three folds in a relative short period of time.

### 5.1.2 Mining and Mineral Beneficiation

Mining potential of Valley is considerable large. This potential arises from the diverse complex geology of the country that results in a considerable

diversity of mineral deposits. However, the knowledge of the mineral occurrences in Mozambique is rather poor.

A large variety of both metallic and non-metallic minerals occur within the Mozambican Zambezi Basin. The more important of these are: coal, natural gas, rare metals, (niobium-tantalum etc), gold, fluorite, tin, heavy mineral sands and pegmatite. Numerous exploration and evaluation programs carried out by various mining companies have identified and defined many of the potential mineral deposits. Investments in mining and mineral processing have been hindered by lack of infrastructure. Judging by manifested interests of different mining companies, the rehabilitation of the Sena Line will reactivate the cocking coal mining in Moatize. Other mining activities that may follow include the Monte Muande deposit of magmatic iron that occurs approximately 25 km northwest of Tete, the copper and nickel occurrences in the Tete and Atchiza Complexes, the exploration and processing of building materials (sand and gravel, building stone, aggregates, dimension stones, clays, etc), the fluorite resources in Mt Muambe, Cone N'gose, Dombe and Djanguire, the phosphates, barites, bauxite, graphite, etc.



Additional transport infrastructure (like the Inchope-Gorongosa-Caia Highway, the new bridge over the Zambezi River, the Zambezi River transport system) will allow the exploration of the heavy mineral sand deposits occurring in Micaúne, Muio and Deiza, close to Quelimane, germstones occurring in Zumbo, Changara and Guro, etc. The overall investment climate will also allow the investigation of other less know mineral occurrence such as the nepheline syenite occurring in the Milange and Morrumbala districts of the Zambézia.

### 5.1.3 Tourism

The Zambezi valley holds potential for tourism investment that is being held back again by lack of infrastructure and appropriate efficient services. The Cabora Bassa Lake supports various fish species that constitute a good basis for sport fishing. The surroundings of Cabora Bassa have many natural and scenic features (forests, hot springs and wildlife) that could constitute destination for ecological tourism.

In addition to Cabora Bassa Lake and its surroundings, the Gorongosa National Park (that was once an international tourism destination), and Ntchuma Tchato are sanctuaries of wildlife that hold a great deal of potential for tourism. The coastal areas of Sofala and Zambézia Provinces are made-up of unspoiled beaches that lack appropriated infrastructure and services to boost the tourism in the area.

### 5.1.4 Integrated sustainable Development

Improvement in infrastructure, services and education under a careful designed land use plan will allow for a more integrated and balanced development. The exploitation of some minerals can lead to processing of agricultural inputs that in turn will lead to a better technology and increasing in yields. This in turn will reduce pressure on land for agriculture in the future, thus reducing the slash and burn systems that are detrimental to the environment. The linkage between agriculture and industry will be strengthened by means of vertical integration of agricultural processing and production of inputs to the farming systems.



The regional cooperation sub-component of the strategy will strengthen the economies of the region rising more survival opportunity within the more globalised economy.

A careful plan of land use will on the one hand establish settlement patterns that are in agreement with development, and on the other hand will cater for a balance between development and conservation:

- To ensure universal access to primary education and primary health care as essential part of basic human needs, rectifying particularly the existing gender biases and rural-urban disparities;

- To ensure access to basic human needs, rectifying particularly the existing gender biases and rural-urban disparities;

- To organize and empower people to ensure that local people and communities will become accountable for environmental management.

In the short to medium term, the emphasis of the social development strategy focus on improving existing primary education and health

facilities in association with the improvement of various rural infrastructure in selected areas to increase the service coverage effectively, particularly rectifying the existing gender biases and rural-urban disparities. Similarly the focus should cover the promoting of community by organizing farmers/business associations for effective socio-economic activities and community/voluntary works, including rural women and their organizations.

In the medium to long term, social service capacities should be much expanded with new facilities and improved infrastructure under the following strategy:

Expanding capacities of social facilities and personnel, including teacher training school, specialized training institutes, and training hospital as well as more primary and secondary schools and health posts; and



Enhancing mobility and communications capacities among various social organizations, and between different areas and sectors to ensure a wider coverage by given social facilities, respectively.

Table bellow summarizes investment projects that are likely to be taken by the private sector under this strategy. Annexure x??? provides profiling of these projects of which some of them are already under private sector consideration.

# 6 PRE-FEASIBILITY DATA FOR SPECIFIC PROJECTS

## 6.1 PROJECTS FOR INFRASTRUCTURE

| PROJECT 1 : Sena Railway | |
|---|---|
| **LOCATION** | |
| **IMPLEMENTING AGENCIES** | CFM – central or private firm |
| **OBJECTIVES** | (1) To provide a driving force for the development of the Zambezi Valley;<br>(2) To facilitate the export of Moatize coal and other local products; and<br>(3) To contribute to the establishment of a multi-modal transport system linked with neighbouring countries. |
| **EXPECTED EFFECTS** | Realization of development potentials in the Zambezi Valley |
| **MAIN ISSUES** | Power Purchase Agreement |
| **PROJECT COST** | US$ 311.2 millions |

| ITEM | QTY | UNIT/RATE | AMMOUNT (US$ million) |
|---|---|---|---|
| Rail Infrastructure | | | 213 |
| Locomotives | 24 | 2,000 | 48 |
| Wagons | 600 | 50 | 30 |
| Wagons (coal-63 tons) | 220 | 70 | 15 |
| Coaches | 42 | 100 | 4,2 |
| Safety $ Telecom | 1 | | 1 |
| **TOTAL** | | | 311.2 |

PROJECT DESCRIPTION

The Sena Line is about 577 Kms. It has a single track with 1067 mm gauge. Its main characteristics are summarized in the table bellow

| Description | KM | Specifications and Remarks |
|---|---|---|
| Dondo-Sena | 294 | 45, 40 and 37 kg/m Rail on timber sleepers |
| Sena-Dona Ana | 4 | Bridge over the Zambezi now road bridge but Designed as a 20 t axle load rail bridge |
| Dona Ana-Moatize | 254 | 30 kg/m Rail on timber sleepers except a 20 kms section prior to Cambulatsithse-steel sleepers |
| Dona Ana-Vila Nova | 44 | 30 kg/m Rail on timber sleepers |
| Inhamitanga-Marromeu | 88 | 30 kg/m Rail on timber sleepers |

In an incremental reabilitation of the Sena Line it is to be followed, there are considered the following phases:

Phase I

Confirmation of alignment and right of way,
Clearing of mines and other obstructions,
Preparation of a detailed staged restoration plan, and
Financial arrangement, F/S and D/D of the low cost rehabilitation from Dondo to Vila Nova (335km) as part of the low level development of the main line to Malawi.

Phase II

Construction of the Dondo – Vila Nova section
Financial arrangement, F/S and D/D of the low cost rehabilitation from Dona Ana to Moatize (254 km),
Establishment of a high grade link between Moatize and Tete city.

Introduction of passenger services (2010-), and
F/S of a new line from Cambulatsitsi to Blantyre (95 km).

Phase III
Possible construction of the new line to Blantyre, and
Improvement of the full line.
The projected traffic demand under the two most likely scenarios is:

**Summary of Forecasted Traffic Demand of Sena Railway**

(Unit: 1,000 ton/year)

| Item | Scenario 1<br>High level development | Scenario 2<br>Low level development |
|---|---|---|
| Minerals | 6,730 | 1,020 |
| Traffic to/from Malawi | 520 | 520 |
| Traffic to/from Tete prov. | 79 | 79 |
| Domestic Traffic | 681 | 341 |
| Total Cargo | 8,010 | 1,960 |

The potential traffic demand for Sena railway may exceed 2 million ton/year in two years which may increase to 8 million ton/year by 2015, once the line is provided.



| PROJECT 2 : Inchope-Gorongosa-Caia Highway | |
|---|---|
| **LOCATION** | |
| **IMPLEMENTING AGENCIES** | ANE |
| **OBJECTIVES** | (1) To upgrade the highway to international standards;<br>(2) To improve conditions of the Inchope-Quelimane corridor for investments through facilitating trade and distribution; and<br>(3) To improve access to other areas of the Zambezi Valley as well as to Beira Port |
| **EXPECTED EFFECTS** | Much larger and more efficient flow of commodities through the region and more export processing activities within the region. |
| | |
| **PROJECT COST** | US$18.2 millions |

| PROJECT 3 : International Highways Upgrading | |
|---|---|
| **LOCATION** | Tete city, districts of Moatize, Chiuta and Chifunde |
| **IMPLEMENTING AGENCIES** | ANE |
| **OBJECTIVES** | (1) To upgrade the two regional artery roads to international standards;<br>(2) To improve locational conditions of the Tete-Moatize corridor for investments through facilitating trade and distribution; and<br>(3) To improve access to other areas of the Angonia region |
| **EXPECTED EFFECTS** | Much larger and more efficient flow of commodities through the region and more export processing activities within the regions |
| **PROJECT COST** | US$ 24.0 millions |

| PROJECT 4 : New Zambezi River Bridge | |
|---|---|
| **LOCATION** | Caia |
| **IMPLEMENTING AGENCIES** | ANE and/or the private sector |
| **OBJECTIVES** | (1) To meet future traffic demand on the international artery across the river;<br>(2) To link the North and South of Mozambique and establish a symbol of regional and national integration;<br>(3) To facilitate increase the trafic and cargo flow between the Nortand South of Mozambique |
| **EXPECTED EFFECTS** | Increase in Investment in the Zambezi Valley; Strengthened the multimodal transport schem in the area;<br>Increased trafic and cargo flow in the main North-South higway with improvement in leaving conditions of the people leaving in the highway catchment area. |
| **PROJECT COST** | US$ 80.0 millions |



| PROJECT 5 : Zambezi River Transport Development | |
|---|---|
| **LOCATION** | Zambezi river |
| **IMPLEMENTING AGENCIES** | Tete city, private firm |
| **OBJECTIVES** | (1) To utilize the Zambezi river as inexpensive means to transport local goods; and<br>(2) To introduce river cruising for tourism |
| **EXPECTED EFFECTS** | More diversified transactions of local goods; more diversified attractions for domestic and international tourism; inducement of water-front development. |
| | |
| **PROJECT COST** | US 2.0 million |

| PROJECT 6: Rovuboe Multi-purpose Dam | |
|---|---|
| **LOCATION** | Rovuboe river bordering Moatize and Chiuta districts |
| **IMPLEMENTING AGENCIES** | MPW, MARD, GPZ (coordination) |
| **OBJECTIVES** | (1) To pioneer multi-purpose development and management of water resources in Mozambique; and<br>(2) To contribute to enhanced agricultural productivity, stable power supply, flood control, and water supply expansion for Moatize. |
| **EXPECTED EFFECTS** | New era for water resources development and management in Mozambique; diversified economic activities; attractive change in rural landscape. |
| **PROJECT COST** | US$ 5 million for F/S and US$100 million |

| | |
|---|---|
| | (indicative estimate) for construction. |

| PROJECT 7: Tete International Airport Upgrading | |
|---|---|
| **LOCATION** | Tete city |
| **IMPLEMENTING AGENCIES** | Department of Civil Aviation, private firm |
| **OBJECTIVES** | (1) To upgrade facilities and services of the Tete airport; and<br>(2) To establish a local air services network linked with neighboring countries. |
| **EXPECTED EFFECTS** | Rapid increase in passengers and cargoes handled at the airport; enhanced image of Tete city as the regional gateway. |
| **PROJECT COST** | To be calculated |
| **IMPLEMENTATION SCHEDULE** | Upgrading of facilities in Phase 1; privatization of airport operation in Phase 2; establishment of the local air services network in Phase 2 - Phase 3. |



## 6.2 ENERGY PROJECTS

| PROJECT 1: Cabora Bassa North | |
|---|---|
| **LOCATION** | Songo |
| **IMPLEMENTING AGENCIES** | |
| **OBJECTIVES** | Contributing to meeting SADC power and energy demands in future |
| **EXPECTED EFFECTS** | Attract investment for industrial development<br>Funnel equity returns into infrastructure and facilitating projects<br>Supply of readily available energy to potential projects in the area, therefore enhances local employment opportunities. |
| **PROJECT COST** | US$ 340 millions |

| PROJECT 1: Mepanda Uncua | |
|---|---|
| **LOCATION** | Zambezi Valley River in Mepanda Uncua |
| **IMPLEMENTING AGENCIES** | |
| **OBJECTIVES** | Contribute to meeting SADC power and energy demands in future |
| **EXPECTED EFFECTS** | Attract investment for industrial development |
| **PROJECT COST** | US$ 755 millions |

## 6.3 SERVICE PROJECTS

| PROJECT 1: Land Use Planning | |
|---|---|
| **LOCATION** | Zambezi Valley Area |
| **IMPLEMENTING AGENCIES** | GPZ in Collaboration with DINAGECA and Provincial Governments |
| **OBJECTIVES** | (1) To facilitate land application for different uses.<br>(2) To facilitate mitigation plans for environmental management.<br>(3) To support negotiations of land for different uses. |
| **EXPECTED EFFECTS** | Integrated and Balanced Planning for Development of the Zambezi Valley;<br>More Confidence for Investing in the Zambezi Valley |
| **PROJECT COST** | US $4 Million |



| PROJECT 2: Business Center Establishment | |
|---|---|
| **LOCATION** | Tete city |
| **IMPLEMENTING AGENCIES** | GPZ |
| **OBJECTIVES** | (1) To create an institutional framework and establish a center that would allow private business initiatives to be smoothly and quickly processed and authorized at one location.<br>(2) To provide all kinds of information on Tete province to promote investment; and<br>(3) To support the aforementioned functions with advanced information technologies (IT) and audio equipment. |
| **EXPECTED EFFECTS** | Activated local business activities through streamlined and time-efficient approval and authorizations process; increase in foreign direct investments; and increase in export of local products through information dissemination and campaign. |
| **PROJECT COST** | US$300,000 |

| PROJECT 3: Industrial Technology and Information Research Center (ITIRC) | |
|---|---|
| **LOCATION** | Tete city |
| **IMPLEMENTING AGENCIES** | GPZ in collaboration with Ministry of Science and Technology |
| **OBJECTIVES** | To provide production technology and information necessary for business management. |
| **EXPECTED EFFECTS** | Products development by applying new technologies; better business decisions based |

| | |
|---|---|
| | on appropriate information |
| **PROJECT COST** | US$ 1.5,000.000 |

| **PROJECT 4: Irrigation Schemes Development** | |
|---|---|
| **LOCATION** | Along small tributaries of the six districts |
| **IMPLEMENTING AGENCIES** | MARD, the private sector |
| **OBJECTIVES** | (1) To convince farmers of effectiveness of irrigation in increasing production and yields; and<br>(2) To develop and accumulate experiences in irrigated agriculture and marketing of diversified crops. |
| **EXPECTED EFFECTS** | Farmers' groups motivated for large-scale irrigation development; accumulated experiences in irrigated agriculture and promising crops for marketing; higher income of small farmers. |
| **PROJECT COST** | To be calculated |



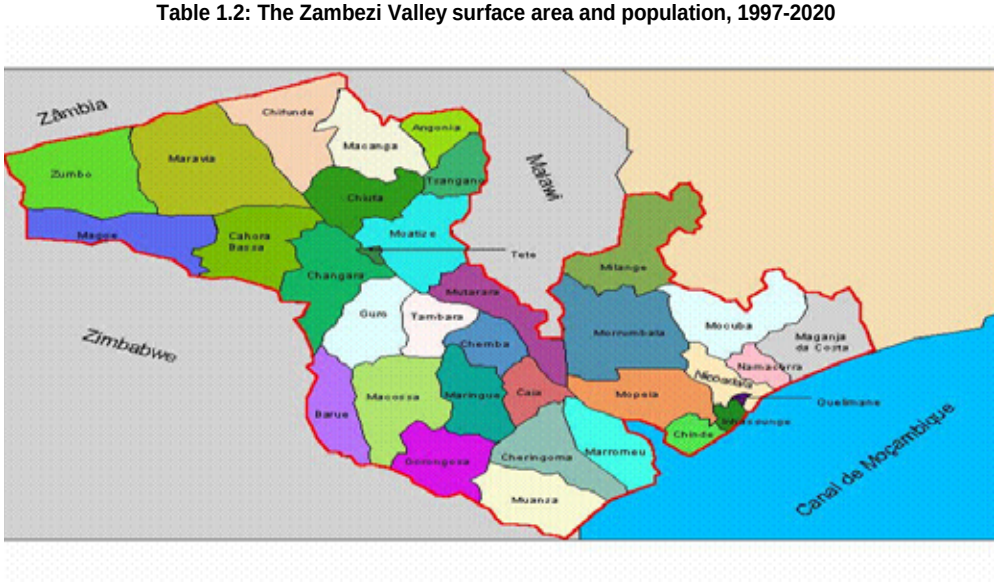
| **PROJECT 5: Mobile Health Units** | |
|---|---|
| **LOCATION** | Pilot Units with 8 hubs |
| **IMPLEMENTING AGENCIES** | GPZ and Ministry of Health |
| **OBJECTIVES** | Quick improvement of access to health; Provision of preventive health care; Provision of health education; |
| **EXPECTED EFFECTS** | Improvement in life expectancy; Improvement in productivity; Decrease in occurrence of infectious diseases. |
| **PROJECT COST** | US$ 7 millions |

| **PROJECT 6: Zambezi River Basin DataBase Development** | |
|---|---|
| **LOCATION** | Tete city |
| **IMPLEMENTING AGENCIES** | GPZ |
| **OBJECTIVES** | (1) To establish a comprehensive database for the Zambezi river basin covering both natural and socio-economic data; and<br>(2) To contribute to the promotion of multi-national cooperation on the entire Zambezi river basin. |
| **EXPECTED EFFECTS** | Tete city as an information center for Zambezi river basin development; enhanced status of Mozambique in multi-national cooperation on the basin. |
| **PROJECT COST** | |

# Annexes

# Annex 1: The Zambezi Valley Area and Population

**Table 1.2: The Zambezi Valley surface area and population, 1997-2020**




| District | Surface (1000 km2) | % | Population in 1997 (1000 peopl | % | Projected Population 2000 | % | 2005 | % | 2010 | % | 2015 | % | 2020 | % | Population Density 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Country** | **799.380** | **29%** | **16,076** | | **17,242** | | **19,436** | | **21,968** | | **24,771** | | **27,932** | | **22** |
| **Central region** | **334.778** | | **6,731** | | **7,228** | | **8,170** | | **9,263** | | **10,477** | | **11,846** | | **22** |
| **Total Valley** | **227.927** | 68% | **3,760** | 56% | **4,021** | 56% | **4,520** | 55% | **5,111** | 55% | **5,767** | 55% | **6,515** | 55% | **18** |
| **Zambezia Province** | 103.2 | 12.9 | 3,096 | **52** | 3,317 | **19%** | 3,734 | | 4,216 | | **4,747** | | **5,345** | | 32 |
| **ZV_Zambezia** | **57.6** | 56 | **1,968** | 64 | **2,129** | 64 | **2,438** | 65 | **2,802** | 66 | **3,209** | 68 | **3,676** | 69 | 37 |
| Quelimane | | 0 | 175 | 5 | 211 | 5 | 289 | | 393 | | | | | | |
| Chinde | 4.8 | 2 | 137 | 4 | 139 | 3 | 142 | | 146 | | | | | | 29 |
| Inhassunge | 0.7 | 0 | 91 | 2 | 98 | 2 | 112 | | 128 | | | | | | 132 |
| Maganja da Costa | 7.6 | 3 | 237 | 6 | 249 | 6 | 270 | | 292 | | | | | | 33 |
| Milange | 9.8 | 4 | 367 | 10 | 390 | 10 | 433 | | 479 | | | | | | 40 |
| Mocuba | 8.9 | 4 | 237 | 6 | 262 | 7 | 310 | | 366 | | | | | | 30 |
| Mopeia | 7.6 | 3 | 77 | 2 | 81 | 2 | 89 | | 98 | | | | | | 11 |
| Morrumbala | 12.8 | 6 | 263 | 7 | 283 | | 319 | | 360 | | | | | | |
| Namacurra | 1.8 | 1 | 168 | 4 | 182 | | 208 | | 237 | | | | | | |
| Nicoadala | 3.6 | 2 | 216 | 6 | 234 | | 266 | | 304 | | | | | | |
| **Tete Province** | 102.6 | 12.8 | 1,226 | | 1,320 | | 1500 | | 1719 | | **1,958** | | **2,230** | | 13 |
| **ZV_Tete** | **103** | 100 | **1,226** | 100 | **1,320** | 100 | **1,500** | 100 | **1,719** | 100 | **1,958** | 100 | **2,230** | 100 | 13 |
| Tete city | | 0 | 113 | 2.8 | 130 | 3.2 | 163 | | 204 | | | | | | |
| Angónia | 3.4 | 2 | 262 | 6.5 | 284 | 7.1 | 326 | | 375 | | | | | | 83 |
| Cahora Bassa | 10.6 | 5 | 64 | 1.6 | 68 | 1.7 | 74 | | 82 | | | | | | 6 |
| Changara | 8.7 | 4 | 125 | 3.1 | 133 | 3.3 | 146 | | 160 | | | | | | 15 |
| Chifunde | 9.3 | 4 | 53 | 1.3 | 55 | 1.4 | 60 | | 65 | | | | | | 6 |
| Chiuta | 6.9 | 3 | 52 | 1.3 | 62 | 1.5 | 82 | | 110 | | | | | | 9 |
| Macanga | 7.3 | 3 | 50 | 1.2 | 59 | 1.5 | 78 | | 104 | | | | | | 8 |
| Mágoè | 8.7 | 4 | 42 | 1.0 | 46 | 1.2 | 55 | | 65 | | | | | | 5 |
| Marávia | 16.9 | 7 | 57 | 1.4 | 60 | 1.5 | 66 | | 72 | | | | | | 4 |
| Moatize | 8.9 | 4 | 118 | 2.9 | 120 | 3.0 | 123 | | 126 | | | | | | 14 |
| Mutarara | 6.4 | 3 | 140 | 3.5 | 139 | 3.5 | 138 | | 137 | | | | | | 22 |
| Tsangano | 3.4 | 2 | 114 | 2.8 | 124 | 3.1 | 142 | | 164 | | | | | | 36 |
| Zumbo | 12.0 | | 36 | 0.9 | 40 | 1.0 | 47 | | 56 | | | | | | |
| **Manica Province** | 61.5 | 7.7 | 1,039 | | 1,137 | | 1319 | | 1524 | | **1,766** | | **2,045** | | 18 |
| **ZV_Manica** | **26.6** | 43 | **179** | 17.2 | **183** | 16.1 | **190** | 14.4 | **195** | 12.8 | **201** | 11.4 | **208** | 10.2 | 7 |
| Bárue | 5.8 | | 86 | | 90 | | 97 | | 103 | | | | | | |
| Guro | 7.0 | | 46 | | 45 | | 42 | | 39 | | | | | | |
| Macossa | 9.6 | | 14 | | 15 | | 16 | | 17 | | | | | | |
| Tambara | 4.3 | | 33 | | 33 | | 35 | | 35 | | | | | | |
| **Sofala Province** | 67 | 8.4 | 1,369 | | 1,454 | | 1617 | | 1804 | | **2,006** | | **2,231** | | 22 |
| **ZV_Sofala** | **41** | 61 | **388** | 28 | **389** | 27 | **392** | 24 | **395** | 22 | **398** | 20 | **401** | 18 | 9 |
| Caia | 3.5 | | 88 | | 90 | | 92 | | 94 | | | | | | |
| Chemba | 4.4 | | 50 | | 47 | | 43 | | 39 | | | | | | |
| Cheringoma | 7.0 | | 22 | | 20 | | 17 | | 14 | | | | | | |
| Gorongosa | 6.7 | | 81 | | 85 | | 93 | | 100 | | | | | | |
| Maríngue | 6.3 | | 56 | | 59 | | 65 | | 70 | | | | | | |
| Marromeu | 5.8 | | 74 | | 72 | | 70 | | 67 | | | | | | |
| Muanza | 7.5 | | 16 | | 15 | | 13 | | 11 | | | | | | |

**Source:** INE. 1999. *Demographic Projecções 1997-2010*

# Annex 2: Zambezi Valley Region at a Glance

## ZAMBEZI VALLEY REGION AT A GLANCE IN 2000

| | |
|---|---|
| **Área:**<br>**Tete** (Tete city & 12 districts)<br>**Zambezia** (Quelimane & 10 of 12 dstricts)<br>**Sofala** (7 of 12 districts)<br>**Manica** (4 of 9 districts) | 227,000 Km2 (68% of the Central region and 28% of Mozambique's land mass).<br><br>**Main Languages**: Cinyanja (40% in 3 provinces and 28% in Manica); Cinyungwe (22% in Manica, 33% in Sofala); Cisena (16% in Manica). |
| **Population** | 4 million (i.e. 55% of the central region and 23% of the Mozambican population). |
| **Human Development Index,** Adjusted to the international UNDP value | •Central region 0.292<br>•Maputo City 0.700<br>•Mozambique 0.332 |
| **Personal Income Per Capita** | •Central region US$ 131<br>•Maputo City US$ 1,068<br>•Mozambique US$ 171 |
| **Gross Geographical Product (GGP)**<br>GGP = GDP of a region | ≈586 million USD (≈ 61% of the Central region). |

| **GGP at real price** (base 1996) | **Central region** | **Maputo City** |
|---|---|---|
| GGP ($10^9$ Meticais) | 11.6 | 16.5 |
| GGP (billion USD) | 960 | 1,298 |
| Real GGP per capital (USD) | 113 | 1,068 |
| % of Mozambique's GDP | 26% | 36% |

| **Gross Geographic Product: each sector's contribution to the Province's GGP** | | |
|---|---|---|
| | 100% | 100% |
| Agriculture, livestock, forestry, fisheries & mining | 42% | 4% |
| Manufacturing, Electricity and Water | 11% | 24% |
| Construction | 3% | 21% |
| Trade | 23% | 32% |
| Transport & Telecomunication | 8% | 12% |
| Restaurants and Hotels | 0.5% | 2% |
| Other (Financing, Education, Health, Tourism, Public administration & other) | 12% | 6% |

| **Zambezi Valley's contribution to the total Mozambican Production by sector:** | | |
|---|---|---|
| Agriculture, livestock, forestry, fisheries & mining | 36% | 4% |
| Manufacturing, Electricity and Water | 19% | 56% |
| Construction | 8% | 71% |
| Trade | 25% | 48% |
| Transport & communication | 23% | 45% |
| Restaurants and hotels | 15% | 76% |
| Other (Financing, Education, Health, Tourism, Public administration & other) | 34% | 23% |

**Source:** INE, 2002, 2003; UNDP, 2000.