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## Mozambique

### 1. KEY STATISTICS

Table 1 – Country statistics

COUNTRY STATISTICS	
Population 2001	19.4 million
Land area	784,090 sq km
Capital	Maputo
Local currency	Metical
GDP 2000 (est)	US\$19.1 billion
GDP real growth rate 2000 (est)	3.8%
Government	Republic

Table 2 – Telecommunication statistics

TELECOMMUNICATION STATISTICS		
Telecommunications services revenue	2000	US\$74.4 million
Fixed telephone lines	2000	85,700
Fixed line teledensity	2000	0.44%
CAGR	1995-2000	7.5%
Digital lines	2000	100%
International outgoing telephone traffic	2000	22.4 million minutes
Public payphones	2000	1,200

Table 3 – Internet and PC statistics

INTERNET AND PC STATISTICS		
Key Internet access provider		TDM
Internet users	2000	36,000
Internet penetration	2000	0.02%
Internet host computers	2000	112
Internet service providers	2001	10
Number of PCs (est)	2000	60,000
PC penetration	2000	0.30%

**Table 4 – Wireless statistics**

<b>WIRELESS STATISTICS</b>		
<b>Mobile subscribers (Sept)</b>	<b>2001</b>	128,000
<b>Annual growth to June</b>	<b>2001</b>	384.21%
<b>Mobile penetration (June)</b>	<b>2001</b>	0.48%

**Table 5 – Broadcasting statistics**

<b>BROADCASTING STATISTICS</b>		
<b>TV receivers</b>	<b>2000</b>	105,000
<b>TV penetration</b>	<b>2000</b>	0.5%

**Table 6 – Telecommunications organisations**

<b>TELECOMMUNICATIONS ORGANISATIONS</b>	
<b>Regulatory authority</b>	National Telecoms Institute of Mozambique (INCM)
<b>Main public telecommunication operators</b>	Telecommunications of Mocambique Telecomunicacoes Moveis de Mocambique

(Compiled by Paul Budde Communication Pty Ltd. Sources: industry and company data; ITU Telecommunication Indicators; Internationale Fernmeldestatistik; FT Mobile Communications; Frost & Sullivan; Analysis Publications; Global Mobile)

## **2. TELECOMMUNICATIONS MARKET**

### **2.1 OVERVIEW**

Devastated by war and the policies of the Marxist government, Mozambique has faced an enormous challenge in rebuilding its economy. Since 1994 when it was ranked as one of the poorest countries in the world, a number of economic reforms have been taken and almost all aspects of the economy have been liberalised to some extent.

In a major step towards reform, the government passed the privatisation Act in 1991. Legislation called for the privatisation of all state-owned enterprise with the exception of those providing public goods, including telecommunications.

Telecommunications of Mocambique (TDM) is the state-owned monopoly provider of telecom services. Cellular services were introduced in 1997 following a joint venture agreement with [Deutsche Telekom](#) (see separate profile) and by mid-2001, the number of mobile subscribers passed the number of fixed line users for the first time.

The government plans to issue second cellular licence in early 2002. Given the impressive growth of the cellular service, which had over 92,000 subscribers by mid-2001, the market is more than able to support an additional provider.

Mozambique is unique in spending almost 5% of its GDP on telecommunications. Despite improvements, teledensity remained extremely low at 0.44% in 2000, among the lowest on the African continent.

### **3. REGULATORY ENVIRONMENT**

#### **3.1 TELECOMMUNICATIONS LAW 1992**

In 1992, enactment of the Telecommunications Law established Telecommunications of Mocambique (TDM) as an independent company and created the National Telecommunications Institute of Mozambique (INCM) as an independent regulatory body. INCM is responsible for licensing; spectrum management; formulation and interpretation of sector policy; international relations; and defining and monitoring compliance with the performance targets set for TDM.

The law established TDM as the monopoly service provider for basic services, switching and transmission, as well as cellular services. Complementary and value-added services, as well as data communications are open to competition subject to licensing by the INCM. There is no restriction on resale to third parties of TDM circuits as long as they are not used for voice traffic.

The network infrastructure is owned by the state. Ownership of infrastructure for complementary services is open to both the public and private sector. Participation in joint ventures regarding complementary services, involving foreign capital is allowed up to a limit of 50% of share capital.

In an effort to encourage private sector competition, the government has mandated that TDM keep the public networks open to all users. It must provide access to the public transmission network to all telecom service providers on an equal basis, with regard to access, quality and pricing. TDM may provide value-added services in competition with other operators and service providers.

#### **3.2 NATIONAL COMMISSION ON INFORMATION**

This newly created commission focuses on Information Technology (IT) policies such as the establishment of a national policy for the Internet, IT, research and the future of e-commerce. Additional objectives are to raise national consciousness on the increasing importance of information in the areas of education, science, health and entertainment.

Tackling the need to eliminate regional trade disadvantages, the commission promises to focus on investment in technologies for commerce, enabling products to be marketed globally.

#### **3.3 PRIVATISATION**

In January 1999, the government began drafting telecommunications sector reform legislation, which is likely to partially open the sector to greater private investment and competition. There are no plans to privatise TDM, although it has entered into several joint ventures.

### **4. MAJOR PLAYERS IN THE MARKET**

#### **4.1 TELECOMMUNICATIONS OF MOCAMBIQUE**

In 1992, the national telecom operator was transformed into an independent state-owned company, Telecommunications of Mocambique. It was restructured to function as a commercial entity with financial autonomy and responsibility for planning, installation and operation of the national and international network.

TDM covers 60% of the country. Its core business is the provision of fixed line and mobile GSM services, data communications (leased lines, local connections for ISDN, X.25 and frame relay), public phones and Internet access, cable TV, frame relay, paging, directory books and consulting, ISDN and videotext.

Along with internal reforms to increase efficiency and profitability, TDM has also entered into several joint ventures for the delivery of value-added and complementary services. Teleserve, a joint venture with [Portugal Telecom](#) (see separate profile), supplies customer premises equipment (PABXs etc), internal wiring services and paging services. It also supplies telephone instruments to TDM. TELEConsultores, a consultancy company established as a joint venture with Swedtel, provides management services to the telecom industry. In September of 1997, TDM entered a joint venture with Deutsche Telekom to provide cellular services.

Teledata, a 50:50 joint venture with Portugal Telecom provides data communications and value-added services. It operates a direct link to Portugal. The datacom network has X.25 links to Mozambique's major cities. Services are also offered via a Very Small Aperture Terminal (VSAT) hub in Maputo.

TDM participates in Intelsat, Inmarsat, and Rascom, and is in the process of acquiring global mobile networks via satellite with Iridium, Globalstar, ICO, and Teledesic.

By the end of 1999 TDM aimed to provide at least one telephone in each of the remaining 142 districts without service. Digital leased line services (64Kb/s) are available in Maputo, Beira and Nampula.

TDM has issued a number of 'phone-shop' licenses to allow small shops to resell public voice calls via telephones equipped with a usage counter. As part of the initiative, new phone cards are sold in retail outlets.

## **5. TELECOMMUNICATIONS INFRASTRUCTURE**

### **5.1 DOMESTIC**

In the 1990s, the European Union, KfW and Denmark helped finance extensions to the country's telecommunications infrastructure, including a fibre optic link between Beira and Maputo completed in 1998. The next phase of the project extended the fibre optic link to Quelimani; the trunk also carries television signals.

The basic transmission network structure is extended by a digital microwave system around each of the regional centres. A rural network rehabilitation program with a number of links is being installed. Extensive use is made of radio communications, particularly outside the main centres where public services are lacking. Most commercial businesses, United Nations and NGOs operating outside the main towns use radio sets for communications to their remote sites in the provinces.

Over 60% of the fixed lines are concentrated in Maputo and the telephone network outside the major cities is very limited; many districts have no telephone service at all. However, the infrastructure is rapidly expanding and Mozambique is one of the few countries in the world to be devoting 5% of its GDP to telecommunications investment.

**Table 7 – Fixed line growth – 1995-2000**

<b>Year</b>	<b>Fixed lines</b>	<b>Teledensity %</b>
1995	59,800	0.34
1996	59,900	0.34
1998	75,400	0.40
1999	78,100	0.40
2000	85,700	0.44

(Source: Paul Budde Communication based on ITU data)

Total exchange capacity of the network has increased by 84% since the process of digitisation began in 1989. The switching equipment was fully digital by 1999. The local cable network rehabilitation has been completed and expanded in the main centres resulting in improvement in the fault rate per line and quality of service.

The existing trunk long distance service mainly relies on the domestic satellite system for connecting the ten regional centres in the country. Over 96% of customers are connected to the national automatic service.

TDM is under government contract to guarantee expansion, service quality and interconnection. One of its goals is to provide public phones within 5km walking distance of every citizen. At least one public telephone will be sited in each of the 144 district centres.

## **5.2 INTERNATIONAL**

Most TDM connections to the international network are achieved via satellite. The only international digital exchange is located just outside Maputo. Network development plans call for an additional international exchange, as well as a new earth station. Satellite connections are also used for domestic communications to the major cities. Regional connections are achieved via microwave links to Zimbabwe, Swaziland and South Africa.

Mozambique is linked to South Africa by a high capacity 155Mb/s Synchronous Digital Hierarchy (SDH) microwave link; a satellite IDR connection and an aging analogue microwave link branching to Swaziland.

Intercontinental traffic is handled by the Boane Standard A Earth Station near Maputo and has connections to Portugal, Italy, UK, France, USA, Spain, Sweden, Germany, Brazil, Finland and Malawi.

The country is also a signatory for five Intelsat satellite earth stations; two in the Atlantic Ocean and three in the Indian Ocean.

International traffic is routed through the international telephone exchange in Maputo. IDD is available.

## **6. INTERNET**

### **6.1 MARKET OVERVIEW**

Poverty is reflected in the limited penetration of information and communication technologies. Because of the high price of access calls, most Internet users are non-government organisations (NGOs), businesses, government and members of the international community. Virtually no computers are used in schools.

Key government officials recognise the development potential of the Internet. Following the release of the African Information Society Initiative (AISII) framework in 1996, the government agreed to establish a high level working group to define a national information policy.

Around three quarters of all Internet users are located in Maputo and surrounding communities. However, the trend is now shifting towards Mozambique's nine remaining provinces. Newly injected US Agency for International Development (USAID) funds and a new multi-million dollar international partnership fibre optic network has promised to deliver solutions to the much needed rural communities where most of the population resides.

With the expanding user base, the volume of e-mail occupies much of the available bandwidth. As a result, full Internet access has been opened to dial-up users but access to international Websites is slow. Lack of additional telephone lines to host numerous simultaneous dial-up connections required by Internet users has also created problems. TDM is now planning to provide Points of Presence (PoPs) in each of the ten provincial capitals.

**Table 8 – Internet users - 1996-2000**

Year	Users
1996	500
1997	3,500
1998	3,500
1999	15,000
2000	36,000

(Source: Paul Budde Communication based on industry data)

**Table 9 – Internet host computers –1996-2000**

Year	Hosts
1996	31
1997	69
1998	141
1999	162
2000	112

(Source: Paul Budde Communication based on ITU data)

## 6.2 INTERNET CONNECTIVITY

International access improved during 2001 following implementation of a new international gateway switch, new USAID-funded antennas in three provinces (alternate ISP), and a fibre optic project. And improved inter-urban 64Kb/s leased line access as well as X.25 interurban access will be available in two destinations in addition to Maputo. Local access in Maputo will improve with the installation of fibre optic loops around the city centre.

The Centre Informatica de Universidade Eduardo Mondlane (CIUEM) is the country's key ICT organisation. Partnerships are being developed with universities, and agreements reached with a number of computing companies. CIUEM and Mozambique TV (TVM) have an agreement to share infrastructure for distance education. Within the university, CIUEM has been responsible for the university's information policy and for establishing the university local area network (LAN) that provides e-mail services in Maputo and Internet access on campus.

For many years CIUEM was the only source of low-cost Internet e-mail facilities. In 1997 services were upgraded from dial-up store-and-forward e-mail to full Internet.

CIUEM has an agreement with CSIR to establish a hub for line-of-site broadband (2Mb/s) wireless data communications. A cyber cafe has also been established in Maputo and is linked by the wireless hub.

Following the signing of a MoU with the US government, the USAID executed Leland Initiative provides TDM with a high bandwidth Internet link between Maputo and the US which is then resold to local Internet Service providers (ISPs). Efforts are now being focused on obtaining a VSAT connection.

Teledata, a joint venture between TDM and Portugal Telecom, is another major provider of connectivity.

### **6.3 ISP MARKET**

There were 10 ISPs in Mozambique by mid-2001. Those that are not connected by satellite to international ISPs are connected to TDM, which only provides services to ISPs and not to the end-users.

The leading ISPs include:

- Teledata;
- Tropical Connection;
- Virtual Connection;
- CIUEM;
- EMIL.

## **7. WIRELESS COMMUNICATIONS**

### **7.1 MARKET OVERVIEW**

The country's first cellular network launched in September 1997. The government plans to launch an international tender in late 2001 for a licence to operate a second mobile network. Criteria used to select the winner includes a commitment to cover the whole country and to make its services affordable to a wide range of income groups.

Experiencing outstanding growth since 1999, the number of cellular subscribers increased by around 300% during 2000 to account for almost 21% of all telephone subscribers in the country. The number of subscribers went on to double in the first six months of 2001, exceeding the number of fixed lines for the first time.

The majority of cellular customers use prepaid phone cards.

**Table 10 – Mobile subscriber growth - 1997-2001**

<b>Year</b>	<b>Subscribers</b>
1997	2,500
1998	6,100
1999	12,200
2000	46,500
2001 (Sep)	128,000

(Source: ITU reports; Global Mobile)

## 7.2 MAJOR MOBILE OPERATORS

### 7.2.1 M-Cel

M-Cel, a dualband GSM-900/1800 cellular network was launched in September 1997. The operational management of M-Cel is carried out by Telecomunicacoes Moveis de Mocambique (TMM), a joint venture between TDM (74%) and Deutsche Telekom subsidiary Detecon (26%).

The Alcatel-equipped network covers only four of the country's 10 provinces - Maputo, Sofala, Manica and Nampula, and the major highway to South Africa. Expansion to all provincial capitals is planned by early 2002.

*Alcatel* (see separate profile) has expanded the network with the addition of an intelligent network (IN) platform and value-added services such as prepaid calling cards. M-Cel has budgeted US\$33 million for remote connectivity construction during 2000-2002.

The company provides a range of complementary services, including voice mailbox, roaming, and cellular data. International roaming agreements have been established with more than 50 operators in 40 countries worldwide.

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