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AND

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CASE STUDY ON THE IMPACT OF THE CHANGING INTERNATIONAL TELECOMMUNICATIONS ENVIRONMENT: LESOTHO

CLIFFORD CHANCE

LIST OF TABLES **3**

AUTHOR'S NOTE **4**

1. **GENERAL SOCIO-ECONOMIC SITUATION OF LESOTHO** **5**

1.1 BACKGROUND 5
1.2 SOCIO-ECONOMIC INDICATORS 5
1.3 ECONOMIC DRIVING FORCES 5
1.4 POLITICAL STABILITY 6
1.5 DEVELOPMENT PROGRAMMES 6
1.6 TRADING ARRANGEMENTS 6
1.7 URBANIZATION AND MIGRATION 7
1.8 EDUCATION LEVELS 7
1.9 UNEMPLOYMENT 7
1.10 PLANS FOR FUTURE DEVELOPMENT 7
1.11 NET SETTLEMENT PAYMENTS TO LTC 7

2. TELECOMMUNICATIONS POLICY AND NETWORK DEVELOPMENT **9**

2.1 GENERAL REGULATORY FRAMEWORK 9
2.1.1 Current regulatory framework *9*
2.1.2 Recent changes and likely future changes to the regulatory framework *10*
2.2 FIXED AND MOBILE DOMESTIC TELECOMMUNICATIONS NETWORK 11
2.2.1 Trunk Network *11*
2.2.2 Transmission *11*
2.2.3 Network Subscribers and charges *11*
2.2.4 Revenues *13*
2.2.5 Mobile *13*
2.3 CHALLENGES 13
2.4 EXPANSION PLANS 14
2.5 INTERNATIONAL GATEWAYS AND INTERNATIONAL SERVICES 15
2.6 TELECOMMUNICATIONS INDICATORS 15

3. EVOLUTION OF INTERNATIONAL TELECOMMUNICATIONS ENVIRONMENT **16**

3.1 REGULATORY STATUS OF INTERNATIONAL SERVICES 16
3.2 TRENDS IN INTERNATIONAL TELEPHONE TRAFFIC AND PRICES 1990-1996 16
3.2.1 Overview of trends in international traffic *16*
3.2.2 Overview of trends in international pricing *17*
3.2.3 Price Elasticities *20*
3.2.4 Trends in accounting and settlement rates *21*
3.2.5 Calls to SADC countries *22*
3.2.6 Impact of currency movements *22*
3.2.7 Relations with foreign correspondents. *23*
3.2.8 Changes to Telkom SA rates *23*

4. COST EVALUATION OF INTERNATIONAL TELECOMMUNICATION SERVICE **24**

5. SCENARIOS FOR CHANGES IN THE INTERNATIONAL ACCOUNTING SYSTEM **27**

5.1 REVENUE PROJECTION MODEL: STRUCTURE 27
5.2 THE BASE CASE 28
5.3 STAGED REDUCTION IN ACCOUNTING RATES TO MAJOR DESTINATIONS 29
5.3.1 Background *29*
5.3.2 Impact on Lesotho *29*
5.4 BENCHMARKING OR PRICE CAPS FOR SETTLEMENT RATES 30
5.4.1 Background *30*
5.4.2 Impact on Lesotho *31*
5.5 TERMINATION CHARGES 31
5.5.1 Background *31*

5.5.2 Impact on Lesotho *31*
5.6 VERY LOW SETTLEMENT RATES, SENDER KEEPS ALL ETC. 32
5.6.1 Background *32*
5.6.2 Impact on Lesotho *33*
5.7 REVENUE STABILISATION MEASURES 33
5.7.1 Background *33*
5.7.2 Impact in Lesotho *34*
5.8 LESOTHO DROPS COLLECTION RATES FASTER 34
5.9 SUMMARY OF SCENARIO MODELLING RESULTS 36

6. CONCLUSIONS 37

6.1 EVALUATION OF SCENARIOS 37
6.2 MANAGING THE CHALLENGES OF THE CHANGING INTERNATIONAL TELECOMMUNICATIONS ENVIRONMENT 37
6.2.1 Commercial responses *38*
6.2.2 Policy response *38*

LIST OF TABLES

TABLE 1.1: MACRO-ECONOMIC STATISTICS 5
TABLE 1.2: INTERNATIONAL NET SETTLEMENT 1994-1997 (IN MALOTI) 8
TABLE 2.1 DIRECT EXCHANGE LINE (DEL) CHARGES IN MALOTI: TELEPHONY SERVICE 12
TABLE 2.2 LEASED CIRCUIT CHARGES 12
TABLE 2.3 REVENUES FOR THE PERIOD 1990-1994 (IN MILLIONS OF MALOTI) 13
TABLE 3.1 TOTAL OUTGOING AND INCOMING TRAFFIC 1990-1996 (IN THOUSANDS OF MINUTES) 16
TABLE 3.2 TELEPHONE AND TELEFAX CALL RATES, BY TYPE OF CALL 19
TABLE 3.3 UGANDA PRICE CHARGES 21
TABLE 3.4 PERCENTAGE OF TOTAL SETTLEMENT PAYMENTS FOR CORRESPONDENT RELATIONS 1990-1996 22
TABLE 4.1 LESOTHO: INDICATIVE COST ANALYSIS 25
TABLE 4.2 FCC TCP ESTIMATES FOR AFRICAN COUNTRIES 26
TABLE 5.9 REVENUES AND MINUTES UNDER THE VARIOUS SCENARIOS 36

ANNEXES

Annex I Lesotho Data Requirements……40

Annex II Lesotho International Traffic Patterns……..……46

AUTHOR'S NOTE

This Final Report is presented to the International Telecommunication Union ("**ITU**") by Clifford Chance and Booz Allen & Hamilton on 4 February 1998.

The information contained in this Final Report has been obtained from meetings with and information provided by the Ministry of Transport and Communications, the Lesotho Telecommunications Corporation and VCL Communications unless specified otherwise. In producing this Report, we have had the benefit of co-operation of all parties and, in particular, the assistance of Mr Semoli, the Director of Planning at the Lesotho Telecommunications Corporation.

Clifford Chance
Booz.Allen & Hamilton
4 February 1998

1. GENERAL SOCIO-ECONOMIC SITUATION OF LESOTHO

This section provides a general overview of the socio-economic situation in Lesotho.

1.1 Background

The Kingdom of Lesotho gained independence from British rule in October 1966. The country covers an area of 30,000 km^2 in the southern part of the African continent, which is about the size of Taiwan. The country is landlocked by South Africa, and three quarters of the land consists of rugged high mountains. Only 10% of the country is considered arable, and the average rainfall is 730 mm per year.

The total population in 1996 was 2.1 million people. The population is made up of about 99% Basotho people and thus is quite homogeneous. Small groups of Tembu people live in the northern areas of the country, with a small number of Tembu people living in the southeastern portion of the country. The official languages are Sesotho and English, but mainly Sesotho is spoken.

The capital city of the country is Maseru, which is situated in the western and more arable part of the country. The population density in 1996 was 70 per km^2 for the total country, and 778 per km^2 in the arable areas of the country.

1.2 Socio-economic indicators

The table below gives some of the major economic indicators for Lesotho for the years indicated. Unfortunately, not all data are available, but the table nevertheless presents a good perspective of the economic situation of the country.

Table 1.1: Macro-economic statistics

Factor	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
GDP (US$m)				779	902	1248
GDP per Capita (US$m)	343	692	383	416	420	401
GNP per Capita (US$m)	588	616	645	670	614	581
Disposable income per Capita (Maloti)	2'032	2'310	2'620		3'063	2'941
Inflation (%)				8.3	10	
Population (Mil)	1.80	1.84	1.9	1.94	1.99	2.1
Population growth rate (%)		2.22	3.26	2.1	2.57	3.06
Balance of trade capital (US$m)				302	350	464
Exchange rate Maloti to US $	2.76	2.85	3.26	3.55	3.63	4.29

Source: Case study.

The average household size in 1976 was 5.0, and it increased to 5.2 in 1986. As development takes place, the average household size is expected to decrease.

The economically active population in 1986 was 123'000 females and 232'000 males in Lesotho, and 12,000 females and 130,000 males outside Lesotho (mostly migrant or ex-patriate workers in South Africa).

1.3 Economic driving forces

Agriculture is the most important sector in the national economy accounting for about 30% of the GDP and 65% of the labour force. The most important crops are maize, sorghum and wheat. Another important sector of the economy is the export of labour to the South African gold mines. About 101'000 migrant mineworkers worked in South African mines in 1996 representing over 40% of the male working force. This number has declined from a high of about 127,000 workers in 1990.

Another important sector of the economy is the export of water to South Africa as part of the Lesotho Highland Water Project. This scheme provides a stream of income to Lesotho, as well as generating hydro-electrical power for use in Lesotho. At the end of the 1995 financial year, the total fixed assets of the project amounted to 4,643,595 Maloti ($957,442 in today's terms). At that stage, the Katse dam and appurtenant works were 56% complete, and the transfer tunnel was 57% complete. The road infrastructure to the dam was substantially improved, and is now paved all the way.

Livestock represents another important sector of the economy. Main exports from this sector are wool and mohair. The cultural value placed on livestock together with the high returns from investment in livestock has let to an over stocking situation in the country. The government has launched culling and other de-stocking programs to decrease the number of livestock in Lesotho.

1.4 Political Stability

Basotholand became Lesotho during independence in 1966. Following a military coup in 1986, the country went through a period of political uncertainty. The then King Moshoeshoe was exiled in 1990, and his son King Letsie III was crowned in his place. King Moshoeshoe was reinstated in 1995.

A new constitution was adopted in 1993 which provides for a constitutional monarchy, a bicameral legislature with an elected lower house and upper house in which the twenty-two principal chiefs. A new election is scheduled for March 1998, and the Basotholand National Party and the Basotholand Congress Party are the two main rivals.

In general, some investors view Lesotho as currently politically stable.

1.5 Development Programmes

Both the World Bank ("**WB**") and the International Monetary Fund ("**IMF**") support a series of economic and financial programs. The Structural Adjustment Facilities of the IMF were aimed at increasing the efficiency of the public sector. They included privatisation and improved incentives for the private sector through tax reform and streamlined investment incentives. The Privatisation Unit falls under the Ministry of Finance and leads the privatisation initiative. Lesotho Airways has almost been fully privatized. Other proposed privatisations include the Lesotho Telecommunications Corporation ("**LTC**"), hotels, the Lesotho Flour Mills, agricultural parastatals, and International Freight Services.

The WB funded the Rehabilitation and Management programme that improved the road network subject to the condition that the government will be responsible to maintain these roads. A road authority and fund is currently being established.

1.6 Trading Arrangements

Lesotho is economically dependent on South Africa. The monetary unit of Lesotho (Maloti) is tied to and equal to the South African Rand, and has devaluated dramatically over the past 6 years due to the political and economic situation in South Africa. The Rand is accepted as legal tender in Lesotho. The current (12/97) exchange rate is 4.85 Maloti to 1 US$ and 8.20 Maloti to the UK £.

South Africa absorbs 50% of Lesotho's exports and supplies nearly 95% of Lesotho's imports. The country is wholly dependent on South Africa for energy, petroleum, coal and electricity before the development of the hydro electrical power scheme as part of the Lesotho Highlands Water project.

Lesotho is a member of the Southern African Customs Union that consists of five member countries. It left the Community of Eastern and Southern Africa very recently, and trades under the trade protocol of the Southern Africa Development Community ("**SADC**")[1]. Lesotho is a member of the World Trade Organisation ("**WTO**"), and the International Telecommunication Union ("**ITU**"). It is not a member of Intelsat, the international satellite organisation, but has user status.

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[1] SADC member countries include Angola, Botswana, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe and Congo.

Lesotho is a signatory to the Lomé Convention which entitles all Lesotho made products to duty-free entry into European Union ("**EU**") markets. The Generalised System of Preference scheme ("**GSP**") of the USA provides considerable benefits to Lesotho exports. Duty-free entry is accorded to all products that are wholly produced in Lesotho. Goods that have undergone a substantial transformation into a different product, and are manufactured wholly or partly from important materials or components are also classified duty-free.

1.7 Urbanization and Migration

In 1986, 14% of the population lived in urban areas. This figure increased to 19.4% over the subsequent 10 years. An estimated 300,000 people live in the capital of Maseru, which accounts for 15% of the population. The remaining 4.4% live in other towns around the country. Population growth averages 2.66 % per annum, but is not uniform. Populations in the towns grow at an average of 10%, and rural population grows at only 0.3% per annum. Despite the migration into the towns, half the population still lives in villages of 500 or fewer people. Thus the country is extremely rural by world standards.

1.8 Education levels

The adult literacy rate in 1996 was estimated at 34% of males, and 54% of females. A total of 374'628 pupils were enrolled in primary schools in 1996, and 67'454 pupils were enrolled in secondary school in 1996. The country also has a university that is supported by the government.

1.9 Unemployment

Unemployment in the country is very high at 30-35%. The situation is aggravated by the return of laid off migrant mineworkers to Lesotho from the South African gold mines due to falling gold prices. The miners' remittances constituted about 48% of the GNP in 1991, and have decreased to about 40% during the past 6 years.

1.10 Plans for future development

One of the primary drivers for future development in the short to medium term will be the privatisation of a number of parastatals (please see section 1.5). With the bringing in of strategic investors, Lesotho's underlying infrastructure will be able to take advantage of increased investment.

1.11 Net Settlement Payments to LTC

Current net settlement payments for LTC are negative, amounting to a projected 2 million Maloti (412'000 US$) in 1997. This is a small drain on the country's GDP of $1.2 billion (0.033%). It is however a more substantial drain on LTC's budget of 62 million Maloti ($12.8 million) of revenue (1997).

An overview of international settlement inpayment and outpayments is set out in the table below for the years 1994/5, 1995/6 and 1996/7[2].

[2] This information is derived from LTC's Revenue Budget dated 3 December 1997.

Table 1.2: International net settlement 1994-1997 (in maloti)

TRAFFIC	*1994/1995*	*1995/6*	*1996/7*
Telephone	(1'479'006)	(1'685'518)	(1'885'926)
Telex	143'051	31'107	(27'057)
Telegram	34'609	36'451	34'946
TOTAL SETTLEMENTS	(1'301'346)	(1' 617' 960)	(1'878'037)

Source: LTC

2. TELECOMMUNICATIONS POLICY AND NETWORK DEVELOPMENT

This section examines:

- The general regulatory framework for telecommunications in Lesotho;
- The recent changes and proposed future changes to this regulatory framework;
- The domestic fixed and mobile network;
- An overview of the likely network development for each of the fixed and mobile network;
- A description of the international gateways and the international service providers in Lesotho.

2.1 General regulatory framework

2.1.1 Current regulatory framework

Under the Telecommunications Act 1979 (the "**Act**")[3], the telecommunications functions of the Post Office were vested in a statutory corporation, the Lesotho Telecommunications Corporation ("**LTC**"). LTC was granted the exclusive privilege of providing telecommunications in Lesotho. The Act does not distinguish between international and national telecommunications. In addition to providing telecommunications, the Act sets out LTC's functions, which include:

- Regulating the provision of telecommunications;
- Granting licences for the establishment of telecommunications;
- Assigning radio frequencies;
- Representing the Government in international fora; and
- Advising the Government on telecommunications.

In carrying out its functions, LTC must have regard to:

- Improving and developing its operating systems;
- Developments in the field of telecommunication; and
- Efficiency and economy.

LTC was entitled to take over both the telecommunications[4] and the radiocommunications assets that existed before the commencement of the Act.

The government is LTC's sole shareholder but, under the Act, the government receives no dividends from LTC, but levies a corporate tax of 45% on its profits. LTC is managed by a Board of Directors (the "**Board**"). The Board is made up of the Minister of Transport and Communications, the Permanent Secretaries for each of Transport and Communications, Finance, Planning and Information and Broadcasting, the Director of the Post Office, the Director for National Security and three other persons appointed by the Minister.

LTC is required to do no more than break even, ensuring as far as possible that its earnings are sufficient to finance capital expenditure, repayment of loans and operating costs.

LTC believes that cross-subsidisation using the revenues derived from one service to fund the provision of another service is not permitted. Some cross-subsidisation has occurred in the past. Profits from some services and efficiency gains made as a result of switching and transmission upgrades had been used to fund relatively low installation charges in the past.

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[3] Act No. 12 of 1979.

[4] LTC is authorised to enter land to install telecommunications equipment and to construct a line, pipe or other equipment under streets and roads.

The Act provides that, if the government requires LTC to provide a service at no charge or at a tariff that does not cover its costs, the loss shall be notified to the government. The government is obliged to meet the loss. In reality, the government provides little or no grant aid to LTC.

The government may give to LTC general directions on the exercise and performance of its functions. Directions are adopted after consulting LTC. The Minister may make regulations on detailed matters, such as the conditions under which private telecommunications services can be provided or the tariffs at which services can be provided[5].

Decisions on issues such as installation times, fault clearance and availability are taken by LTC itself. In particular, LTC has developed a five year business plan, called Vision 2000, which, together with setting operational and structural targets, requires LTC to ensure that no settlement in Lesotho is more than 10 km from a "telephone service point" by the year 2000[6].

2.1.2 Recent changes and likely future changes to the regulatory framework

The telecommunications regulatory environment has changed little since the passing of the Act. The only legislative change to LTC's position was the removal in 1989 of LTC's statutory immunity from income tax. LTC now pays corporate tax of 45% .

A more liberal approach to the telecommunications sector can be seen in the opening up of the Customer Premises Equipment market (although LTC remains the prime instrument supplier) and by the licensing of a mobile communications operator, VCL Communications ("**VCL**") (in relation to which please see section 2.2.5). Although VCL's licence enables it to provide fixed services, VCL must route its international traffic through LTC's international gateway. It is not anticipated that VCL or any other future mobile communications operator will be able to bypass the LTC network and international switching centre in the transport of international traffic during the exclusivity period. The proposed regulatory authority (for which, please see below) may change this, but this is the thinking now.

A new Telecommunications Law has been drafted[7] (the "**draft Law**") with technical assistance provided by the Southern African Transport and Communications Commission ("**SATCC**")[8] and funding by USAID.

The draft Law provides for the creation of an independent regulatory authority, which will be responsible for the licensing telecommunications in Lesotho. The Minister retains overall responsibility for telecommunications policy, although he will be advised by the regulatory body. LTC will be licensed to provide basic telecommunications services (including international services) on an exclusive basis but this right may be waived where it fails to meet any requirements for the provision of services in any area within a specified period. The proposed exclusivity period is three years but this will be subject to the approval of the government.

The draft Law also provides, subject to the exclusivity described above, for the licensing of public and private service providers and provides that value added and data providers and Internet service providers do not need a licence in order to operate.

The draft Law also provides for the privatisation of LTC. The timing of the privatisation will depend on the adoption of the draft Law and the timing of the next general elections, posited for April 1998. Privatisation procedures may begin in the spring of 1998.

The privatisation strategy (i.e. strategic partner or an International Public Offering) has not been determined although a strategic partner is thought to be the most likely option. One proposal is that 20% of the shares in LTC will be held in trust, to be sold to Lesotho nationals once the privatised entity has been in operation. An independent regulator will be established and one proposal is to create a utilities regulator, rather than a sector-specific telecommunications regulator. There is also a proposal to create a Ministry of

[5] We understand that the only regulations that have been adopted under the Act are the 1989 regulations that required the LTC to pay income tax to the government.

[6] The implementation of vision 2000 has been delayed for two years.

[7] The draft Law disclosed to us has been prepared by Latham & Watkins for Price Waterhouse and USAID. Please note that it is a first draft only.

[8] The SATCC is an organisation constituted under the auspices of the SADC. For SADC member countries, please see footnote 1.

Communications into which the telecommunications functions of the present Ministry of Transport and Communications will be moved.

One of the main drivers of the proposed privatisation is the requirement imposed by the IMF, for, inter alia, privatisation and the creation of an independent regulatory authority.

It is understood that, although individual members of the government are interested in adopting commitments on basic telecommunications liberalisation under the WTO framework, no formal offer or negotiations are underway.

2.2 Fixed and mobile domestic telecommunications network

LTC is the principal fixed telecommunications service provider and network operator in Lesotho although VCL Communications, which is licensed by LTC to provide mobile communications on a monopoly basis until 2001, is also able to provide fixed services under their licence[9].

2.2.1 Trunk Network

The present LTC telephone network remains largely the same as when it was studied in detail in 1990 by the United Nations Development Programme ("**UNDP**"): a star-like network, comprising three hierarchical levels, with the centre in Maseru. There are eleven Ericcson AXE switches of which five serve as Transit/Local switches and one as an International Switch. There are five Remote Subscriber Stages ("**RSS**") and four specially adapted PBX's to serve as local switches. All the switches are SPC's (i.e. computerised exchanges).

2.2.2 Transmission

An analogue microwave backbone network was installed in 1985 and is in the process of being upgraded to digital operation. The equipment is 960 channel NEC Type 500 gear configured in a star network with a 1+1 protection system and a TV bearer facility on the standby channel to carry FM and TV broadcasts. Outside plant is fibre-optic cable linking the five RSS's, the Earth Station and the land line link to South Africa. There is also a diversity digital microwave link to South Africa (2 x 8Mbits). There will be a digital microwave system to the Highlands Water Project Phase B and serving the eastern parts of the country that will be commissioned by the end of February 1998. Only two open wire systems are still in operation, serving two of the PABX's, referred to in paragraph 2.2.1, above with a total kilometre route of 40km.

2.2.3 Network Subscribers and Charges

In 1996 line capacity was 21,350 according to one South African study according to LTC. Equipped line capacity of the switches is 28,302, including the four PABX's which account for only 934. There were 21,300 subscribers, including about 8,600 residential subscribers, 5,400 business subscribers, and 7,300 government subscribers. According to current (12/97) figures supplied by LTC, there are 20,400 connected subscribers, 19,479 being connected to the AXE-10 Exchanges. About 75% of wireline subscribers were located in Maseru. About 75% of capacity is connected to modern digital exchanges, although in the rural areas this figure falls to 35%. The table below shows the current residential and business charges for Direct Exchange Lines in Maloti.

[9] We understand that VCL is providing "fixed" or cordless telephony services to a number of customers who were unable to obtain services from LTC as a result of the recent industrial action.

Table 2.1 Direct Exchange Line (DEL) Charges in Maloti: Telephony Service

SERVICE	*RESIDENTIAL*	*BUSINESS*	*STANDING CHARGE*	
			RESIDENTIAL	*BUSINESS*
DEL Deposit	260.00 72.00	300.00 120.00	20.00	30.00
DEL beyond MRA for which the minimum number of customers is 10 Deposit	260.00; 15.00 for every extra 100m 72.00	300.00; 15.00 for every extra 100m 120.00	20.00	30.00
Telephone installation taken over by another subscriber (with or w/out a change of number Deposit	50.00 72.00	50.00 120.00	20.00	30.00

Source: LTC
Note: MRA is a Minimum Rental Area with a radius of 5km from the Exchange for all exchange areas. The Call Rate per unit is 15 Lisente.

There were 280 public phones. Calls from public call boxes are charged at normal local rates but are subject to a 1 unit surcharge. One unit is 15 Lisente.

There are currently 92 leased circuit subscribers. Leased circuit charges consist of an initial installation charge and a standing charge per month. An overview of leased circuit charges is provided in the table below.

Table 2.2 Leased circuit charges

TELEPHONE SERVICES	*INITIAL INSTALLATION*	*STANDING CHARGE*
2 wire local leased circuit	1400.00	580.00
4 wire local leased circuit Priority maintenance surcharge	2800.00	1160.00 200.00 per cct
National leased circuit Priority maintenance surcharge	2000.00 per speech channel	780.00 300.00 per cct
Neighbouring countries leased voice circuit	2000.000 per speech channel	780.00
Neighbouring countries leased data circuit	1260.00 per channel	780.00
International leased voice circuit (4Kh bandwidth)	2000.00 per channel	8500.00
International leased data circuit (4Kh bandwidth)	2000.00 per channel	8500.00
Conditioned circuits additional charge (i) CCITT M1 025 (ii) CCITT M1 020		(i) 78.00 (ii) 156.00

Source: LTC

There is no data or packet switching network and no paging network.

Based on anecdotal evidence, some Internet services are being offered but these services are not currently licensed (please note that these services would not require a licence under the draft Law).

The LTC network is highly congested and is prone to faults. LTC's business plan states that the average faults were 1.01 per line per year, "too high," with some areas having far higher than the average faults. It

also states that the average time to restore service is 27 days, "far too long," and that this might cost LTC up to about $1 million per year in lost rental and call revenue.

Please note that although we understand from LTC that little or no cross-subsidisation occurs at present, some geographical de-averaging occurs. There is distance-based pricing in relation to the installation of Direct Exchange Lines, i.e. a surcharge is levied for each 100 metres beyond the "Minimum Rental Area" or MRA. The MRA covers a radius 5km. Note also that 65% of Direct Exchange Lines are situated within Maseru.

2.2.4 Revenues

We have obtained from LTC revenue data for the period 1990-1994, but international revenue is not highlighted independently. The table below sets out indicative revenues in millions of maloti.

Table 2.3 Revenues for the period 1990-1994 (in millions of Maloti)

REVENUE	*1991*	*1992*	*1993*	*1994*	*1995*
Telephone	16.6	16.0	17.5	19.7	22.8
Fax	2.9	3.5	4.0	4.3	4.6
PABX	11.2	12.3	12.5	12.8	15.0
Other (including international)	5.8	5.9	6.9	7.7	5.5
TOTAL	36.5	37.7	40.8	44.5	47.85

Source: LTC

2.2.5 Mobile

The sole cellular system in Lesotho is a GSM network, which is a joint venture between Vodacom of South Africa and the LTC, called VCL Communications ("**VCL**"). LTC owns 49% of VCL. The head of the LTC is the chair of VCL. The LTC is in the process of reducing its ownership share to about 11 percent. This will bring in more Vodacom investment and hopefully reduce debt load and increase expansion rates. VCL is managed separately from the LTC, and it has exclusive GSM cellular rights through 2001. There is "overspill" from South Africa of MTN's and Vodacom's cellular system into Lesotho's territory, especially in lowland areas such as Maseru, and this has reduced VCL's potential revenues[10], with callers making use of their MTN network rather than roaming onto the VCL network in these areas, and exclusivity somewhat. VCL pays license and spectrum fees to LTC. VCL also retains only 20% of the call revenue, for international calls originating on VCL and being carried (as required) through the PSTN's international switching center. For incoming calls terminating on the VCL cellular network, VCL is paid a flat rate of 20 lisente per minute (about 4 cents US).

Currently the VCL system consists of just one cell located in Maseru, serving an area of about 20 km^2 around the capital. According to VCL, there are about 2200 subscribers to the VCL service, but no precise figures were made available.

2.3 Challenges

Telecommunications in Lesotho has various network development challenges. These include:

- Loss of penetration. In 1991 Lesotho had a penetration of 1.0 percent. Due to delays in new construction, the growth in population, and the lack of maintenance and destruction of some

[10] Please note that VCL did disclose to us revenue data but disclosure was on the basis that the information would remain strictly confidential.

lines associated with two years of labour-management difficulties[11], this has dropped to a penetration of 0.93 percent by the end of 1997;

- Waiting list. The waiting list grew from 4,300 in 1991 to 9,300, about 57% of connections, at the start of 1996. A 1990 study estimated suppressed demand at about 25% of the waiting list;
- Network congestion. A December 1995 study of 42 principal trunk and junction routes showed that over 70% of them were congested and in need of expansion;
- Need to add new services. LTC does not currently offer various services desired by its customers, such as cardphones, paging, voicemail, and freephone (800) service, although LTC does offer VSAT i.e., very small aperture terminal, services;
- Employee efficiency. LTC had about 850 employees before the recent two years of labour and management problems. These problems resulted in most senior management employees being suspended for about 13 months and eventually about half the labour force being terminated[12]. (Management has now been reinstated.) There are now about 400 employees for about 20,400 lines, which amounts to about 54 lines per employee (or 400 employees to 19,479 lines, or a ratio of 48, if the lower estimate of working lines is used.) This ratio could be improved;
- Rural development. Only 25% of Digital Exchange Lines are outside of Maseru, and rural penetration is estimated at about 0.3 %;
- Cellular expansion. The cellular system covers a very small portion of the Lesotho territory (namely, the capital city), although it covers about 14% of the population.

2.4 Expansion plans

In response to the challenges outlined in section 2.3 above, LTC has developed various expansion plans. These include the following:

First, LTC developed a strategy in conjunction with UNDP in 1990 to expand the network to a penetration of 3%, over the period 1991 to 2010. At that point the network would have about 98,600 lines in service, serving 90% of an estimated demand of 109,500. This plan required a 16.8 percent increase in lines in service each year from 1993 to 2000 and an 8% per year increase each year thereafter. Line growth only started in 1995 when a replacement exchange to that destroyed in 1990 was commissioned.

Second, the LTC has recently drawn up, in co-operation with BT Teleconsult, a modified expansion business plan to add 24,000 connections. It is hoped that this will alleviate the congestion, waiting list, and lack of penetration challenges alluded to above. (It would also help relieve the employee efficiency issue if a hiring freeze was maintained.) However, the loss-making nature of LTC may make it questionable whether this modified plan can be achieved. (LTC makes a small loss for several reasons: poor collections, especially from government agencies; and the six month delay in much of the billing, caused by recent labour and management troubles.)

Financing for the original and modified expansion plans is expected to come largely from soft loans driven by donor grants to the Ministry of Finance (which then on-lends the funds to LTC at below market terms), commercial bank financing, and possibly through injections from a strategic investor as part of an LTC privatisation.

Viability of any financing plan is reduced by the 45% corporate tax levied on LTC; by the fact that the Government has not in the past provided subsidies for such services as rural development which were implicitly promised, and seems unlikely to do so in the future; and by the history of under-investment in the sector. Also problematic is the fact that all loans must have government guarantees, and this typically adds 1-2 years to the approval process. Another key problem is collections. The business plan states that about

[11] The labour-management difficulties were apparently caused by complaints by the workers against management. The situation resulted in extensive disruption to LTC's network. The labour-management difficulties are largely but not entirely resolved. A number of ex-employees have taken LTC to court for re-instatement following unfair dismissal.

[12] Please see footnote 11 above.

70% of customers do not pay their bills within the required 30 days, and that in early 1996 about $1.2 million (USD) had been outstanding for more than 120 days. On the plus side is the fact that LTC does not pay dividends to the owner, the government, although it is liable for corporate tax.

Third, LTC is planning to use wireless local loop to increase rural and sub-urban penetration. LTC commissioned two digital multiple access radio systems, totalling 395 lines, in two Lesotho Highlands Water Project Areas in 1991: the next phase of the project will cover two more areas and these will be in operation by the end of February 1998. LTC plans to achieve a rural universal service goal of having a phone within 10 km of all persons in the country, by the year 2000 (please see section 2.1.1 above).

Fourth, LTC's business plan cites its plans to add new services, such as paging, cardphones, electronic mail and freephone services.

Fifth, VCL has applied to LTC to expand its cellular network to the eastwards, along highway routes to the Lesotho Highlands Water Project (Phase 1B) Area, to increase its penetration.

2.5 International gateways and international services

International links are handled solely by the LTC by a Standard A earth station at Ha Sofonia. This is connected to the international switching center ("**ISC**") in Maseru, an Ericsson AXE 10 switch, which was installed in 1995. This connection is via a 25 km, 8 Mb/ps optical fibre cable 12km of which is aerial route, the remainder of which is underground. A 34 Mbps optical fibre cable with 300 channels links the ISC to South Africa and the rest of the southern Africa region. There is also a diversity digital microwave route to South Africa.

A second earth station, which is receive-only, is situated at the Ha Sofonia site. This earth station was previously used to receive BBC TV programming. However, with the assignment to the BBC of frequencies by LTC to broadcast its services within Lesotho, this earth station is no longer used. As the station is receive-only, it would require retrofitting to be used for two-way communications services. LTC are aware that the new data and broadband communication services are bandwidth-hungry and require more capacity than that currently available. LTC is also considering reconfiguring the station to uplink eastwards towards satellites orbiting over the Indian Ocean. There are currently no funds available to implement whatever proposals LTC fixes upon.

2.6 Telecommunications Indicators

Please see Annex I for an outline of ITU telecommunications indicators. Note that although substantial information has been made available, many of the indicators cannot be extracted from this data.

3. EVOLUTION OF INTERNATIONAL TELECOMMUNICATIONS ENVIRONMENT

This section considers:

- The regulatory status of international services;
- An overview of the trends in international telephone traffic and prices;
- An overview of the trends in accounting and settlement rates.

3.1 Regulatory status of international services

The LTC is the monopoly international service provider in Lesotho.

LTC considers call-back to be in breach of its exclusive privilege to provide telecommunications in Lesotho. Call-back services in Lesotho have not been licensed by LTC.

Some "manual" call-back does occur. LTC billing information indicates that a number of calls are made for very short durations. There are no figures available which reflect the revenue that is diverted from the LTC as a result of the provision in Lesotho of call-back services. LTC indicated that, due to the relative lack of sophistication of current call-back services, it is not yet experiencing significant revenue loss as a result of call-back. The threat of "automatic" call-back developing as a result of tariff differentials remains.

As with call-back services, International Simple Resale ("**ISR**") services would be contravening LTC's monopoly. ISR is not currently being provided in Lesotho.

Internet services are not currently available in Lesotho. It is likely that if Internet telephony services were available, such services would at present, be routed only through Ladybrand. These calls are not classed as international calls. The provision of voice over the Internet as a means of bypassing LTC's monopoly is not yet an issue in Lesotho. LTC is considering retrofitting its second earth station to receive and transmit communications services (please see section 2.5), which may include Internet services.

Accordingly, the provision of these services has no legal status in Lesotho. This may change if the draft Law is adopted. Certain services, such as Internet services, may not require prior authorisation.

3.2 Trends in international telephone traffic and prices 1990-1996

3.2.1 Overview of trends in international traffic

Data have been obtained for incoming and outgoing traffic between Lesotho and the SADC countries (including South Africa) and between major European and international destinations by year for the period 1990-1996.

The table below sets out the total incoming and outgoing traffic for the years 1990-1996

Table 3.1 Total outgoing and incoming traffic 1990-1996 (in thousands of minutes)

YEAR	*O/G TRAFFIC*	*I/C TRAFFIC*	*BALANCE O/G MINUS I/C*
1990	8921	7653	1268
1991	19177.5	18510	667.5
1992	19050	16543.5	2506.5
1993	18070.5	19650	-1579.5
1994	20205	19749	456
1995	21600	20835	765
1996	24192	21918.5	2273.5

Source: LTC

Overall, outgoing traffic generally exceeds incoming traffic, although not by too great an order of magnitude. South Africa represents the greatest amount of incoming traffic (some 59% of total incoming traffic on the routes for which figures were disclosed to us) and outgoing traffic (some 85% of total outgoing traffic on the routes for which figures were disclosed to us). Other major routes in terms of both incoming and outgoing traffic (although the traffic totals are significantly lower that that for South Africa) are: the UK, Botswana and the US.

Annex II provides an overview of international traffic patterns based on the Top 20 outgoing countries in terms of traffic for the period 1990-1996, with corresponding incoming traffic for each country. Annex I also indicates the Top 20 traffic incoming countries.

3.2.2 Overview of trends in international pricing

International call charges are currently based on 6 zones, with call charges depending on whether the call is direct dial or operator-assisted. A minimum charge is applied to national trunked calls, cross-border calls, operator assisted calls and international calls.

Table 3.2 below sets out the present pricing structure. Charges are expressed in maloti per minute.

Please note that although we understand from LTC that little or no cross-subsidisation occurs at present, some geographical de-averaging occurs. There is distance-based pricing in relation to the installation of Direct Exchange Lines, i.e. a surcharge is levied for each 100 metres beyond the "Minimum Rental Area" or MRA. The MRA covers a radius 5km. Note also that 65% of Direct Exchange Lines are situated within Maseru

On the basis of the information that we have received, LTC has implemented one set of price changes in 1988[13], with some small adjustments being made on 1 April 1990.

With effect from 1 January 1994, the categorisation of countries for international calls was changed. For the period 1988-1994, there were nine zones for international calls. In the re-organisation of the zones for the development of the 1994 tariffs, account was taken of the balance of outgoing traffic (i.e. in 1991, 87.5% of all outgoing traffic was to South Africa in zone one, with an additional 3.8% for the other Customs Union countries; for zone two, which consisted of Mozambique and Zimbabwe, accounted for less than 1% of total outgoing traffic).

For Customs Union countries (i.e. Republic of South Africa, Namibia, Botswana and Swaziland), which were still classed as zone one, standard International Subscriber Dialled calls increased from 1.80 maloti to 2.10 maloti, with cheap rate calls increasing from 1.05 maloti to 1.41 maloti per minute.

The UNDP Telecommunications Development Plan 1991-2010 for LTC considered the previous zone structure for international calls and LTC's need to improve its revenues and recommended that tariffs for calls to zone one countries should be increased in order to maximise revenues. The recommendation was an increase to 2.70 maloti and an expansion of zone one to include Mozambique, Zimbabwe, Malawi, Zambia and Tanzania. This recommendation was not implemented. There are a number of reasons why tariff increases are limited, the most important one being the social cost of increased call charges.

A re-organisation of zone two for the 1994 tariffs resulted in tariffs for calls to each of Malawi and Zambia remaining at 3.60 maloti per minute for a standard call, although calls to each of Mozambique and Zimbabwe were increased from 2.70 maloti to 3.60 maloti per minute. For Angola and Tanzania, previously in zone four with a collection rate for standard calls of 5.40 maloti per minute, the tariff following the 1994 tariff changes was 3.60. Call charges to Kenya and Uganda remained at 5.40 maloti per minute. Calls to the rest of Africa and to Europe and the Middle East remained the same at 7.20 and 9.00 respectively. In 1991, nearly 5% of outgoing calls were destined for Europe and 1.5 % of calls went to the US and Canada.

International calls to the US, Canada and the rest of the world actually dropped from 10.80 maloti per minute to 9.00 per minute.

Adjacent border towns between Lesotho and South Africa are treated as special calling areas. Calls made between any two adjacent towns using a special route (code), are not taken as international and do not attract

[13] A draft proposal to the Board in relation to the pricing proposals was disclosed to us.

the full international tariff and do not form part of the international traffic and/or revenue. Currently, only calls to Ladybrand are made in this way. Tariffs for such calls are substantially lower than those for international direct dial calls to South Africa although cross-border calls are more costly than national trunk calls.

Table 3.2 Telephone and Telefax call rates, by type of call

DOMESTIC TELEPHONE AND TELEFAX				
LOCAL	*Direct dialling*	*Cheap direct*	*Operator Assisted*	*Manual exchange*
	0.033	*0.023*	*0.55*	-
NATIONAL TRUNK RATES	*Standard*	*Cheap (direct)*	*Operator (Normal)*[14]	*Operator (Minimum)*
DISTANCE				
Up to 50km	0.30	0.21	0.55	1.65
51-100km	0.40	0.27	0.55	1.65
Over 100km	0.50	0.34	0.67	1.65
CROSS BORDER RATES	0.60	0.41	0.65	1.95

INTERNATIONAL TELEPHONE AND TELEFAX				
ZONE COUNTRIES	*Standard (ISD)*	*Cheap (ISD)*	*Operator (Normal)*	*Operator (Minimum)*
1.Customs Union: RSA, Namibia, Botswana, Swaziland	2.10	1.41	2.46	7.38
2.SADC States: Angola, Malawi, Mozambique Tanzania, Zambia, Zimbabwe	3.60	2.41	4.32	12.96
3.PTA: Burundi, Comoros, Djibouti, Ethiopia, Kenya, Mauritius, Somalia, Sudan, Uganda	5.40	3.62	6.48	19.44
4.Rest of Africa	7.20	4.82	8.64	25.92
5.Europe and Middle East	9.00	6.03	10.80	32.40
6.Americas, Canada, Asia and Rest of World	9.00	6.03	10.80	32.40

Source: LTC

Note: The "cheap rate" is two thirds the standard rate and is charged per category of call, i.e. local calls, made between 6pm and 6am on weekdays, calls made at the weekend and on public holidays

[14] Normal operator calls are calls from exchanges with full International Subscriber Dialling ("**ISD**"). Special operator call charges are applied for exchanges that not operate ISD. For calls less than 3 minutes, the Minimum Rate applies. For calls over 3 minutes, the Normal or Special Rate applies depending on whether the call originates from ISD or Non-ISD exchange.

3.2.3 Price Elasticities

Price elasticity of demand is defined here as the percentage change in quantity demanded divided by the percentage change in price. Data on price elasticities in Lesotho are difficult to derive. The following data are available:

- A proposed collection rate list for 1988, which apparently was adopted in 1988 and was possibly in place up to January 1, 1994, although some changes were made on 1 April 1990.
- The current collection rate list, which has been in place since January 1, 1994. This list unfortunately groups countries into somewhat different bands than the 1988-1994 list, thus making it difficult to compare total volume in the pre price change period with total volume in the post price change period.
- Outgoing traffic volume in minutes, in total and for each destination country, for 1994 and 1995 (the pre and post price change periods).

Since the groups of countries (the bands) changed in their composition from pre 1994 to post 1994, it would seem to be logical to use one country, the major traffic partner, as a surrogate for all countries. This country is the Republic of South Africa. For the RSA, the price before January 1, 1994 was (apparently) 1.80 Maloti. The price post change was 2.10, for an increase of 0.30 or 16.6%. The outgoing volume to the RSA for 1993 was 10,008,986 and for 1994 was 10, 832,259, an increase of 8.2%. Thus we have the counterintutive result that the elasticity is 8.2/16.6, or a positive 0.49. This means that demand is sufficiently strong to offset, at least in part, the effect of rises in price. Clearly economic or social factors must be having an effect here that accounts for this counterintuitive direction of change.

It may be possible to derive some price elasticities from countries other than South Africa. For example, prices to Canada, the US, India and other distant countries apparently changed on January 1, 1994 (although this is not confirmed) from 10.8 Maloti to 9.0 Maloti, a decrease of 16.7%. Volume in minutes for 1994 compared to 1993 for these three countries rose by 10.0, 9.6 and 10.0 percent respectively. This would indicate a price elasticity of between -0.57 and -0.60. These data are interesting but it would seem risky to use these figures for three reasons: first, the price changes were proposed but it is unclear when they were adopted; second, these price changes, where a reasonable result was obtained, were made only for routes with extremely low traffic volumes, while the largest traffic partner had the counterintuitive result discussed above; and third, the counterintuitive result discussed above calls into question the entire price change event and its results.

Since good data for Lesotho are not available, it is perhaps possible to take data from another case study, Uganda, where a price elasticity (albeit questionable) is derivable.

For Uganda it is possible to make three (widely) varying estimates of price elasticity, as shown in the table below. (Note that these prices are in USD and apply to all outgoing calls to non-East African countries.)

In July 1992 in Uganda the price dropped substantially, as did traffic volume, an unexpected result. This may be due to prices being still so high that most consumers continued to use an informal call back system, or due to other exogenous factors not identified. Uganda also showed poor economic results in 1992.

In July 1994 the price again dropped substantially, but this time volume in the year following the change went up, showing a price elasticity of -1.53, an elastic result in the expected direction.

In September 1997 the price in Uganda again dropped substantially, but only two months of data after the price change are available. A modest volume increase was shown but the price was only moderately advertised and it is thus unreasonable to expect the volume to change rapidly.

Table 3.3 Uganda price charges

	JULY 1, 1992	*JULY 1, 1994*	*SEPT. 1, 1997*
Original Price	$7.50/min USD	$5.00/min	$3.00/min
New Price	$5.00/min	$3.00/min	$1.50/min
% Price Change	-33%	-40%	-50%
Period Measured for Volume	July 1, 1990 to June 30, 1992 vs. July 1, 1992 to June 30, 1994	July 1, 1993 to June 30, 1994 vs. July 1, 1994 to June 30, 1995	July & Aug 1997 vs. Sept & Oct 1997
OG Min, Pre Price Change	8,547,993	2,730,224	1,055,168
OG Min, Post Price Change	5,511,818	4,410,694	1,143,751
% Min Volume Change	-36%	+61%	+8%
%Quantity Change/ %Price Change	-36/-33 = **1.09**	61%/-40% = **-1.53**	8/-50 = **-0.16**

Source: Case Study

These data are thus rather confusing, showing one major change in the "wrong" direction (in constant dollars, but possibly somewhat in the "right" way in local currency), one modest change in the "right" direction, and one elastic change in the logical direction. In using these elasticity figures we will assume that the elasticity curve is downward, normally curved and elastic, and will use the -1.53 figure in any calculations. (This figure is generally in line with Booz•Allen research in Latin America in 1992-1994, where it was estimated by expert analysis that price elasticities for international long distance ranged from -0.6 for the high income segment of the population to -1.8 for the majority, poorer population.) However, the reader should note that the two other elasticity results for Uganda do cast some doubt on this -1.53 figure.

Thus it is an even greater leap to take this Uganda figure of -1.53 and apply it to Lesotho, but this seems to be the only confirmed datum available from nearby. Hence we will use it extensively (but cautiously) below. We should note that the elasticity figures are probably the key numbers in the model, that use of an elasticity figure less than one yields substantially different results than using a figure of 1.53, and thus basing policy prescriptions based solely on these model results could be rather hazardous.

3.2.4 Trends in accounting and settlement rates

LTC does not derive revenue from international settlements. In terms of telephony and as a result of transit arrangements, LTC incurs actual losses resulting in net outpayments. Against this should be added that subscriber numbers are increasing, along with the volume of outgoing calls. Telex and telegraphy international settlement revenues are positive (save in relation to 1996/7 where revenue was negative) but very small.

LTC has a limited number of correspondent relationships. The three principal relations are with BT and Telkom SA (to both of whom LTC makes net outpayments) and AT&T (from whom it receives net settlement payments, although the figures provides for 1995-1997 indicate that the amount is not substantial, amounting to some 647, 854 maloti over this period.).

The table below describes LTC's principal correspondent relationships, the percentage of total net incoming or outgoing settlements payments. Please note that the figures provided express total net settlement amounts for the period 1990-1996[15].

[15] Please note that accounting rate information is confidential although details, although disclosure can be discussed with the ITU.

Table 3.4 Percentage of total settlement payments for correspondent relations 1990-1996

COUNTRY	*CORRESPONDENT*	*% NET SETTLEMENT TO CORRESPONDENT*	*%NET SETTLEMENT TO LTC*
US	AT&T	71.5%	
UK	BT		59.5%
South Africa	Telkom SA		39%
Germany	Deutsche Telecom	5.8%	
Kenya	KPTC		0.4%
Sweden	Telia AM		0.82%
Denmark	Tele Denmark	3.7%	
Switzerland	Swiss Tel	1.8%	
France	France Telecom		[Out payment[16]]
Canada	Teleglobe	0.16%	

Source: Case Study

A number of interesting trends in accounting and settlement rates with major destinations can be seen in the data that has been provided.

3.2.5 Calls to SADC countries

Calls to and from SADC countries[17], with the exception of South Africa, are counted as international calls but the countries operate a Sender Keeps All system.

Although LTC does not settle accounts with SADC terminating operators for termination of calls, it is still required to pay a transit share to Telkom SA for carriage of calls through South Africa. Indeed, the accounting and settlement data provided for the period 1995-1997 indicates that although traffic between South Africa and Lesotho (voice telephony only) is in favour of Lesotho, settlement of the transit share for intra-SADC traffic with Telkom SA results in net outpayments to Telkom SA.

Based on traffic figures (in paid minutes) provided for intra-SADC regional traffic for the period 1990 - 1996, outgoing calls to SADC[18] countries (not including South Africa) are greater that incoming calls. The sender keeps all system would appear to benefit Lesotho save that transit shares are payable to South Africa for the routing of outgoing calls through its systems.

3.2.6 Impact of currency movements

According to LTC, Lesotho has been a net outpayer rather than a net receiver of settlement monies since 1994. LTC indicate that this has been due in large part to the depreciation of the Rand against the dollar and the pound. The strength of the pound and the dollar against the maloti have had an impact on the net settlement payments made to BT and on the net settlement payments received from AT&T. A secondary reason is that call-back, which is measured as an incoming call and tends to inflate incoming net settlements, is not permitted in Lesotho and is apparently not practised (please see in this regard section 3.1 of this Report).

It is understood that the price increases implemented in 1994 were established, in some part, to mitigate this. Revenue projections and actual receipts indicate that, in relation to voice telephony, this action did not mitigate loss of revenue to settlement payments for the period 1994-1997.

Currency depreciation is likely to continue in the short term and together with continuing transit arrangements, Lesotho is likely to continue to be a net outpayer of settlement rates. This is borne out by actual and budget figures for 1996 and by budget figures projected for 1997/1998.

[16] Figures for settlement payments to France Telecom are for 1996-1997 and are not included in the total accounts for 1990-1996 disclosed to us.

[17] Please see footnote 1 above.

[18] It is understood that a direct link has been established with Zimbabwe. Provided that sender keeps all is maintained, Lesotho should see a small reduction in transit share payable to Telkom SA. A further factor may be the routing of calls through Zimbabwe. We will need to confirm LTC's intentions in this regard.

3.2.7 Relations with foreign correspondents.

The relatively weak bargaining position of LTC as against certain major foreign correspondents is mitigated by the fact that Lesotho transits relatively substantial amounts of traffic through operators such as BT and Telkom SA.

BT, one of LTC's more significant foreign correspondents, is prepared to renegotiate the terms on which international relations are established in order to retain Lesotho's European and international transit traffic. This results in net outpayments from LTC to BT. For example, moves by LTC to transit more traffic though other correspondents such as Telkom SA have caused BT to reduce its transit rates.

Based on accounting rate data provided by LTC, accounting rates agreed with BT are decreasing[19].

LTC may also be disadvantaged in terms of the limited amounts of traffic that it can send to correspondents. It is understood that arrangements with Sweden for termination of calls to the Nordic countries foundered for this reason.

3.2.8 Changes to Telkom SA rates

LTC acknowledges that changes to Telkom SA international rates may result in a greater disparity between incoming and outgoing traffic to South Africa. LTC has historically tried to mirror Telkom rates to avoid the threat of traffic loss.

Traffic figures for the period 1990-1996 indicate that although the outflow of traffic from Lesotho to South Africa increased slightly in 1994, traffic from South Africa to Lesotho increased by approximately 45% in 1994 as from 1993. The balance of traffic (not including transit traffic) remains in favour of Lesotho. Lower rates in South Africa may result in increased traffic into Lesotho. The net outpayment to South Africa is accounted for by transit charges.

Significantly lower international collection charges levied in South Africa could increase incentives for call-back operators although cross border rates could be utilised to access the South African network, changing somewhat the usual incentives for call-back operators, although not "manual" call-back operators, i.e. the users themselves.. Lower rates in Lesotho for such routes may mitigate this threat. Social factors also need to be considered, for example, migrant workers could be expected to call home more often given their greater earning capacity as compared to the calls made to them by family in Lesotho.

[19] Figures for UK-Lesotho via BT indicate a 1986 accounting rate of 1.47 SDR. We have not been able to obtain more up to date figures from LTC and in particular, to verify the FCC published rate of 0.6 SDR for UK-Lesotho as at 10/96.

4. COST EVALUATION OF INTERNATIONAL TELECOMMUNICATION SERVICE

LTC has no accounting system that would allow ready analysis of the actual cost of international transmission, switching and national transmission. It is worth noting that a cost-based determination of services for the purposed of proposing tariff changes was conducted by UNDP. This study considered each service on the basis of ITU-T Recommendations in force. It can be assumed that the proposed prices were largely in line with international cost methodologies in place at the time. However, the UNDP recommendations were made in the context of maximising revenue for LTC not of achieving cost-orientation, and in any case not all their recommendations were implemented.

Anecdotal evidence from LTC indicates that prices are generally in line with costs, although the "national extension" element may be priced somewhat below cost. Note in this regard that there is an element of geographical de-averaging in relation to national pricing of access services.

LTC provided some data on costs attributable to international telephony. While these data are not detailed enough to do a rigorous cost allocation, we can do an indicative allocation as shown below. Here we allocate costs to one of four categories: costs related to external links to the Republic of South Africa, through which flow traffic to RSA and various SADC countries; costs related to external links via satellite; costs of the national extension related to originating or terminating traffic flows through the RSA links; or costs of the national extension that are related to satellite traffic. The split between RSA and satellite traffic is done on a 91.2% vs 8.8% split, based on the total traffic split between the two streams.

The costs for international transmission are split between the external links to the Republic of South Africa, which amount to $0.027 per minutes, and the external links to each of the USA, UK, Germany, France, Kenya and Zimbabwe, i.e. the satellite links, which amount to $0.165 per minute. These indicative costs for the international transmission links would result in a weighted average indicative cost of $0.039, albeit weighted towards the lower costs of the South Africa links.

A weighted average indicative cost for the national extension would amount to $0.26. A total weighted average cost, albeit indicative, would be $0.30 (rounded upwards).

The indicative weighted average costs per minute for the external links look reasonable and are generally in line with international costs.

The costs per minute for the external links look reasonable and are generally in line with international costs. The costs per minute for the national extension are in line with and are actually less than the costs estimated by Uganda in our other case study.

Table 4.1 LESOTHO: Indicative Cost Analysis

Cost Item	*USD Cost (LTC Figures)*	*Amortization Period (estimate in years)*	*Annualised Cost (USD)*	*Allocation to RSA Links (USD)*	*Allocation to Sat. Links (USD)*
External Links Costs					
Sat Costs	$4.5M	10	$450,000	0	$450,000
Int'l Switch	$1.32M	10	$132,000	$120,384	$11,616
Transmission links to SA	$595K	10	$59,500	$59,500	0
Sat ann. Rent	$111,000	1	$111,000	0	$111,000
Staff Sal.	$908,000	1	$908,000	$828,096	$79,904
Other Ops.	$120,000	1	$120,000	$109,440	$10,560
Total Ext Links				$1,117,420	$663,080
Related Total Minutes				42,065K	4,046K
Cents Per Minute				**2.7**	**16.5**
National Extension					
Switching Network	$4.62M	7	$0.660M	$0.602	$0.058
Transmission, Equip & Bldgs	$11.130	15	$0.742M	$0.676M	$0.066M
Admin Costs	$7.746M	1	$7.746M	$7.064M	$0.682M
Financing Costs	$1.18M	1	$1.18M	$1.076M	$0.104M
Total National Extension				$9.418M	$0.910M
Related Total Minutes				42,065K	4,046K
Cents Per Minute				22	22
Total Cents Per Minute				24.7	38.5

Source: LTC

This (albeit indicative), allocation of costs and the conclusion that costs for links are generally in line with international costs accords with anecdotal evidence from LTC that tariffs are generally in line with costs, if not in fact below cost.

In seeking to verify these indicative costs (other than by way of comparison with the results achieved in our Uganda study), we note that Lesotho was not included in the FCC Tariff Component Pricing ("**TCP**") work undertaken for the purpose of determining benchmark settlement rates. Two other African countries were considered by the FCC, i.e. Kenya and South Africa, the results of which are set out below.

Table 4.2 FCC TCP Estimates for African Countries

COUNTRY	*International transmission*	*International switching*	*National extension*
Kenya	$0.255	$0.048	$0.123
South Africa	$0.052	$0.034	$0.083

Source: Case Study

On this basis, the total cost of the components of an international call in Kenya would be $0.42 approximately. In South Africa, the total would be $0.17 approximately.

The equivalent Lesotho components ($0.27 in relation to the components of a call to South Africa and $0.55 using satellite links) fall between each of Kenya and South Africa. Although these comparisons are probably not helpful in practice given the differences in network development and other factors such as the level of digitisation, general economic development and social factors, it is interesting to note that, in relation to costs allocated to the RSA link and the national extension, the indicative cost for Lesotho is only $0.04 above the FCC benchmark figure for the Least Developed Countries. We would also note that, in terms of WB and ITU development classification, Lesotho would be ranked with Kenya as a low income country.

5. SCENARIOS FOR CHANGES IN THE INTERNATIONAL ACCOUNTING SYSTEM

By way of a general overview, the following points should be noted:

- LTC in aggregate experiences negative net international settlement revenues from telephony. In this regard, Lesotho is fairly unique in terms of developing countries. International traffic is reasonably balanced, although tipped in favour of outgoing calls;
- LTC has in place a development programme but due to funding uncertainties and the adverse impact on development resulting from the recent industrial action[20], LTC has experienced negative network development, with a fall in teledensity from 1 telephone for every 100 people to 0.93;
- LTC does not explicitly cross-subsidise local calls from international call revenue;
- LTC is not subject to universal service obligations expressed as service or roll-out targets although it is required by the Act to improve and develop its operating systems. LTC has set itself rural penetration targets in its Vision 2000 (please see section 2.1.1);
- LTC has in place a limited number of correspondent relationships. Even where traffic figures between LTC and a correspondent indicate that net settlements should flow to LTC (for example, BT and Telkom SA), transit arrangements are such that LTC is required to make net outpayments.

5.1 Revenue projection model: structure

To explore various scenarios involving changes in accounting rates, a revenue projection model was created for Lesotho international settlements. This model had the form of an equation, as follows:

$$\Sigma IR_n = [(POC\text{-}OG_n)\ (POGM_n)] + [(PTC_n)\ (PIM0_n] + [(LCC_n - LAR_n)\ (POGM_n)] + [(POGM\text{-}SKA_n)\ (CR\text{-}SKA_n)] - [(POGM_n)\ (PTC_n)]$$

Where:

ΣIR_n = International revenue from all sources in year n, summed across all Sender Keeps All (SKA) SADC and non-SKA countries (the SKA SADC countries are Botswana, Mozambique, Namibia, Swaziland and Zimbabwe).

$POC\text{-}OG_n$ = Projected origination charges for outgoing calls from Lesotho in year n (where POC-OG is varied by scenario assumption).

$POGM_n$ = Projected outgoing minutes from Lesotho in year n for non-SKA countries (where this is projected by taking volume in the base year [an average of 1995 and 1996 data] times a factor for the price elasticity of the assumed collection charge in Lesotho times a factor for line growth in Lesotho times a factor for adjusted GDP growth [GDP growth is projected but adjusted downward somewhat for two factors: population growth, since some future GDP growth may really be due to population increases, not GDP per capita; and telecom intensity, since we assume that new, probably poorer, subscribers will not make international calls at quite the same rate as old subscribers).

PTC_n= Projected incoming termination charges in year n for each non-SKA country (projected by scenario assumption).

$PIM0_n$= Projected incoming minutes in year n from each non-SKA country to Lesotho, summed across all countries (projected by taking volume in the base year (being an average of 1995 and 1996 data) times an assumed factor for price elasticity of the assumed collection rate in each foreign country times a factor for Lesotho line

[20] In this regard, please see section 2.3 of this Report.

growth times a factor for assumed worldwide GDP growth applicable to all correspondent countries).

LCC_n= Lesotho collection charges for year n for each country destination.

LAR_n= the accounting rate in Lesotho related to that country in year n (projected by scenario assumption) (this subtraction of collection rate minus accounting rate yields the surplus of the collection rate over the accounting rate that is retained by LTC on each call over and above the amount retained by LTC for originating the call (accounted for above) and the amount paid out to the corresponding country (the terminating charge in the foreign country; generally equal to the originating charge); the subtracted terms are then multiplied by $POGM_n$, the projected outgoing minutes described above).

$POGM\text{-}SKA_n$= Projected outgoing traffic minutes to each SKA country in year n (projected using estimated current volume in minutes times a factor for line growth in Lesotho times a factor for price elasticity in Lesotho on the assumed collection rate in Lesotho times a factor for quality of service improvement).

$CR\text{-}SKA_n$= Collection rate in Lesotho to each SKA country in year n (assumed by scenario; assuming that the Sender Keeps All system remains in place).

(PTC_n)= Projected transit charges for each SKA and non-SKA country (SKA traffic transiting through South Africa does require an outpayment to South Africa but no termination share to the destination; a separate term is used in the Lesotho but not the Uganda equation because transit charges are so important to Lesotho).

Note that this revenue model ignores possible international revenues in Lesotho from second operators, either separately or as they might generate more revenue for LTC by putting more traffic through LTC's international gateway or crossborder links. Note too that since this equation has already allowed for outpayments in the LAR_n term, so that a separate term for outpayments is not needed. Revenues for the current cellular operator are not calculated separately; rather their 2200 subscribers are added to the LTC subscriber base. Effects of possible dramatic changes in the sector, such as privatization and major external investment, were ignored, since the focus was on comparing various price changes with an evolutionary, not revolutionary, base case.

5.2 The base case

Taking the revenue model described above, we can use it to create scenarios of what might happen to Lesotho revenues under various conditions.

Creating a base case, we make the following assumptions:

- All forecasts will be through the year 2002. (The only exception is for the FCC scenario which requires actions in 2003. But for all scenarios the year 2002 will be the focus year for comparisons).
- Line growth in Lesotho will be 8 percent per year (this is a figure taken from the business plan for growth in distant years, but the higher number projected in the business plan for near term years seems overly ambitious given the financial and other problems of the sector).
- GDP growth in Lesotho will be 4 percent per year, adjusted downward by 1 percent for population and 1 percent for telecom intensity, yielding a net of 2 percent per year (where telecom intensity means that as new, poorer, subscribers are added, they will probably not use telecoms services as intensively as existing subscribers).
- Quality of service to countries outside Lesotho will increase 2 percent per year (where quality of service means that call completion rates will improve 2% per year).
- The collection rate and accounting rates in Lesotho, other SADC countries, and the rest of the world do not change from the present rates.

- World-wide GDP growth is 3 percent per year.
- Price elasticity in Lesotho and its neighbour South Africa is -1.53 applied to the collection rate in Lesotho and South Africa in each year (we assume South Africa has the same elasticity as Lesotho because the people in South Africa who are calling Lesotho are mostly Lesothoan mine workers, and because significant distortions in the model occur if South Africa, which generates most of the incoming and outgoing traffic to Lesotho, has a different elasticity).
- Price elasticity elsewhere in the world is -1.1 in high income countries and -1.2 in low income countries, applied to the collection rates in those countries in each year.
- Line growth in SADC countries outside Lesotho is 8 percent per year.
- Thus this base case holds prices constant and any changes are driven by network and economic growth, not price changes. Under these assumptions we project that all international revenues rise from $9.4 M in 1998 (where 1998 is used as the base year as no figures are available for 1997 and the base year comprises a blend of 1996/1997 actual and projected figures) to $14.9 M in 2002, with SADC SKA revenues accounting for $0.302M and $0.636M respectively. This is based on minutes increasing from 15.6M to 24.6M outgoing to non-SKA countries and from 17.8M to 27.0M incoming from non-SKA countries. (Of these 27.0M, 25.5M are projected to come from the Republic of South Africa (RSA)). The revenues are also based on minutes increasing from 0.484M to 1.2M minutes outgoing to SKA countries (incoming minutes from SKA countries are not estimated).

Thus in the base case, as a result of GDP, line and population growth, all international revenues grow by 58.5% over the 1998-2002 period. Scenarios described later will make comparisons with these base case figures.

A summary table of the results of all the different scenarios is shown at the end of this section.

We obtained an estimate of future total LTC revenue from the 1996 business plan (and did projections for two years using the business plan's growth rate in the distant years of 20.5%, with a Maloti to USD exchange rate of 3.63 in place at the time the business plan was done), and compared this with our estimates of future international total revenues. This showed a comparison for 1998 of $9.4M international revenue as 43% of $21.7M total revenues; changing by 2002 to $14.9M as 33% of $45.8M total revenues. We compare total international revenues to this notional turnover figure for each scenario in the summary table in section 6.1 below.

For ease of discussion as the model gets more complex, we have changed the order of scenario discussion slightly from the terms of reference.

5.3 Staged reduction in accounting rates to major destinations

5.3.1 Background

ITU-T Recommendation D.140 ("**D.140**") proposes that administrations aim to implement cost-oriented accounting rates as swiftly as possible. However, D.140 recognises that, whether the disparity between the accounting rate and the cost of call termination is significant, a staged reduction in accounting rates for a given relation over a period of time may be necessary. Administrations should aim to agree staged reductions over a period of one to five years. This period may be extended depending on the level of reduction that is agreed and the difference in the development status of the countries concerned.

The ITU has suggested reductions between 6-10%. We have chosen 10% for our modelling purposes.

5.3.2 Impact on Lesotho

Taking the revenue model and attempting to answer the question of what will happen if there is a staged reduction as foreseen in D.140, we keep all the above listed assumptions except the following, which are changed:

- Collection rates in Lesotho for non-SKA countries decline by 10 percent per year (10 percent applied to the previous year's rate)

- Accounting rates in Lesotho for non-SKA countries decline by 10 percent per year; accounting rates for the rest of the world go down the same percentage
- Collection rates in Lesotho for SKA countries go down 10 percent per year.
- Under these new assumptions we see that outgoing non-SKA minutes rise to 46.7M in 2002; incoming minutes rise to 51.1M; and outgoing SKA minutes rise to 1.2M. All these minutes are substantially higher than the minutes in 2002 for the base case, except for the SKA outgoing minutes.
- Total revenues rise to $15.6M in 2002, with SKA revenues amounting to $0.684M of this total. The total revenue figure is 4.7% higher than the comparable $14.9M figure for the base case.
- To check the validity of these projections, we compared outgoing volume in minutes in the base and out years with minutes per line and minutes per inhabitant published in the literature (especially Peter Smith et al in their study of Asian Telecommunications Policies). The projections were generally in line with these ratios for less developed countries, although the minutes per line were on the high side, because we have kept the line growth rate at 8 percent per year while the minutes were growing at a higher rate.

Thus this scenario provides Lesotho with a somewhat higher revenue outcome. Before we leave this scenario we should examine how it addresses one of the nagging problems of the current settlement arrangements: inflow vs. outflow of traffic. Because collection rates have been higher for some years in many underdeveloped countries than in many of the developed countries, outgoing minutes have been much lower than incoming minutes, leading to an outflow of settlements to the less developed countries. However, in Lesotho the situation is fairly well in balance overall. Early in the period (for non-SKA countries) incoming as a percent of total (incoming plus outgoing) minutes is 53.2 percent, declining slightly to 52.2 percent in 2002. At the beginning of the period all countries (including the US) except South Africa, Canada and the UK actually have outgoing exceeding incoming minutes. South Africa has a very large excess of incoming exceeding outgoing. We suspect strongly that this is due to social reasons (mineworkers with relatively more money in South Africa calling Lesotho from pay phones and company phones at the end of their shift, for example) and is unlikely to change over time unless the social conditions change.

To determine the effect of a key variable, Lesotho price elasticity, on these forecasts, we redid the 10 percent decline forecast with Lesotho price elasticity set at -1.1 instead of-1.53. Here we found that total revenues were $13.3 in 2002, 15% less than under the D.140 scenario with a -1.53 elasticity. SKA revenue is $0.582M instead of $0.684M.

Importantly, this $13.3M is 10.74% less than the base case, thus showing that when prices drop but the elasticity is low, less revenue is generated than if prices are frozen. This highlights the need to have accurate estimates of elasticities in these situations, in order to make informed policy decisions.

5.4 Benchmarking or price caps for settlement rates

5.4.1 Background

As a result of the adoption by the FCC of the Settlements Order, US correspondents with LTC (which in practice is AT&T) will be required to obtain a settlement rate of $0.23 as Lesotho would constitute a low income country within the categories used by the FCC. As Lesotho has a teledensity of 0.93, it would come within the five year transitional period proposed by the FCC.

Implementation of the FCC Order would require Lesotho to move to a settlement rate of $0.23 per minute of traffic by 1 January 2003 unless teledensity rises above 1 before then. The Order is generally expected to drive down accounting rates worldwide.

It is also understood that AT&T has proposed a new settlement rate of $0.30. No information on timing has been given.

5.4.2 Impact on Lesotho

The FCC has ordered US carriers to negotiate toward termination and origination charges of $0.23 by January 1, 2003 for countries with a teledensity of less than 1. To test the effect of this proposed change, we made the following assumptions in the revenue model:

- The termination and origination charge in the base year is $0.88[21] for the US, declining each year to $0.23 in 2003, for a CAGR drop of 19.08 percent.
- For all other countries other than the US, the final year of 2003 is also set at a termination and origination charge of $0.23, and an even CAGR decline from the current charge to the $0.23 is implemented. This results in a range of declines from 3%/year for the Netherlands to 26% for Germany, with an average of 17% CAGR decline.
- The worldwide collection rate is also assumed to drop 17 percent CAGR, in step with the average relation. The transit charges paid out are also assumed to drop 17 percent per year. (Note that this percentage is rather arbitrary.)
- South Africa, the most important relation by far, already has an accounting rate below the FCC guideline and its collection rate is fairly low, so we assume that the collection and accounting rates for South Africa are frozen for the period.
- The price elasticity in Lesotho is again assumed to be -1.53.

Here the results are that total international revenue grows to $15.0M by 2002, almost as high as the D.140 scenario, and just above the base case. Of this revenue, $1.6M comes from SKA countries, and the 2002 minutes are 29.0M outgoing to non-SKA, 28.8M incoming from non SKA, and 3.7M outgoing to SKA.

5.5 Termination charges

5.5.1 Background

The FCC has also advocated and researched Tariff Component Pricing, (TCP), in which call termination costs are broken into three parts and estimated using different methodologies, then the parts summed into a total for each of various countries.

5.5.2 Impact on Lesotho

To model this approach for Lesotho, we made the following assumptions, which vary from the previous FCC scenario:

- Lesotho's TCP cost is 24.7 cents per minute for calls terminating in Lesotho from South Africa, and is 38.5 cents for all other, satellite-based calls. (This is derived from section 4 above.)
- TCP costs for call origination equal costs for call termination for all countries.
- TCP costs for countries which the FCC did not research and estimate can be derived from nearby or adjacent, similar countries with similar economies and levels of development. Thus for example the TCP cost for Norway (unresearched by the FCC) can be derived from the FCC estimate for Sweden of $ 0.10.
- The accounting rate system moves immediately to an assymetric system which is based on the TCP, or on prices moving toward TCP. Thus in 2002 a call from Lesotho to Belgium would generate $0.14 per minute for Belgium, as Belgium's cost-based share for terminating the call. But this same call would yield $0.385 to Lesotho as its cost based share for originating the call. (This call would of course also yield Lesotho any excess of the collection rate over the $0.57 ($0.43 + $0.14) accounting rate.) Similarly, a call from Belgium to Lesotho would yield $0.43 to Lesotho for terminating the call, and would yield only $0.14 to the Belgians for originating the call. (The Belgians would retain any excess of the collection rate over the accounting rate.)

[21] This figure is taken from the settlement figures disclosed to us by LTC for a direct relation with the US. Our assumption here has been that LTC seeks to minimise its transit shares and obtain the most direct routes for calls to the US

- Collection rates still decline at 17 percent per year. Using this percent keeps this scenario more easily comparable with the previous FCC scenario.
- The price elasticity in Lesotho is again assumed to be -1.53.
- The SADC SKA system remains unchanged and in place.
- Any improvements in the efficiency of the Lesotho phone system, and thus drops in the TCP, are not identified and incorporated into the system until after 2003.

Under this approach the international revenue grows to $15.2 million, somewhat higher than the base case and the previous FCC scenario. Of this revenue, $9.2 million still comes from SADC, and the minutes remain the same as in scenario 5.4 above.

What is occurring here is that the Lesotho termination rates are somewhat higher than the FCC benchmarks for Lesotho in the earlier FCC scenario, and Lesotho is reaping the benefit of these higher rates in originating and terminating calls. Hence this scenario is more lucrative. Of course it would be even more lucrative if the PATU 60 cent estimate of call termination costs was used.

5.6 Very low settlement rates, sender keeps all etc.

5.6.1 Background

Two scenarios are provided for very low settlement rates:

- The breakdown of the traditional bilateral accounting regime;
- The move to end-to-end service provision.

With regard to end-to-end service provision, we have not specifically addressed this option based on the following assumptions:

- If LTC is privatised within the period (i.e. within the next five years), it is likely to be granted an exclusivity period in line with other privatisations in African countries. This period is commonly between five and seven years (although in this regard, a period of three years has been proposed), in other words, other operators are unlikely to be able to establish themselves in Lesotho.
- If LTC is privatised by way of securing a strategic investor, that investor may be part of a group which is authorised in other jurisdictions to provide international services. It would be in LTC's interests to explore any possibility of end-to-end service provision if this is the case but it is not possible to make assumptions at this time as to which routes, if any, would benefit and as to whether traffic could be transmitted via the parent or other group company. We would note in this regard that any applicable international authorisation may include safeguard provisions requiring arms length transactions to prevent behaviour that may distort competition.
- LTC or the privatised entity is likely to be subject to stringent roll-out obligations as a quid pro quo to the grant of an exclusivity period and given LTC's current financial status, this entity is unlikely to be able to establish itself abroad in the short to medium term (although we would note in this regard that the roll-out obligations would impact on teledensity figures and may raise the figure over 1 for every 100 persons, thus impacting on the FCC scenario).

Accordingly, we consider that Sender Keeps All ("**SKA**") is the most appropriate scenario for Lesotho. The impact of SKA should be examined:

- On the basis that traditional bilateral relations break down (note in this regard the assumption in relation to transit charges set out in section 5.6.2 below, which requires some form of bilateral agreement);
- If traffic shifts to the Internet (note that it is extremely difficult to determine the amount of traffic that would shift to the Internet as we have no baseline figures from which to work. Internet voice telephony is unlikely to be realistic in the short to medium term on a scale that would impact on LTC's traditional traffic flows. However, as a counterbalance to this somewhat negative

assessment, we would note that a number of African countries are considering call centres in remote or rural areas and urban settlements to bring telephony to previously unserved areas).

Lesotho already operates an SKA system for traffic to SADC countries (please see section 3.3.1 above). Transit shares remain payable to Telkom SA. This fact requires LTC to pay to Telkom SA net settlements where direct traffic relations would indicate that Telkom SA should pay to LTC net settlement payments.

The settlement accounts disclosed to us do not distinguish between direct traffic and transit traffic.

5.6.2 Impact on Lesotho

In this scenario we assume that Lesotho and the rest of the world switch to an SKA system in the first and all forecast out years. Thus there is no revenue from termination charges on incoming minutes, and the elements of the equation are reduced to collection charges in Lesotho times projected outgoing minutes for non-SKA countries and times projected outgoing minutes for SKA countries, less transit charges. Here we make the following assumptions (all other assumptions listed earlier stay the same):

- Price elasticity is -1.53
- Collection charges stay the same in Lesotho
- Transit charges currently levied by SA Telekom for SKA countries and by other transiting administrations to distant destinations will continue in place (otherwise they would have no incentive to carry the traffic); in this scenario they are frozen.

Here we find that outgoing minutes to non-SKA and SKA countries unsurprisingly stays the same in 2002 (since in both cases the price remained unchanged). The revenue picture is somewhat different, however, with total revenue in the SKA case reaching only $14.1M, 5% lower than the $14.9M figure for the base case. SADC revenue is the same, as might be expected.

This scenario thus harms Lesotho significantly, compared to other scenarios.

To vary this scenario somewhat, we then assume that collection charges in Lesotho decline by 10 percent per year, and that transit charges also decline 10 percent. This results in the following: total revenue reaches $15.8M in 2002, somewhat higher than the SKA case with frozen prices and somewhat higher than the base case. This is true despite the fact that outgoing minutes to non-SKA countries is almost double the frozen prices SKA figure, at 46.7M vs. 24.7M for 2002. Similarly, outgoing minutes to SKA countries is 2.3M in the SKA (10 percent drop) case and 1.2M in 2002 in the frozen prices SKA case.

Thus here the situation has improved by switching to an SKA system, dropping collection rates and driving up minutes.

Note that the $15.8M total revenue is the highest revenue figure obtained so far, and in fact will turn out to be the highest total revenue of all the scenarios. We anticipate that this is a fairly unique situation for a developing country, and is driven by the unusual fact that incoming and outgoing minutes are fairly well in balance in Lesotho, unlike in most developing countries.

A scenario with SKA for all countries but a 20%/year collection rate drop was also run, but was found to be very similar to the 10% scenario, but with slightly lower total revenue. Hence this is not presented in detail.

5.7 Revenue stabilisation measures

5.7.1 Background

In examining the questions raised by moves towards reducing accounting rates, the French-speaking Tariff sub-group of the Regional Tariff Group for Africa ("**TAF**") reached consensus on a number of issues:

- That accounting rates should be cost-oriented but that cost studies should follow the model established by the TAS Group provided that the model was adapted to take into account specific circumstances in Africa;
- The introduction of cost accounting on this basis would take 8 years from 1997 to 2005;

- In the period 1997-2005, accounting rates should gradually come down with increased traffic imbalance, whilst remaining in certain limits;
- From 2005 (or when reliable cost accounting has been implemented) the principal of dissymetric shares will apply;
- Revenues of TAF members should not decline from one year to the next.

From the exact wording of the TAF report is not clear if "dissymetric shares" are to be instituted before 2005 (although it is understood that this will, in practice, be the case). It is also unclear whether TAF wishes that "tariff balances must not decline" from year to year, as stated, or if the principle of the "possible formula" would apply, which focuses on a "minimum annual acceptable growth rate." This latter would seem to be a quite different thing.

5.7.2 Impact in Lesotho

The TAF prescription described above is thus rather hard to test, but our best approximation is to make the following assumptions:

- In each year, the total accounting rate (termination plus origination charge) must decline 10 percent, as in the D.140 scenario. (Under our base and other scenarios, where revenues grow naturally as a result of GDP, line and other factors, there would probably be no TAF adjustment needed in any year for any country if we took TAF literally at "tariff balances must not decline," since all revenues go up in each year. Hence this would not be a fruitful avenue to explore.)
- The Lesotho and all other collection rates are also assumed to decline 10 percent per year.
- It is assumed that the "minimum acceptable growth rate" for Lesotho is 10 percent per year, and that this rate applies to Lesotho's relations with all developed countries.
- It is assumed that this percent is applied to the percentage growth in total (origination plus termination) revenue derived from each relation with each developed country; that if this percentage is less than 10 percent, then the termination and origination charges are adjusted until the revenue amount dictated by the 10 percent growth goal is achieved. The new adjusted revenue amount is then divided by the total (outgoing plus incoming) minutes for each country relation, and a new origination and termination charge for each country is calculated which yields the new adjusted revenue amount. The actual accounting rate (under the 10 percent per year decline requirement) is then compared to the new termination and origination rates, and a new percentage split (non 50-50) is calculated. If the percentage growth is more than 10 percent, then no adjustment in the accounting rate split is made. Less developed countries and "other" countries are ignored and not adjusted from the D.140 scenario. (We expect it is unlikely that any dissymetic subsidies would be forthcoming from other underdeveloped countries to Lesotho.)
- In the next year, the previous year's uneven split, if any, is ignored, and the model tries to reset the accounting rate with a 50-50 split, unless there is another need to reset the split.
- The price elasticity for Lesotho and South Africa is still assumed to be -1.53.

When constructing this scenario it was found that in each year total revenues from each country increased, there was no decrease, and in fact total revenue increased more than 10 percent for all countries. The lowest increase was 11.5 percent per year for Canada and the largest was 14.1 percent for South Africa, with an average of 13.6 percent.

Since these percentages were well in excess of any reasonable "minimum acceptable growth rate," no dissymetric adjustments were needed, the scenario did not vary from the D.140 case, and no figures are presented in detail here.

5.8 Lesotho Drops Collection Rates Faster

To explore the question of incoming vs. outgoing flows of accounting payments, we undertook a variation of the D.140 scenario described earlier. Here we made the following assumptions:

- The price elasticity is still assumed to be -1.53.

- Lesotho drops its collection rate faster than all other countries, with a 15% drop per year (applied to the previous year's rate) for Lesotho for 3 years followed by a 10% drop for two years, and a 10% drop per year for all other countries including SKA countries.
- Lesotho and all other countries drop their accounting rates at a uniform 10% per year.

All other base case assumptions remain the same.

One might desire scenarios with greater drops in the collection rate (such as 15 or 20% each year for all years) while the accounting rates (termination plus origination charge) dropped 10% per year. We examined some of these and found that the collection rate then dropped below the accounting rate, a situation which is unlikely to happen if the future is carefully planned for and the current situation monitored. Hence we scrapped these scenarios. Under this scenario the collection rate generally ends the period slightly above the accounting rate, such that Lesotho does collect a small surplus beyond what it keeps as an origination fee.

This scenario attempts to achieve what the FCC apparently wants: lower accounting rates, lower collection rates, and more balanced flows of minutes and revenue. Here we see that the results for Lesotho are poor, with total revenues at $14.2M, lower than the base case.

The goals of equalising minutes is not really relevant here. In this scenario in 1998 the incoming (non-SKA) minutes as a percent of all (non-SKA) minutes is 52 percent. This is reduced slightly in this scenario to 48 percent by 2002. Thus traffic is fairly well balanced throughout the period. This is generally true for most countries, with only Lesotho-Canada having a substantial excess of incoming (to Lesotho) vs. outgoing minutes. The key relation with South Africa reverses trend here, with incoming to Lesotho more than outgoing at the beginning of the period but less at the end.

In revenue terms, these major trading partners get slightly closer to the equality they desire: for South Africa, inpayments begin the period at $2.9M and rise to $4.8M, while outpayments (ignoring transit charges) rise slightly more, from $2.6M to $5M. For the US, inpayments rise from $112K to $163K while outpayments to the US rise more, from $228K to $441K. For the UK the situation was similar, with inpayments rising from $330K to $481K, and outpayments rising from $356K to $689K. Thus it appears that this scenario yields lower revenues for Lesotho, with modest increases in outpayments and generally balanced minutes.

5.9 Summary of scenario modelling results

We can summarise the various scenarios with the following table. This shows the base case projection for 1998 and 2002, and for 2002 other projections for each scenario. The most important row is probably the top row, which shows that Lesotho is best off under the SKA with a drop of 10 percent in price scenario, with the D.140 and FCC scenarios in second place (all assuming an elasticity of -1.53) and worst off under the SKA scenario with no drop in prices.

The last row of the table shows the percentage that all international revenues (incoming and outgoing, including surplus above the accounting rate received from the collection rates) from all countries account for, as a percentage of the total estimated LTC revenues for that year. Here we see that international revenues start the period in the base case at 43%, and drop in the base case to 33%. Comparing this latter figure across scenarios, we see a range of figures from 29% for the D.140 10% price drop and -1.1 elasticity, up to 34% for the D.140 10% price drop and -1.53 elasticity case and the SKA 10% drop scenario.

Table 5.9 Revenues and minutes under the various scenarios

SUMMARY OF MODELLING RESULTS REVENUE AND MINUTES UNDER THE VARIOUS SCENARIOS									
	Base Case 1998	**Base Case 2002**	**D140 -10% 2002**	**D140 -10% & -1.1 Elast. 2002**	**FCC .23 2002**	**FCC TCP 2002**	**SKA -0% 2002**	**SKA -10% 2002**	**D140Ug Coll. Rate -15% -10% 2002**
All Int Rev.M$	9.4	14.9	15.6	13.3	15.0	15.2	14.1	15.8	14.2
SKA Rev.M$	0.307	0.636	0.684	0.582	1.6	1.6	0.636	0.684	0.576
MinOG Non SKA-M	15.6	24.6	46.7	39.4	29.0	29.0	24.7	46.7	55.7
MinIC Non SKA-M	17.8	27.0	51.1	43.3	28.8	28.8	27.0	29.2	51.1
MinOG SKA-M	0.484	1.2	1.2	1.0	3.7	3.7	1.2	2.3	2.3
Int.Revas % of est All Rev	43%	33%	34%	29%	33%	33%	31%	34%	31%

Table 12

	Base Case 1998	*Base Case 2002*	*D140 -10% 2002*	*D140 10% & -1.1 Elast. 2002*	*FCC .23 2002*	*SKA -0% 2002*	*SKA -10% 2002*	*D140Ug Coll. Rate -15% -10% 2002*
All Int Rev.M$	9.4	14.9	15.6	13.3	15.0	14.1	15.8	14.2
SKA Rev.M$	0.307	0.636	0.684	0.582	1.6	0.636	0.684	0.576
MinOG Non SKA-M	15.6	24.6	46.7	39.4	29.0	24.7	46.7	55.7
MinIC Non SKA-M	17.8	27.0	51.1	43.3	28.8	27.0	29.2	51.1
MinOG SKA-M	0.484	1.2	1.2	1.0	3.7	1.2	2.3	2.3
Int.Revas % of est All Rev	43%	33%	34%	29%	33%	31%	34%	31%

Source: Case Study

6. CONCLUSIONS

6.1 Evaluation of scenarios

Lesotho appears to be best off with the SKA scenario, in which collection rates and accounting rates drop at 10 per cent per year for five years. (The D.140 10% drop approach runs a close second.) This SKA scenario would certainly be a dramatic change from the present accounting rate system. It is likely, however, that many other developing countries would object to such an arrangement, since many would not begin with Lesotho's relatively balanced traffic flows.

The various quantitative scenarios that we explored indicated that there were no dramatic variations in terms of increased revenues. These scenarios were predicated on the basis of a high elasticity of demand and if in fact international telecommunications are an inelastic good, clearly any change from the current system would potentially be harmful to LTC's revenues and endanger its ability to build out and meet its (revised) expansion plans.

What is really needed is to identify a major external source of funds (which is not at present represented by international settlement revenue and is unlikely to be in the future) in order to meet even the most limited of LTC's expansion plans. This is a decision that will need to be made by the government and LTC but it appears that even when an elasticity figure of -1.53 (i.e. the SKA scenario) is used, relatively insubstantial revenue gains are arrived at.

6.2 Managing the challenges of the changing international telecommunications environment

As we have mentioned previously in this Report, Lesotho is in a fairly unique position in terms of international traffic, given that LTC in a net settlement outpayer and that the traffic patterns indicate a greater flow of traffic out of Lesotho than comes into Lesotho. Traffic flows are not significantly imbalanced and may be said to be relatively balanced.

LTC is faced with a number of difficulties going forward, the principal being its lack of investment and working capital. Line growth re-commenced in 1995 but Lesotho has actually experienced negative growth in lines overall, resulting in a reduced teledensity of 0.93 at the present time. LTC is subject to a 45% levy

on its revenues, together with non-payment of government funds and subsidies and a poor collection rate for outstanding bills. LTC has considered how best to diversify its services portfolio and to provide services demanded by customers (for which please see sections 2.4 generally and section 2.5 in relation to international services), however, funds to meet its expansion plans may not be sufficient to enable LTC to meet its own objectives.

One area that can be manipulated, and indeed has been manipulated in the past to maximise revenue, is tariffs, given that the capital necessary to fund the initial investment in the provision of underlying infrastructure necessary to provide new services may not be immediately forthcoming from other sources.

6.2.1 Commercial responses

LTC is aware of all these challenges and is concerned to meet both "domestic" requirements such as increasing rural penetration and the challenges presented by the changing international environment but the scope for commercial flexibility in terms of responding to the challenges posed by competition in the short to medium term is at present limited. Notwithstanding, its business plans are an innovative and comprehensive response to the approaching winds of competition.

In any event, LTC may be considered unlikely to take on any additional loans or other credit facilities (even though these are soft loans guaranteed by the government, which process takes between one and two years) given the likely privatisation posited for the spring 1998.

However, a number of commercial responses to the changing international telecommunications environment may be envisaged:

- Increases in international traffic may enable LTC to improve its negotiating position with foreign correspondents, notwithstanding scenario-based decreases in the rates that it will be paying out and in particular, to take advantage of more advantageous transit terms. LTC may be able to play off one transmitting country against another, a strategy already successfully employed with BT.
- The slightly increased revenues under each of the scenarios may give LTC room to manoeuvre in relation to decreases in collection rates, allowing LTC to set competitive rates as against Telkom SA and to increase traffic being carried over its network. Any increased flexibility will enable LTC to implement service packages aimed at mitigating the threat of "manual" call-back and decreasing the likelihood to incentivising the development of automatic call-back.
- Increased revenues will enable LTC to consolidate rather than innovative in the short term, for example, to concentrate on improving its outstanding debt collection rate, its credit checking procedures and its data gathering systems.

6.2.2 Policy response

As mentioned above and as described in section 2.1.2, the government is considering draft legislation which will address the privatisation of LTC. The privatisation mechanism has not yet been settled upon but a strategic partner is thought to be the most likely option.

This section considers some of the likely policy responses to the changing telecommunications environment and the likely knock-on commercial effects of such policy developments.

Privatisation is not precisely a response to the changing international telecommunications environment, rather it is a response to a number of factors, including pressure from the IMF. However, privatisation could yield enormous dividends both for LTC and for telecommunications in Lesotho. In the short term, privatisation (assuming that an exclusivity period is granted) will not aid the development of competition in basic telecommunications services in Lesotho, although penetration could be increased assuming that build obligations are to be included in the relevant licence and that significant investment is made.

A copy of the first draft of the proposed Telecommunications Law has been passed to us, which indicates that a fairly short exclusivity period of three years is likely to be proposed (although it will be for the government to determine the extent of any exclusivity period). Exclusivity will cover domestic and international switched services. There is no guarantee that the government will adopt this period but clearly, a short exclusivity period will benefit competition although it may disincentivise strategic investors.

A further benefit to users and to telecommunications generally in Lesotho would be derived from any liberalisation of non-core services such as Internet services and other value-added and data services. ISR, although not a solution in itself, acts as a spur to international competition and additionally provides revenue to the incumbent operator. There would be short term capacity issues in relation to liberalisation of services but this would be balanced by the build obligations likely to be imposed on the privatised entity.

A strategic investor (and likely candidates could include Telkom SA in which SBC has a stake) could be required to bid at and pay a substantial amount for a stake in LTC and would, on this basis, require a management agreement ceding to it day-to-day management of LTC. If Telkom SA is indeed a likely candidate, this would raise interesting possibilities with regard to the balance of payments as between LTC and Telkom SA. It is understood that Telkom SA is interested in being included in the SKA system for SADC countries. This in itself would have significant benefits for LTC, especially if Telkom SA included transit charges in the SKA system.

With substantially increased capital, LTC will be able to meet its revised business plan, putting in place state of the art equipment, i.e. wireless local loop, digital exchanges, to serve latent demand for services.

With increased capacity in the network, LTC could also serve the market for value added and data services and internet service providers (who will not require a licence under the draft Telecommunications Law). Such providers are not likely to be able to bypass (at least legitimately) LTC's international gateway during the exclusivity period and although on the face of it they represent competition to LTC, LTC should derive reasonable revenues from the provision of international leased circuits or from the termination or conveyance of calls routed onto their network.

No offer has been made by Lesotho in terms of WTO basic telecommunications commitments, although individual members of the government are interested in submitting an offer. It is likely that any offer will be subject to the delayed opening up of the basic services market, in line with any exclusivity period granted to LTC post-privatisation.

Lesotho is in an unusual position in terms of the balance of settlement payments and traffic and its relationship with South Africa, its major traffic partner. This makes comparisons with other countries somewhat difficult to draw and it is unfortunate that we have been unable to determine certain key variables, such as price elasticity for international calling. However, it would appear that LTC's main objective, and that of the Communications Ministry, should be to secure an external source of funding to grow its network for the benefit of telecommunications within Lesotho

ANNEX I

LESOTHO DATA REQUIREMENTS

Item		Unit	1992	1993	1994	1995	1996
DEMOGRAPHY, ECONOMY							
i61	Population	10x3	**1,891.06**	**1,943.00**	**1,996.00**	**1,980.00**	**2,078.00**
i6111	Urban Population	%	**20.88**	**212.62**			
i612	Population of largest city	10x3	161.00	166.00	170.00	170.00	
i62	Households	10x3	357.00	367.00	377.00	387.00	400.00
i63	Gross Domestic Product	10x6	2,131.20	2,475.70	3,145.40	3,730.88	
i64	Gross Fixed Capital Formation	10x6	1,766.60	2,051.20	2,700.00	3,258.75	
i66	Consumer price index (1987=100)		197.00	223.00	241.00		
TELEPHONE NETWORK							
i1112	Public pay phones	10x3	0.18	0.19	0.20	0.15	0.28
i1112a	- Coin operated payphones	10x3	0.19			0.11	
i1112b	- Card operated payphones	10x3	0.00			0.01	
i1112c	- Public call offices	10x3				0.01	21.300
i112	Main Telephone lines	10x3	11.38	14.62	15.71	17.79	15.975
i1121	Main Lines in largest city	10x3	7.91	7.82		10.95	
i1142	Digital main lines (%)	%	80.50	81.00	81.00	95.27	
i1181	Total km of fibre optic cable in ne	10x3					
i1185	Km of fibre optic cable in national	10x3	0.01				
i1187	Km fibre optic cable-local network	10x3					
i1191	International telephone circuits	10x3	0.04			0.19	
i123	Waiting list	10x3	8.14	8.35	8.80	5.42	9.30
MOBILE SERVICES							
i271	Cellular subscribers	10x3	0.00	0.00	0.00	0.00	[1.26]
i2711	- Analog cellular subscribers	10x3	0.00	0.00	0.00	0.00	0.00
i2712	- Digital cellular subscribers	10x3	0.00	0.00	0.00	0.00	2.20
i275	Radio paging subscribers	10x3	0.00	0.00	0.00	0.00	0.00
OTHER SERVICES							
i255	Estimated Facsimile machines	10x3	0.37	0.45	0.48	0.57	

Item		Unit	1992	1993	1994	1995	1996
i28	Total number of ISDN subscribers	10x3	0.00	0.00	0.00	0.00	0.00
i281	- Basic ISDN subscribers	10x3	0.00	0.00	0.00	0.00	0.00
i282	- Primary ISDN subscribers	10x3	0.00	0.00	0.00	0.00	0.00
i311	Telex subscribers	10x3	0.22	0.24	0.20	0.14	
i412	Private leased circuits	10x3	0.05	0.10		0.10	0.92
i4132	- Packet switched network subscribers	10x3	0.00	0.00			0.00
TRAFFIC							
i1311c	- Local telephone traffic (calls)	10x6					
i1311m	- Local telephone traffic (minutes)	10x6					
i1311p	- Local telephone traffic (pulses)	10x6					
i1312c	- Trunk telephone traffic (calls)	10x6	0.15				
i1312m	- Trunk telephone traffic (minutes)	10x6					
i1312p	- Trunk telephone traffic (pulses)	10x6					
i131c	Total nat'l telephone traffic calls	10x6					
i131m	Total nat'l telephone traffic (min)	10x6					
i131mc	Total nat'l mobile OG traffic calls	10x6					
i131mw	Total national mobil OG traffic min	10x6					
i131p	- Total national tel. traffic-pulses	10x6					
i132c	- Int'l OG telephone traffic - calls	10x6					
i132cb	- Int'l 2 ways teleph traffic - calls	10x6					
i132ci	- Int'l IC telephone traffic - calls	10x6					
i132m	- Int'l OG telephone traffic (min)	10x6	10.75	18.07	20.20	21.60	24.19
i132mb	- Int'l 2 ways teleph traffic - (min)	10x3					
i132mi	- Int'l IC telephone traffic - (min)	10x3	16543.5	19650	19749	20835	21918.5
i132p	- Int'l OG telephone traffic - pulses	10x6					
i132pb	- Int'l 2 ways tel. traffic - pulses	10x6					
i132pi	- Int'l IC telephone traffic - pulses	10x6					
i133c	Total telephone traffic (calls)	10x6					
i133m	Total telephone traffic (minutes)	10x6					
i133p	Total telephone traffic (pulses)	10x6					
i21	National telegrams (messages)	10x3	23.07				
i21w	National telegrams (words)	10x3					
i22	Int'l outgoing telegrams (messages)	10x3	20.93				

Year Beginning 01.04. **Local currency: Maloti**

Item		Unit	1992	1993	1994	1995	1996
i22w	Int'l outgoing telegrams (words)	10x3					
i321c	National telex traffic (calls)	10x3					
i321m	- National telex traffic (minutes)	10x3	313.14				
i322c	Int'l outgoing telex (calls)	10x3					
i322m	- Int'l outgoiing telex traffic (min)	10x3	135.73				
i323c	Total telex traffic (calls)	10x3					
i323m	Total telex traffic (minutes)	10x3					
STAFF							
i51	Full-time telecommunications staff	10x3	0.82	0.80	0.82	0.80	
QUALITY OF SERVICE							
i141	Faults cleared by next day	%	73.00			7.67	
i142	Unsuccessful local calls	%	11.00				
i1421	Unsuccessful calls due to busy nr	%					
i1422	Unsuccess. Calls due to no answer						
i1423	Unsuccessful calls due to technical						
i143	Faults per 100 main lines per year	[%]					1.01 (forecast)
i144	Operator assistance calls answered	%					
i145	Complaints per 1'000 customer bills						
TARIFFS (LOCAL CURRENCY)							
i151	Residential tph. Connection fee		345.00	345.00	345.00	345.00	
i151b	Business tph. Connection fee		345.00	435.00	435.00	435.00	
i151c	Analog cellular connection charge		0.00	0.00	0.00	0.00	-
i151d	Digital cellular connection charge		0.00	0.00	0.00	0.00	210.00
i151sa	Connection fee for ISDN basic		-	-	-	-	-
i151sb	Connection fee for ISDN primary		-	-	-	-	-
i152	Residential monthly subscription		15.00	20.00	20.00	20.00	20.00
i152b	Business monthly subscription		15.00	30.00	30.00	30.00	30.00
i152c	Analog cell. Monthly subscription		0.00	0.00	0.00	0.00	-
i152d	Digital cell. monthly subscription		0.00	0.00	0.00	0.00	
i152sa	Monthly subscription for ISDN basic		-	-	-	-	-
i152sb	Monthly subscription for ISDN primary		-	-	-	-	-
i153	Cost of a 3 minute local call (peak rate)		0.08	0.15	0.15	0.15	+

Year Beginning 01.04. **Local currency: Maloti**

Item		Unit	1992	1993	1994	1995	1996
i153$	Cost of a 3 minute local call (peak rate)	US$	0.03	0.05	0.04	0.04	+
i153c	Analog cell - cost 3 min local call		0.00	0.00	0.00	0.00	-
i153co	Analog cell. - cost 3 min local call					0.00	-
i153d	Digital cell. Cost 3 min local call		0.00	0.00	0.00	0.00	
i153do	Digital cellular - cost of 3 minute local call					0.00	
i153o	Cost of a 3 minute local call (off-peak)						
i153sa	ISDN basic - cost of 3 minute local call		-	-	-	-	-
i153sb							
i153t	Tax rate applied (in percent)					5.00	
REVENUE AND EXPENSE							
i71	- Telephone income	10x6	17.5	519.7	22.8		
i711	- Connection charge income	10x6			0.43		
i712	- Subscription charge income	10x6			3.16		
i713	- Income from telephone calls	10x6			22.29		
i7131	- Income from local calls	10x6					
i7132	- Income from long distance calls	10x6					
i7133	- Income from international calls	10x6					
i71331	Outpayments to foreign administrations[o]	10x6					
i72	- Income from telegrams	10x6			0.07		
i73	- Income from telex	10x6			0.05		
i731	- Income from data transmission	10x6					
i732	- Leased circuit revenue	10x6			1.30		
i74	- Other income	10x6			26.40		
i741	- Mobile communication revenue	10x6	-	-	-	-	-
i75	Telecom service revenue	10x6	37.7	40.85	44.50	47.85	
i76	Total expense for telecom services	10x6	38.6	42.7	47.6		
i761	- Operational expenditure	10x6			34.30		
i7611	- Wages & other personnel exp (payroll)	10x6	14.9	16.9	23.40		
i7612	- Non-income taxes	10x6			0.10		
i7613	- R&D expenses	10x6					
i762	- Depreciation	10x6	7.1	7.2	7.10		
i763	- Net interest paid/received	10x6			1.10		

Item		Unit	1992	1993	1994	1995	1996
i7631	- Interest paid	10x6			1.40		
i7632	- Interest received	10x6			-0.30		
i764	- Income tax	10x6	4.7	2.0	2.20		
i765	- Other expenditure	10x6			12.10		
i77	Profit/Loss	10x6			-0.36		
CAPITAL EXPENDITURE							
i81	Annual investment in telecom	10x6		6.90	5.60	21.17	
i82	- Investment excl. land & bldgs	10x6					
i83	- Telephone service investment	10x6					
i84	- Switching equipment investment	10x6					
i841	- External plant investment	10x6					
i842	- Transmission investment	10x6					
BALANCE SHEET							
i85	- Total fixed assets	10x6	53.33		62.20		
i861	- Equity	10x6			37.50		
i862	- Long-term debt	10x6			16.40		
i863	- Other liabilities	10x6			19.90		
BROADCASTING							
i955	Radio receivers	10x3	139.00	146.00	153.00		
i955l	Radio receivers (licenses)	10x3					
i956	% of population covered by radio	%					
i965	Television receivers		13,000.00	15,000.00	20,000.00		
i965c	Cable TV subscribers	10x3					
i965h	Homes passed by cable TV	10x3					
i965l	Television households/licenses	10x3					
i965s	Satellite antenna receivers	10x3					
INFORMATION TECHNOLOGY							
i421	Internet networks		0.00	0.00	0.00	0.00	
i4211	Internal host computers	10x3	0.00	0.00	0.00	0.00	0.00
i4212	Estimated internet users	10x3					
i422	Number of personal computers	10x3					
i422h	- Number of PCs in homes	10x3					

Sections 7, 8 and 9 are in millions of local currency at current prices.

* *This connection charge is for the "Master" and "Executive" services. For Government executives the charge is 200.00 and for family, 525.00.*

\+ *See Section 3.2.2 of the Report.*

º *See Section 3.2.4 of the Report and note that we have been requested not to disclose settlement revenues but have agreed to express inpayment and outpayments as percentages of the relevant total.*

Annex II

LESOTHO
INTERNATIONAL TRAFFIC PATTERNS

Year	1990		1991		1992		1993		1994		1995		1996	
Outgoing Top 20	IC	OG	IC	OG	IC	OG	IC	OG	IC	OG	IC	OG	IC	OG
S/Africa	5002766	10210502	831700	9253491	6247680	9266996	6942850	10008986	12850258	10832259	11379125	11193096	18825621	14417652
UK	255490	99920	261500	193310	269350	212640	275570	23390	284990	257290	288900	27150	296410	298650
Botswana	132211	160300	126552	199371	210791	198054	160045	198115	113980	211167	168053	225583	211520	233786
US	102100	117530	104500	116360	107640	128000	110120	140800	113890	154290	115450	204050	118450	224460
Swaziland	4202	147733	2961	162868	9995	123421	14520	140085	11528	132942	9885	136081	20118	170148
France	77670	70590	79500	85990	81890	94590	83780	104050	86640	114450	87830	104860	90110	115340
Germany	38610	38260	39520	41580	40710	45740	41650	50310	43070	55340	43660	68380	44800	75220
Zimbabwe	6239	59931	7416	60103	6816	48154	10036	65333	16245	56155	8523	63340	58237	69107
Sweden	36300	25720	37150	31370	38260	34510	39150	37960	40490	41750	41040	44700	42110	47400
Canada	69490	18830	72150	30970	74310	34070	76030	37470	78630	41220	79710	41260	81780	45390
Ireland	26520	11420	27140	36620	27950	40280	28600	44310	29580	48740	29980	49880	30760	45320
Kenya	33710	30520	34500	33040	35540	36340	36360	39980	37600	43980	38110	48550	39110	45120
Taiwan	29950	41660	30650	30190	31570	33210	32300	36530	33400	40180	33860	40670	34740	44730
Malawi	10403	16733	2362	18570	20280	13119	9526	17581	16542	34238	11600	34165	31524	40056
Italy	16020	17440	16500	21520	17000	23670	17390	26040	17980	28640	18230	26520	18700	33200
Namibia	15241	26570	13442	20430	16816	18395	12056	23227	9852	25283	14456	45103	13245	28302
Zambia	17319	16229	11533	15119	18413	5598	15238	13148	11520	18120	9524	20365	19520	28292
Belgium	8810	8470	9020	10680	9290	11750	9510	12920	9830	14220	9960	18780	11020	20660
Netherlands	7380	14850	7550	15110	7780	16620	7960	18280	8230	20110	8340	20190	8560	19750
Uganda	10260	9620	10500	2760	10820	3040	11060	3340	11440	3670	11600	2270		
Denmark	12140	11520	12700	11990	13080	13190	13380	14510	13840	15960	14030	14870	11900	2450
Other													14400	16360

Year	1990		1991		1992		1993		1994		1995		1996	
TOTAL IN/OG PER YEAR	7653000	8921000	18510000	19177500	16543500	19090500	19650000	18070500	19749000	20205000	20835000	21600000	21918500	24192000

Note: Top 20 incoming traffic countries are: South Africa; UK; Botswana; US; France; Canada; Zimbabwe; Germany; Sweden; Kenya; Taiwan; Malawi; Ireland' Switzerland; Swaziland; Zambia; Italy; Denmark; Uganda and Belgium.