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Research ICT Africa! fills a strategic gap in the development of a sustainable information society and network knowledge economy by building the ICT policy and regulatory research capacity needed to inform effective ICT governance in Africa. The network was launched with seed funding from the IDRC and seeks to extend its activities through national, regional and continental partnerships.

The establishment of the Research ICT Africa! network emanates from the growing demand for data and analysis necessary for appropriate but visionary policy required to catapult the continent into the information age. Through network development RIA! seeks to build an African knowledge base in support of ICT policy and regulatory design processes, and to monitoring and review policy and regulatory developments on the continent.

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EXECUTIVE SUMMARY

Namibia's ICT sector made considerable strives in the last 3 years. However, other comparable countries develop faster. Namibia's regulatory set-up is to blame for that. There is a clear window of opportunity for Namibia to rapidly increase ICT penetration and catch up with Botswana and South Africa. Namibia needs:

- A new telecommunications act;
- A forward-looking, resourced and independent regulator for the entire ICT sector; and
- Clear policy guide lines for the regulator.

Namibia sits in the favourable position of being able to learn from its neighbouring countries and having the opportunity to avoid their mistakes. South Africa's example of privatisation first followed by liberalisation later has clearly not worked. Namibia can avoid this pitfall by liberalising the market and, only once there is a competitive ICT sector, privatise Telecom Namibia and MTC. By a fortunate confluence of events Namibia has the potential to surpass its neighbours and create a competitive ICT sector, thereby stimulating economic growth, employment creation and social inclusion.

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CHAPTER 1

Introduction

Namibia belongs to the group of lower-middle-income countries and, compared to the average for lower-middle-income countries, Namibia is lagging behind in terms of mobile and fixed-line subscribers as well as in Internet users per 100 inhabitants. It might not be entirely fair to compare Namibia to the average of lower-middle-income countries since income is not the only factor affecting the digital divide between countries. Other factors include a country's general development, its existing infrastructure, the regulatory environment, the skills level of the work force, the size of the domestic market and its location relative to trading partners.

The low population density, large distances and income disparities are the main obstacles to telephone connectivity.

Due to the size of Namibia (824 000 km2) and the relatively small population of approx. 1,83 million (2000 Census), the telecommunication sector is faced with numerous challenges to bring an acceptable service to all inhabitants of the country. The low population density, large distances and income disparities among rural and urban households are the main obstacles to telephone connectivity.

For many years, developments in the telecommunications market have focused on the economically active sector of the community, i.e. industry, commerce and the upper and middle class of the population. This has resulted in large communities and the majority of rural areas having underdeveloped telecom systems. Namibia has a rural population of roughly 67% and the cost per subscriber in these rural areas is significantly higher than in the densely populated urban areas, making it difficult for Telecom Namibia to meet its universal service obligation in rural communities with limited financial resources. The challenges faced by the Namibian telecommunication sector are to:

- Expand services to low-revenue earning and rural customers;
- Upgrading the backbone network to prepare for next generation networks (IP telephony etc).

TABLE 1: Key Indicators[a]

	Indicator
Population[b]	2,011,000
Surface sq. km	825,418
Population density per sq. km	2.44
Monthly household income in US$[2]	455.71
Monthly household income in US$ implied PPP conversion rate [2]	1017.64
Mobile operators	1(2)
Fixed Line Operators	1
No of International Voice Gateway licences	1
No of International Data Gateway licences	1
Mobile Subscribers[c]	516,000
Number of fixed lines[d]	140,000
Fixed Teledensity	6.96
Mobile Teledensity	25.66
Mobile per sq. km	0.63
Fixed lines per sq. km	0.17
Fastest mobile Internet access	GPRS

a. Stork & Deen-Swarray (2006):
b. ITU estimates based on 2000 Census (ITU database 2006)
c. Source: MTC
d. Source: Telecom Namibia

The ICT Sector performance review aims to review progress achieved in the sector and pointing to challenges ahead. It was conducted in 17 African countries in 2006 and the document comparing the relative performance of participating countries will be released in 2007.

First, general global trends will be discussed. This will be followed by a review of the policy and regulatory environment, an assessment of the sector performance and a chapter on sector reform.

CHAPTER 2

Global Trends

Technological advances, convergence and regulatory reforms are reshaping the landscape telecom operators have to operate in. This chapter examines some of the major trends.

MULTIPLE/ TRIPLE/ QUADRUPLE PLAY

Historically networks were built to provide separate analogue services such as television, fixed-line voice, mobile voice or data services (Figure 1).

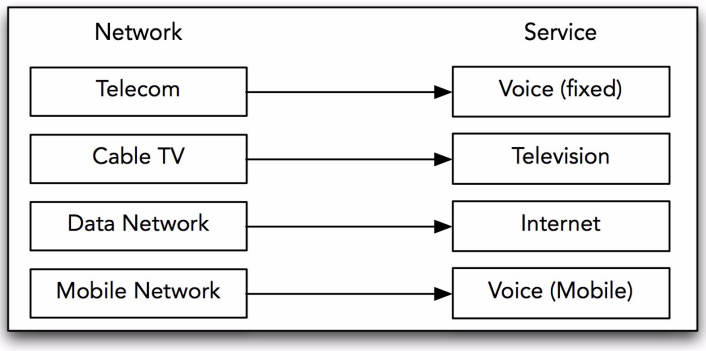

FIGURE 1: Traditional Networks and Service Provision

The spread of Internet use gave cables, previously only used for voice, another application in the 90s. Cable TV and mobile phone companies followed offering data services via their networks. The arrival of broadband Internet access allowed companies to offer voice, data and video as combined services. Broadband allowed telecommunication and Cable TV companies to compete in each

other's core business. This lead to what can be termed multiple play:

- Data - Fixed telephony,
- Data - Mobile telephony,
- Data - Digital Television,
- Data - Internet Access.

This multiple play strategy can be observed in its beginnings in South Africa and Namibia. Telkom has offered fixed telephony and broadband Internet access for quite some time, although not bundled as one service. Telecom Namibia introduced ADSL in early 2007.

"IT was the industry's bread and butter for over a century. But the end is now in sight for traditional telephone service, which will soon be overtaken by voice-over-internet calls in terms of usage, and displaced by broadband internet access as the core revenue-earning service offered over fixed lines by telecoms firms."[1]

Triple play refers to providing 3 bundled services that used to be supplied through different networks such as fixed telephony- Internet and television/video. Mobile operators in South Africa have adopted such an approach by providing mobile telephony, 3.5G Internet access and television via mobile phone to its customers.

The combination of fixed and mobile telephony, broadband Internet access and multi-channel television is called quadruple play (Figure 2).

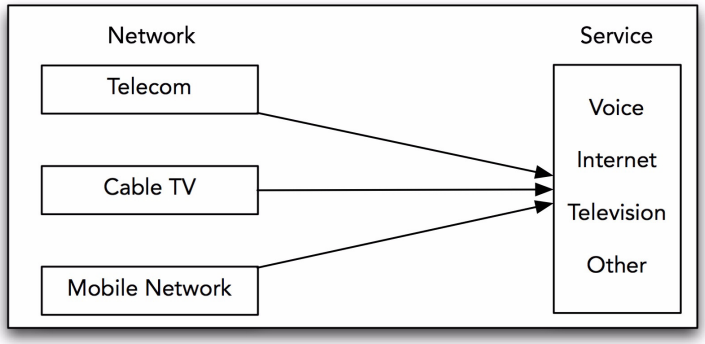

FIGURE 2: Multiple Play

Competition amongst traditionally monopolistic or duopolistic operators has drastically reduced prices for consumers. However, an OECD study released in April 2006 (OECD, 2006) argues that this is only a medium term business model. Consolidation into one IP network with multiple access technologies will be the logical consequence. This is displayed in Figure 3.

Watching the first half of a soccer match via broadband at home, the second half on the train or bus using the mobile phone and the penalty shoot out with friends in a pub via WiMAX without changing the provider might soon become possible. Providers could mix different

1. Source: http://www.economist.com/surveys

access technologies in the same network and charge for the data traffic independent of the access technology used. The OECD (2006) conducted survey found that already 48 out of 87 providers in 23 out of 30 OECD countries offered triple play. 10 providers in 9 countries even offered quadruple play (OECD, 2006).

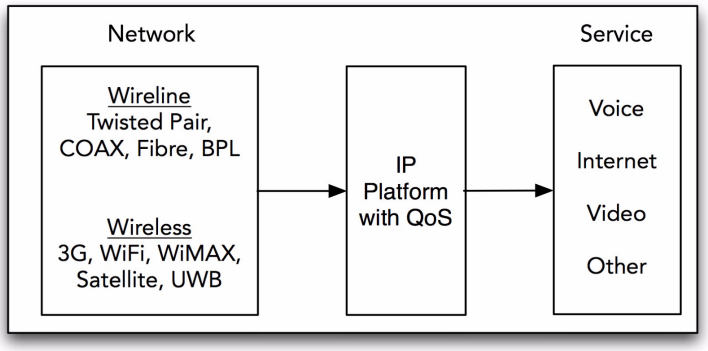

FIGURE 3: Converged Networks and Services on IP Platform

Possible configurations in Namibia

Telecom Namibia already provides multiple play by offering fixed line telephony, broadband Internet (ADSL), Internet access through Iway, fixed-wireless services / mobile (SWITCH) even though these services are currently not bundled. MTC and CellOne will both provide mobile telephony and 3.5G data access. Another option for them could be to offer some sort of fixed telephony as well through Fixed-Mobile-Convergence (FMC) solutions. Both companies might even aim at quadruple play offering streaming of video over their 3.5G networks (in line with what mobile operators do in South Africa, although this has not really taken off in South Africa). DSTV could be providing broadband Internet access via its satellite connection and potentially VoIP. NBC has little chance to enter the multiple game since it has neither a cable TV nor a satellite network. NBC could join some or all of the other players.

"...even if the traditional telephone is not quite dead yet, its business model certainly is: metered telephone calls whose cost depends on the length of the call and the distance covered are becoming an anachronism."[2]

Convergence and bundling are two sides of the same coin. The convergence of multiple networks makes bundles of services cheaper to provide and adds convenience to the customer. It also lets existing players compete with each other more effectively and if efficiently regulated will bring down the cost for consumers.

2. Source: http://www.economist.com/surveys

LICENCES FOR A CONVERGING WORLD

Convergence of networks and services poses a serious challenge to regulators to adapt their licensing regimes. What is crucial for the convergence processes looking ahead in Namibia is that the regulator needs to be vigilant against anti-competitive behaviour. A major trend is towards technology-neutral and service-neutral licences.

- Technology-Neutral Licensing: Technology-Neutral Licensing refers to licences that allow the licensee to choose which technology and equipment he will use to provide the licenced service. Technology-neutral licences provide "a fair and predictable regulatory regime flexible enough to embrace technological and market developments." (ITU, 2006). An example would be to issue mobile telephony licences to MTC and CellOne which allows them to use any mobile technology they choose to deploy. In this case the service-neutral licence is service specific (mobile telephony).
- Service-Neutral Licensing: Service-neutral licences allow licence-holders to react to the market and offer services that are in demand the most or most cost-effective. It also allows the licence-holder to offer converged services. A service-neutral licence for voice transmission would allow operators to offer fixed- or mobile telephony or both.

The combination between technology-neutral and service-neutral licences would allow a licence-holder to implement triple play as discussed earlier in this chapter.

- Encourage the growth of new applications and services.
- Simplify existing licensing procedures to ease market entry and operations.
- Create regulations to address interconnection, quality of service, universal access/service, and spectrum and number allocations comprehensively.
- Ensure regulatory flexibility to address market and technological developments.
- Ensure efficient utilisation of network resources, so that individual networks may be used to provide a broad range of ICT services.
- Encourage market entry by a full range of operators, including large scale and micro entrepreneurs.
- Ensure that the transition to a converged licensing regime fosters a level playing field among all competitors.

Text Box 1: The key objectives of converged licensing (ITU, 2004)

OTHER GLOBAL TRENDS

Wireline remains under pressure

Technological advances and regulatory reforms keep pressure on wireline (fixed-line) operators and subject the sector to new competition. The success of mobile telephony erodes fixed-line traffic and some previous fixed-line customers cut the cord to go mobile-only. VoIP reduces revenues as well, in particular from international traffic. At the same time new opportunities are arising as fixed-line operators merge their fixed-line business with their mobile operations and increasingly develop new sources of revenue.

ARPU increases

A Standard & Poor's (2005) survey found that the average revenue by user (ARPU) has increased despite increased competition due to higher minute use and enhanced non-voice applications. This is a further indication of the importance of enabling operators to enter the multi-play arena. Cheaper and better services as well as higher ARPUs do not need to exclude each other.

WiMAX

WiMAX (worldwide interoperability for microwave access) is the ideal complement to Wi-Fi (wireless fidelity) or the fibre backbone for providing last mile broadband Internet access to hot spots and wireless local area networks. Its range of up to 50km and its high data rates (280 Mbps per base station) make it a very attractive alternative to modem or ISDN dial-up, leased lines and ADSL.

Fixed Mobile Convergence

The prospects for Fixed-Mobile Convergence (FMC) have improved because of new standards that have been agreed upon by major industry players. These new standards allow cell-phones to connect to fixed-line networks via Bluetooth or Wi-Fi. It allows subscribers to use the same handset to make calls via a fixed-line and a mobile network. At home the handset becomes a cordless phone, communicating over unlicenced frequencies with an indoor access point connected to a fixed-line broadband Internet connection. When taken out the handset acts as a normal handset using the cellular radio-frequency spectrum and protocols to communicate with the cellular operators' antennas. It works a bit like roaming. When at home one’s cell-phone is roaming on the fixed-line network via a small base station that has a radius of about 30 metres, some providers in Europe call this mini network “home zone”. If this base station is

connected to a broadband Internet connection, it allows the routing of several calls at once from different household members. Calls made in this way are billed as fixed-line or VoIP calls, separately for household members and even for visiting friends who make calls from the house on their own cell-phones.

Pre-paids show the way

The introduction of prepaid services has been one of the main contributing factors to the explosive growth of mobile telephony in Namibia, and Africa in general. Wireless mobile telephony has been instrumental in bridging the digital divide between urban and rural areas and is the only means of communication for many households. An ITU (2004b) report states that 91.2% of all mobile phone users are pre-paid subscribers in sub-Saharan Africa.

Why is pre-paid so popular? The success of pre-paid subscription in sub-Saharan Africa can be attributed to its appeal to people with lower or irregular incomes since its use does not require a bank account, a physical address, a postal address or a minimum fixed monthly subscription or rental fee. Pre-paid allows users more control over their expenses - charging the phone as money becomes available and not spending anything if it does not. The pre-paid success has also found its way into other fields such as water and electricity provision.

Why do operators like pre-paid? It is common knowledge that mobile operators make most of their money with post-paid customers. Whom are these post-paid customers calling? The answer is very often pre-paid customers. Although pre-paid customers contribute less to revenue generation directly, they do so indirectly. The general rule is: it is better to have a customer that consumes infrequently than not having this customer at all.

Pre-paid is not popular in all countries though. In Japan they only make up 4%, in Finland 5% and in the USA 7% (Standard & Poor's, 2005). Operators in markets with low prepaid market share are likely to revamp their prepaid plans to expand market depth. And so will countries where prepaid is already very popular such as South Africa. CellC has a whole variety of pre-paid and semi-pre-paid products in the programme, for example. Virgin Mobile, which entered the SA market, only recently, offers only products, which are in between prepaid and post-paid.

CHAPTER 3

Policy & Regulatory Environment

Telecom Namibia is the only fixed-line operator in Namibia. The firm first offered its service in 1992. Until 1992 the government department, "Department of Posts and Telecommunications", was responsible for telecommunication and postal services. The department was dissolved in 1992 resulting in the creation of Telecom Namibia. Telecom Namibia is owned by Namibia Post and Telecom Holdings (NPTH), which in turn is owned by the State. NPTH is also a majority shareholder of Mobile Telecommunications Ltd. (MTC). MTC was awarded a mobile telecommunication licence in 1996. A second mobile licence was awarded to Powercom in 2006 and it is expected that Powercom will be operational by the end of 2006.

The Namibian Communications Commission (NCC) was established in April 1992 through the Namibian Communications Commission Act, 1992. Its functions include the licensing of private broadcasters, telecommunication and postal operators, radio spectrum management and other regulatory aspects. The NCC is independent of both Telecom Namibia and MTC but reports to the Ministry of Information and Broadcasting and is fully funded by the government.

The historical development of the regulatory structure in Namibia has resulted in a situation where two ministries are involved in the regulation process. The Ministry of Works, Transport and Communications, as sole shareholder in NPTH and former parent to the Department of Posts and Telecommunications (which was both operator and regulator) has an obvious interest in the sector, while the Ministry of Information and Broadcasting is responsible for the present regulatory authority, the Namibian Communications Commission (NCC). The NCC regulates MTC but not for Telecom Namibia. Telecom Namibia is factually not regulated but has a performance agreement with the Ministry of Works, Transport and Communications.

REGULATORY FRAMEWORK

Post and Telecommunications Act, 1992

The Posts and Telecommunications Act, 19 of 1992 makes provision for the regulation of and exercise of control over the conduct of postal and telecommunications services. It stipulates the powers, duties and functions of Telecom Namibia Limited and the Namibia Post Limited. The Act further stipulates that the issuing of licences to conduct postal and telecommunications services is to be done in accordance with the provisions of the Namibian Communications Commission Act. This act prohibits the provision of a telecommunications service without a licence. It gives an exclusive right to Telecom Namibia to provide certain public switched telecommunication services as well as to provide certain telecommunication facilities to certain other service providers.

Post and Telecommunications Amendment Act, 1995

The Post and Telecommunications Amendment Act, 1995 was done in order to allow Namibia Post Limited to be able to prescribe and levy service fees in respect of services rendered by the Post Office Savings Bank.

NCC Act, 1992

The Namibian Communications Commission Act of 1992 provides for the establishment of the Namibian Communications Commission, its powers, duties and functions. This Act forms the guideline for the current broadcasting regulatory regime in Namibia. The NCC is mandated by this act to issue broadcasting licences, to supervise or control certain broadcasting activities and program content and to be responsible for the standardisation, planning and management of the available broadcasting frequency spectrum. This Commission according to the act shall be made up of six to nine members appointed by the Minister. The NCC is to report directly to the Minister of Information and Broadcasting and the Minister can make regulations as stipulated in section 27, based on the recommendation of the Commission. This Act however does not apply to the Namibian Broadcasting Corporation, which was established by the Namibian Broadcasting Act, 1991.

Amendments to the NCC Act 1995

The 1995 Amendment to the Namibian Communications Commission Act 1992, enables the Commission to issue licences for postal and telecommunication services. The Namibian Communications

Commission Amendment Act 2004 made provisions for the tendering processes of telecommunication licences.

POLICY INITIATIVES

The main policy initiatives since 2000 centred on a new telecommunications bill, an education-ICT policy and an e-governance policy.

ICT Policy for the Republic of Namibia (2003)

The Ministry of Information and Broadcasting embraced the Economic Commission for Africa's (ECA) framework for National Information and Communication Infrastructure (NICI). The outcome of several NICI workshops held in Namibia has formed the basis of the development of its ICT Policy. This policy also incorporates the SADC Protocol on Transport, Communications and Meteorology. The current Telecommunications Act in Namibia contains monopoly provisions and this has led to some proposals for change specified in the Telecommunications Policy and Regulatory Framework for Namibia. These include:

- Replacement of existing laws;
- Establishment of an autonomous regulator;
- Creation and implementation of a framework for the autonomous regulator;
- The liberalisation of telecommunications and the introduction of competition;
- Affirmative action geared towards disadvantaged groups and women;
- The institution of a privatisation scheme in which the private sector, the public and employees may share.

The policy also focuses on the type of legislation needed to foster e-commerce. In light of this, the policy recommends the use of an expert on both the Namibian and Cyber Law to prepare a thorough analysis and due diligence report that will identify all laws and legalities that hinder e-commerce. This policy makes recommendations that are critical in the transformation of Namibia into an industrialised state with ICT as a principal driver. Foremost in these recommendations is the creation of a strong national body with committed leadership that will guide the implementation of the ICT Policy and the establishment of a detailed implementation plan that will define indicators against which success can be measured.

This document further recommends high priority actions that should be taken if this sector is to be successful. These include:

- Enhancing rural access to information, which entails determining the available resources and needs of communities as well as realising the proposed Universal Service Agency and corresponding Universal Service Fund;
- Growth and stability in the ICT professional community – in achieving this, it is recommended that incentives be provided to government employees to obtain ICT qualifications and the formation of a single Namibian ICT Association among others;
- The facilitation of excellent ICT public education particularly in schools;
- The fostering of e-commerce, e-business and e-government;
- Proceeding with the liberalisation of the telecommunications environment.

The creation of an ICT cluster in the capital that will link the ICT industry, academic institutions and the Government, which if successful will be an encouragement for competent staff to remain in the country.

e-Governance in Namibia (Office of the Prime Minister)

Through the intervention and directives of cabinet, the Namibian Government has placed a high priority on e-governance. An Inter-Ministerial Task Force (GRN Coordinating Committee on e-governance Initiatives) has been established to formulate the e-governance policy framework as well as an implementation plan for the Public Service of Namibia. Namibia's e-governance policy takes into account the country's Information and Communication Technology Policy and at international level, responds to the Millennium Development Goals and their year 2015 targets and the World Summit on an Information Society. Experiences from various countries were drawn upon in the drafting of the e-governance policy for the Public Service of Namibia.

It is advocated in the e-governance policy draft that a new legal framework be put in place to ensure the realisation of e-governance in the country. This law should make provision for an appropriate institutional framework to facilitate the requirements set by the Millennium Development Goals and the Universal Information Society Initiative. The Office of the Prime Minister has established a Working Group on e-laws to ensure that the said requirements are recognised.

The Office of the Prime Minister, which is spearheading the development of this policy organised an e-Governance Awareness Workshop in September 2004. This was a step taken to involve the public and ensure wide consultation and input towards the formulation of this policy. Workshop participants included Permanent Secretaries,

Heads of Service area in Offices, Ministries and Agencies, IT staff members, members of the e-governance Coordinating Committee and Chief Executive Officers of the 13 regions in the country.

Local presenters at this workshop included key ministries such as the Ministry of Information and Broadcasting, the Ministry of Regional, Local Government and Housing and the Department of Public Service Information and Technology Management within the Office of the Prime Minister. Other stakeholders in the ICT sector namely Business Connexion, Microsoft, SAP, Sun and Namibia's mobile operator MTC gave presentations during the workshop.

In an effort to learn from and seek regional and international expertise, presenters from India, Mauritius, Egypt, Estonia, Zimbabwe and Germany were invited to participate at this workshop. Inwent, an international organisation, provided financial support for this workshop.

The need to hold a seminar with other key stakeholders such as Telecom, Nampower and MME (rural electrification) to inform them about the objectives of the e-governance policy was identified during the course of this workshop.

The e-governance policy, driven by the Office of the Prime Minister was publicly launched on 23 July, 2005 and has been approved by Cabinet. There is currently an e-Record Management Project being carried out to allow for the capture of all Human Resource Information.

ICT in Namibia's Education Sector

Namibia is aware of the importance of ICT as a tool towards development and in its move towards a knowledge-based development as specified in its Vision 2030 document, is currently working towards the Integration of ICT in its Education System.

In light of this, intensive consultations were carried out by the then Ministry of Basic Education, Sport and Culture and the Ministry of Higher Education, Training and Employment Creation in an attempt to prepare an ICT Policy for Education.

The Ministries consulted with the Prime Minister's Office, educational institutions and stakeholders as well as community centres within the country in formulating this policy. At international level, the co-operation of the Global e-Schools and Communities Initiative (GESCI) was sought. GESCI, founded by the UN ICT Task Force and established at the WSIS Conference in Geneva in 2003, is actively involved in assisting Namibia in its attempt to incorporate ICT into its educational program.

With the aid and input of these national and international partners, the Ministry was able to come up with its ICT Policy for Education, which was approved by Cabinet on March 8, 2005.This policy has sought to describe what Namibia would like to achieve by introducing ICT in education and what is needed to achieve this. An accompanying Policy Implementation Plan is currently underway, which would go further in describing how the country hopes to achieve the benefits of ICT introduction in education.

Namibia in recent years has developed educational ICT partnerships with various national and international organisations. In such a situation, it is important to have a policy in place that can enhance the efficient and effective co-ordination of these partners. The new policy recognises the need in developing these partnerships not only with the government, but also with civil societies, the private sector and the international community.

An ICT and Education Steering Committee have been established to guide, oversee and provide a point of coordination for the ICT and education activities in the country. Members of this steering committee include Ministerial Offices, Non-Governmental Organisations, Donor Agencies, Volunteer Organisation Representatives and Educational Institutions.

REGIONAL POLICY CO-OPERATION

The main policy initiatives since 2000 centred on a new telecommunications bill, an education-ICT policy and an e-governance policy. The development of each of these policies has involved or incorporated regional and international contributions and recommendations. Despite Namibia's active involvement and participation in regional policy making, the country is still to undertake substantial reforms in its ICT sector in line with regional aims and objectives. The issue of liberalisation and the establishment of a single regulatory authority are still outstanding. Namibia's telecommunication sector is characterised by monopolies for fixed-line and mobile telephony. Regional policies are used as blue prints for ICT development in Namibia. However, the extent to which various government departments are liaising with and working in close collaboration to enforce the country's ICT policies overall has been very limited. In particular the co-operation between the Ministries of Information and Broadcasting and Ministry of Works Transport and Communication leaves a lot to be desired. Having two Ministries in charge of regulating the telecommunications sector has proved a hindrance in the finalising of the new telecommunications bill and liberalising the telecommunication sector. This highlights the lack of co-operation among ICT stakeholders, which needs to be resolved if Namibia is to achieve goals set by regional bodies and be able to co-operate fully in regional ICT issues.

GATS COMMITMENTS

Namibia has not yet scheduled a GATS commitment for the Telecommunication Sector to the WTO. South Africa is the only SACU country that made a commitment.

POLICY RECOMMENDATION

Evidence from around the world suggests that competition combined with effective regulation leads to lower prices and better services for consumers. Currently such an effective and enabling regulatory and policy environment is lacking in Namibia. The two reasons for that are firstly, that there are two ministries responsible for regulating the telecommunications sector. The Ministry of Works Transport and Communication (MWTC) is responsible for providing policy guidelines and regulating Telecom Namibia and the Ministry of Information and Broadcasting (MIB) is responsible for the Namibian Communications Commission (NCC) and therefore MTC. And secondly, another conflict of interest exists because MWTC is directly responsible for the Namibia Post and Telecom Holdings (NPTH), which owns 100% of Telecom Namibia and the majority of MTC. International best practice suggests that ownership and regulation should be separated to avoid conflict of interest.

The proposed draft telecommunications bill addresses both issues by creating a single authority, the Communications Authority of Namibia (CAN), as an independent juristic person responsible for the entire sector. The draft bill suggests that the MIB would be providing the new regulator with policy guidelines. MWTC could still be in operational control of NPTH but it would lose its regulatory power over Telecom Namibia or fixed-line telecommunication in general. It therefore makes sense to task MIB with the policy guidance of CAN.

"There is need for an autonomous regulatory authority with a clear vision of what needs to be achieved to stimulate – and not stifle – growth of the sector. Right policies and an enabling environment generally stimulate competition which, in turn, creates a market for investors. Investment and funding for ICT infrastructure development is and has always been the Achilles heel of LDCs."[3]

3. Source: ITU (2006)

CHAPTER 4

Sector Performance

Namibia ranks 4th in the SADC region in terms of teledensity indicators with Mauritius, South Africa and Botswana faring better.

TABLE 2: ICT Penetration in SADC[a]

	Main fixed telephone lines per 100 inhabitants 2004	**Internet users per 100 inhabitants 2004**	**Mobile cellular telephone subscribers per 100 inhabitants 2005 (Tanzania - 2004 data)**
Mauritius	28.69	14.60	57.29
South Africa	10.27	7.55	71.60
Botswana	7.71	3.39	46.63
Namibia	6.36	3.73	24.37
Swaziland	4.11	3.32	19.36
Zimbabwe	2.67	6.90	5.87
Lesotho	2.07	2.39	13.65
Zambia	0.80	2.01	8.11
Malawi	0.75	0.37	3.33
Angola	0.67	1.22	6.86
Tanzania	0.39	0.89	5.16
Mozambique	0.37	0.73	6.16
Madagascar	0.32	0.50	2.71

a. Source: ITU Database October 2006

One needs to bear in mind that South Africa's as well as Botswana's mobile teledensities are determined differently from Namibia's, which has a more stringent measure. The reason for that is that MTC requires at least one transaction per month (a call or SMS) for a prepaid SIM card to remain active. While in South Africa and Botswana the period of non-use until cut-off is on average longer. Industry insiders estimate that, in general, only 25% of existing customers make at least 1 call a week.

However, the higher fixed-line and mobile teledensities in Botswana and South Africa are still an indication of the potential users Namibia could have. Even if more overstated, Botswana has nearly twice and South Africa thrice as many mobile subscribers per 100 inhabitants compared to Namibia. South Africa also has nearly twice as many Internet users than Namibia according to ITU statistics. The main reason for Namibia lagging behind is that Namibia did not have any competition in the mobile sector until recently and Telecom Namibia still has an infrastructure, fixed-line voice and international voice and data gateway monopoly. In addition there is a weak and inefficient regulatory environment. This leads to higher costs for consumers for Internet use and telephony. At the same time it allowed MTC and Telecom Namibia to make excess profits.

TELECOMMUNICATION COSTS

Telecommunication prices are higher in Namibia than in neighbouring countries due to the monopoly market power that MTC and Telecom Namibia have held for the past years and the inadequate regulatory framework. In particular the example of Botswana demonstrates that effective regulation and competition can reduce prices even in sparsely populated countries such as Namibia and Botswana. With the dawn of a second mobile operator, things start to move. MTC has already reduced its prices considerably by introducing off-off-peak rates and lower charges for SMS. More can be expected as soon as CellOne becomes operational during 2007.

This section compares Namibia's communication costs with those of Botswana and South Africa, but also in a wider context.

Fixed-Line Price Comparison

NEPRU and ResearchICTAfrica! network (RIA!) conducted SME surveys across 14 African countries during 2005 and the beginning of 2006. As part of the research telecommunication costs were collected and bundles of services priced (Stork & Esselaar 2006).

Figure 4 compares the cost of bundles of telecommunication services among participating countries. The cost in local currency was converted into US$ using nominal exchange rates at the end of 2005. The bundle for fixed-line services consisted of the following services:

- 3 minute local call;
- 3 minute national call; and
- 3 minute call to the US.

This basket definition is based on the way the ITU collects data and does not make any explicit assumptions about usage pattern.

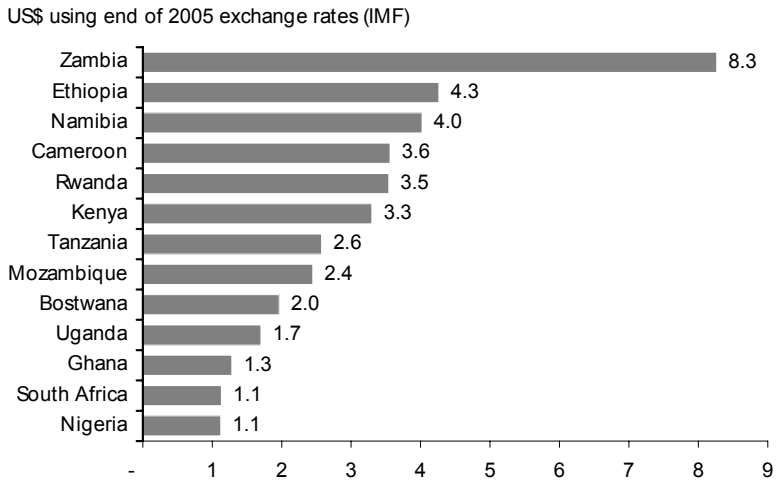

FIGURE 4: Price comparison for fixed-line bundle

Figure 4 clearly shows that Namibia's fixed-line costs are expensive compared to neighbours South Africa and Botswana and that Namibia is actually among one of the most expensive countries in the sample. The usage bundle cost in South Africa is only a quarter of that in Namibia (US$1.1 instead of US$4). Botswana (US$2) is more expensive than South Africa but still only half as expensive as Namibia for this usage bundle.

Mobile Costs

Comparing mobile process to neighbouring countries is difficult. The comparison for Botswana, Namibia and South Africa alone requires comparing 136 different products – 110 for South Africa, 16 for Botswana and 10 for Namibia. The various contracts on offer differ in call charges, bundled airtime, free SMSs, billing, free handsets etc. Some offer per second billing after the first minute, others offer free off-peak airtime, yet others allow a certain number of peak calls to be charged at off-peak rates. Some contracts of MTN and Vodacom do not distinguish at all between peak and off-peak but only for minutes called a day. Similarly with Virgin Mobile who charges the first 5 minutes in a day at one rate and any other minutes at a drop down rate (cheaper). To arrive at a valid comparison one needs to define usage bundles and calculate how much these bundles would cost for any of the products. The cheapest product for each country and each usage bundle is then chosen for comparison.

It is important to bear in mind that this is not what users are actually paying. Non-transparent pricing is such that few people know what the best contract would be for his or her average usage. Focus group research conducted by ResearchICTAfrica! revealed that users actually do not pay so much attention to the costs but rather to the bundled mobile phones and the image of the provider. This section presents three different approaches for defining usage bundles (baskets), one by ResearchICTAfrica! (RIA!), one by the OECD and one by LIRNE Asia.[4]

ResearchICTAfrica! Basket

The bundle for mobile services that RIA! used was based on the following services:

- 3 minute off peak to same network;
- 3 minute peak to same network;
- 3 minute off peak to different network;
- 3 minute peak to different network;
- 3 minute off peak to fixed line;
- 3 minute peak to fixed line.

It is a bundle purely based on usage costs, excluding monthly subscriptions or once-off installation fees. This basket definition is based on the way the ITU used to collect data and does not make any explicit assumptions about usage pattern.

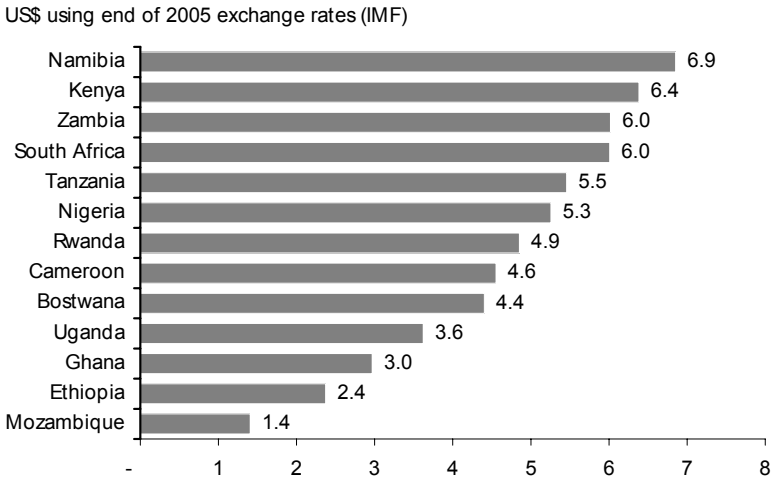

FIGURE 5: Mobile Prepaid usage costs in 2005[a]

a. Source: Stork & Esselaar (2006)

4. LIRNE Asia (Learning Initiatives on Reforms for Network Economies Asia) is a partner network of ResearchICTAfrica! that conducts ICT research in Asia.

The usage cost of this bundle is obtained by only considering prepaid packages for participating countries. Figure 5 shows that Namibia was the most expensive country in the sample in terms of prepaid mobile telephony in 2005.

OECD

The OECD faced a similar problem when comparing price development across 30 countries. It defined three users, a Low User, a Medium User and a High User and based its assumptions on usage (minutes and SMS), time-period of calls and call destinations on information submitted by member countries. The OECD mobile price-benchmarking basket was last revised in February 2006.

TABLE 3: OECD Mobile Price Benchmarking Baskets[a]

		Low User	Medium User	High User
Usage	Minutes per month	30	65	140
	SMS per month	34	51	56
Destination	Fixed	22%	21%	20%
	On-net Mobile	48%	48%	47%
	Off-net mobile	30%	31%	33%
Time period	Peak	6.60	13.65	28.00
	Off-Peak	14.40	31.20	65.80
	Off-Off Peak (weekend)	9.00	20.15	46.20
Effective Basket composition	Fixed Peak	48%	50%	60%
	Fixed Off-Peak	25%	24%	19%
	Fixed Off-Peak	22%	24%	26%
	On-net Mobile Peak	3.17	6.83	16.80
	On-net Mobile Off-Peak	1.65	3.28	5.32
	On-net Mobile Off-Off Peak	1.45	3.28	7.28
	Off-net mobile Peak	6.91	15.60	39.48
	Off-net mobile Off-Peak	3.60	7.49	12.50
	Off-net mobile Off-Off Peak	3.17	7.49	17.11
	SMS peak	4.32	10.08	27.72
	SMS Off-Peak	2.25	4.84	8.78
	SMS Off-Off-Peak	1.98	4.84	12.01

a. Source: OECD (2006b)

Table 3 displays how the OECD usage assumptions translate into effective usage bundles. All products available for each country are priced for these bundles and the cheapest for each is displayed in Figure 6.

Botswana has the cheapest products for any of the three bundles. What is new is that Namibia beats South Africa for the low usage bundle. MTC's Tango costs only N$70 compared to South Africa's ZAR75.[5] In Namibia, Tango calls and contracts for residential use are VAT exempt. In South Africa VAT is applicable for all products.

When the figures read "Namibia (incl. VAT)" means that only contracts for businesses were chosen for Namibia but including Tango, which is always VAT exempted.

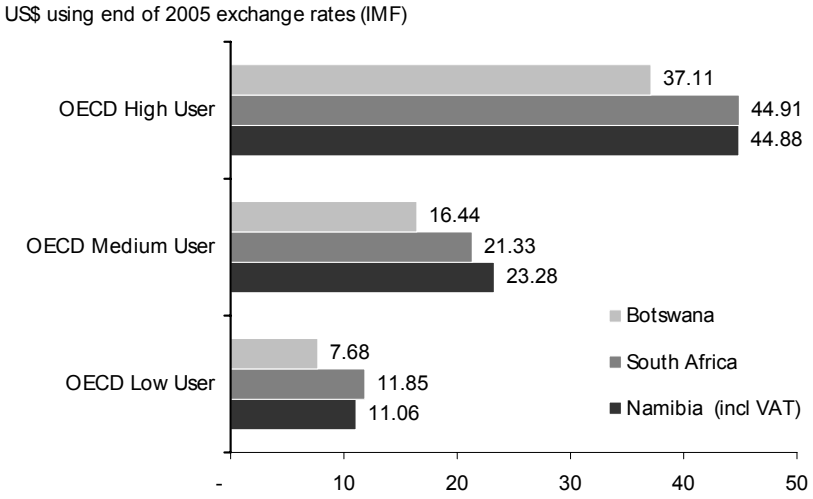

FIGURE 6: Cost of OECD mobile usage baskets

LIRNE Asia

LIRNE Asia used adjusted baskets based on the OECD basket methodology[6] to evaluate the relative affordability of access of mobile telecommunication services for low to middle income Asian economies. LIRNE Asia used three baskets similar to the OECD approach but at lower monthly usage for each of the baskets:

- Low user basket, with a call volume less than half of that in the Medium user basket.
- Medium user basket with 75 outgoing calls per month.
- High user basket: with about twice the volume of calls than the Medium user basket.

Table 4 displays how the LIRNE Asia basket definitions translate into effective basket composition. The usage baskets were used to price them for each of the 136 pre-paid or post-paid products available in South Africa, Botswana and Namibia.

Monthly subscription and any inclusive minutes, SMSs or airtime were incorporated in the cost calculations. For each country the cheapest product was chosen for each of the usage baskets and displayed in Figure 7.

5. ZAR1=N$1

6. The basket definitions used prior to the February 2006 revision.

TABLE 4: LIRNE Asia Mobile Price Benchmarking Baskets[a]

		Low User	Medium User	High User
Usage	Minutes per month	25	75	150
	SMS per month	30	35	42
Destination	Fixed	42%	36%	40%
	On-net Mobile	40%	43%	42%
	Off-net mobile	18%	21%	18%
Time period	Peak	38%	47%	63%
	Off-Peak	35%	30%	22%
	Off-Off Peak (weekend)	27%	23%	15%
Effective Basket composition	Fixed Peak	3.99	12.69	37.80
	Fixed Off-Peak	3.68	8.10	13.20
	Fixed Off-Peak	2.84	6.21	9.00
	On-net Mobile Peak	3.80	15.16	39.69
	On-net Mobile Off-Peak	3.50	9.68	13.86
	On-net Mobile Off-Off Peak	2.70	7.42	9.45
	Off-net mobile Peak	1.71	7.40	17.01
	Off-net mobile Off-Peak	1.58	4.73	5.94
	Off-net mobile Off-Off Peak	1.22	3.62	4.05
	SMS peak	11.40	16.45	26.46
	SMS Off-Peak	10.50	10.50	9.24
	SMS Off-Off-Peak	8.10	8.05	6.30

a. Source: Lokanathan & Iqbal (2006)

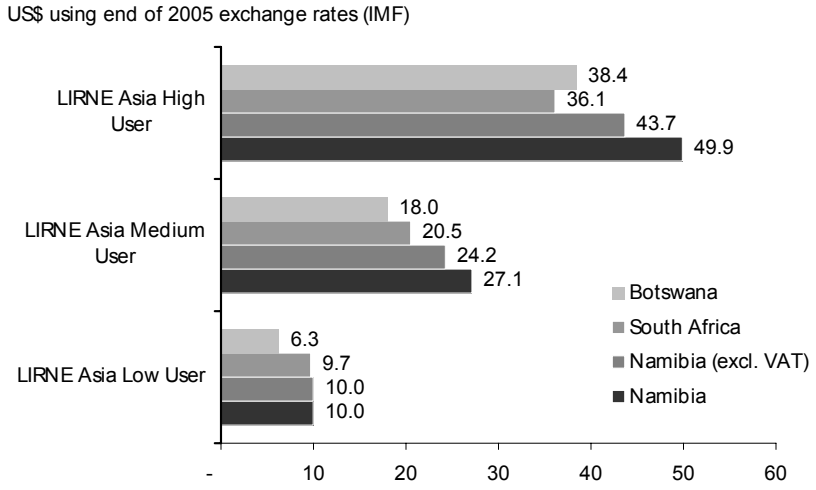

FIGURE 7: Cost of LIRNE Asia mobile usage baskets

Looking at the high user basket of LIRNE Asia and how much the available products from MTC are for it one can see that the Connect 50 Leisure would be the best choice.

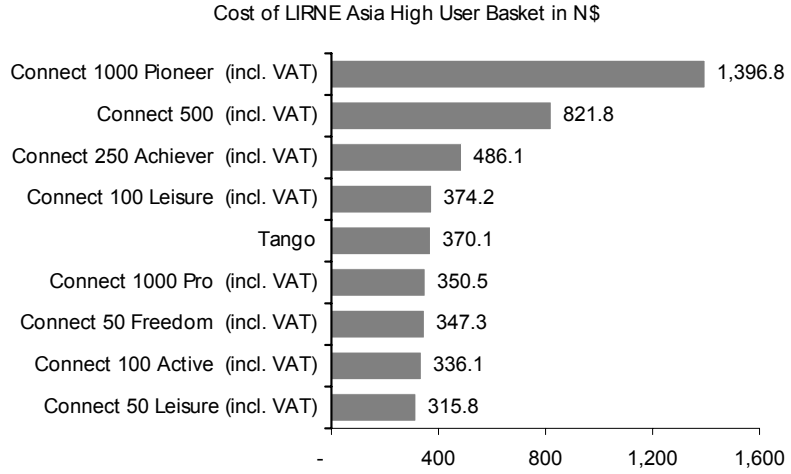

FIGURE 8: Comparing MTC's contracts for the Lirne Asia high usage bundle

CONCLUSION

Pricing bundles of telecommunication services clearly shows that South African and Botswana have cheaper products on offer than Namibia with one exception. This is likely to change as soon as CellOne is operational and Telecom Namibia starts competing with fixed-wireless for pre-paid mobile customers. However Namibia has already come a long way since the last comparison in October 2005 where Namibia was twice as expensive as South Africa on most bundles (Stork 2005). Reasons for the lower costs includes reduced monthly subscription prices for some contracts, the introduction of off-off-peak rates and lower SMS costs. South Africa is everything but a good example of effective regulation. Should Namibia get it right with creating an efficient regulatory environment then it might be able to shine next year in the international comparison.

ICT USERS

Namibia's mobile subscriber number has grown exponentially since the introduction of pre-paid. Fixed-line and Internet subscription have only increased moderately in comparison (see Figure 9). The ITU data for total Internet subscribers in 2004 is only 19,000. There are no figures available for 2005 or 2006. NEPRU and ResearchICTAfrica! therefore, made the effort to collect this data from ISPs and Infinitum in late 2006.

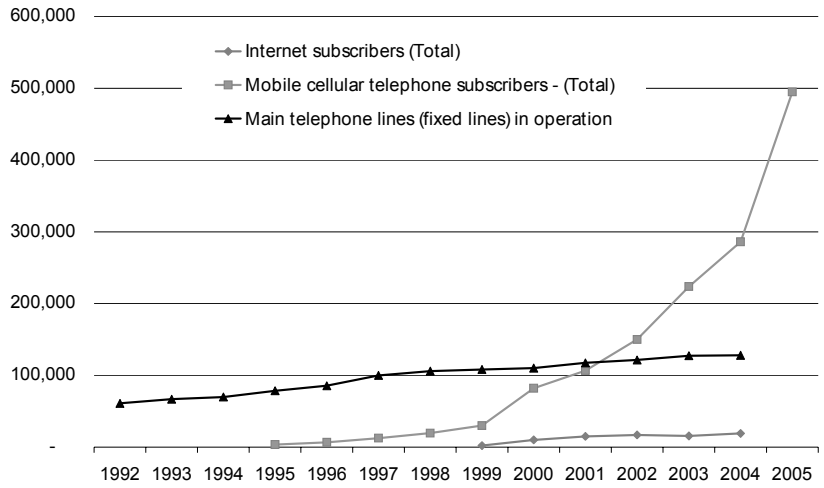

FIGURE 9: Namibia's fixed-line, mobile and Internet subscribers[a]

a. Source: ITU Database October 2006

Data was collected from all major ISPs in Namibia and the results are aggregated in the Table 5.

The following assumptions were made to convert subscriber numbers to Internet users:

- Email only subscriptions translate 1 to 1.
- Each modem or ISDN subscription has on average 2 users.
- Each 16k of leased line can support a maximum of 5 users.

Based on these assumptions Namibia would have 62,787 Internet Users. This does not take into account the 350 schools that are connected to the Internet (source Schoolnet), about 8000 government employees with Internet access and the roughly 30,000 MTC users registered for GPRS+.

Namibia has a total international bandwidth Mbps 31.32 up and Mbps 45.32 down, which equals a total of Mbps 70.64. This includes Infinitum's bandwidths and those that ISPs use to get into Namibia via leased lines rented from Infinitum. It does not include VSAT bandwidth of embassies, Coca Cola or other companies that might have a private installation.

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TABLE 5: Internet Subscribers and Users

Access Type	No of Subscribers	Associated Internet Users	Estimated Internet Users
e-mail only	3,059	1 per subscription	3,059
modem dial-up	15,550	2 per subscription	31,100
ISDN dial-up	1,514		3,028
16k Leased Line	168	5 subscriber per 16 k leased line	730
32k Leased Line	35		350
64k Leased Line	436		8,100
128k Leased Line	167		6,240
192k Leased Line	19		720
256k Leased Line	37		2,000
384k Leased Line	5		240
512k Leased Line	8		1,280
576k Leased Line	3		540
704k Leased Line	1		220
832k Leased Line	3		780
896k Leased Line	2		560
1024k Leased Line	8		2,560
1280k Leased Line	3		1,200
1408k Leased Line	1		440
1536k Leased Line	2		960
1984k Leased Line	2		1,240
2048k Leased Line	3		1,280
2560k Leased Line	1		800
8192k Leased Line	1		2,560
Total			69,987

TELECOM REGULATORY ENVIRONMENT ASSESSMENT

A range of stakeholders from Namibia's telecommunication sector were requested to make their assessments of the telecom regulatory environment (TRE) for the period 2002 to 2005 for the fixed, mobile and VANS sector on the scale from 1 to 5, with 1=Highly Ineffective and 5=Highly Effective. The dimensions used in the questionnaire were broadly based on the WTO Regulatory Reference Paper and are briefly described below.

The regulatory environment for VANS, fixed-line and mobile telephony is on average seen as being ineffective however mobile telephony regulation fairs slightly better.

The VANS sector is currently unregulated in Namibia. However, several insiders mentioned in an interview that Telecom Namibia is

effectively regulating it since it has the infrastructure monopoly. Other issues raised in the interviews were:

- No efficient spectrum monitoring by NCC.
- NCC has no say in site access and municipalities are very slow in awarding sites.

TABLE 6: Description of Dimensions

Dimensions	Description
Market Entry	Transparency of licensing (applicants should know the terms, conditions, criteria and length of time needed to reach a decision on their application), licence conditions & exclusivity issues
Scarce Resources	Timely, transparent and non-discriminatory access to spectrum allocation, Telephone # allocation and Site rights
Interconnection & facilities	• Interconnection with a major operator should be ensured at any technically feasible point in the network • Quality of interconnection comparable to own like services offered • Reasonable charges for interconnection rates, • Interconnection be unbundled • Interconnection offered without delay • Sharing of incoming and outgoing IDD (international direct dial) revenue • Payment for cost of interconnection links and switch interface, payment for cost of technical disruption of interconnection • Timely provision of facilities by service providers • Provision of facilities at the same cost to subsidiaries/ downstream businesses
Tariff Regulation	Regulation of tariffs charged to consumers
Regulation of Anti-Competitive Practices	• Anti-competitive cross subsidisation • Using information obtained from competitors with anti-competitive results • Not making available to competitors on a timely basis technical information about essential facilities and commercially relevant information • Excessive prices, price discrimination & predatory low pricing • Refusal to deal, vertical restraints, technical disruption of interconnection, sharing of towers and facilities by parent company and subsidiaries/ downstream businesses in different segments of the market
Universal Service Obligation	Administration of the universal service fund in a transparent, non-discriminatory & competitively neutral manner

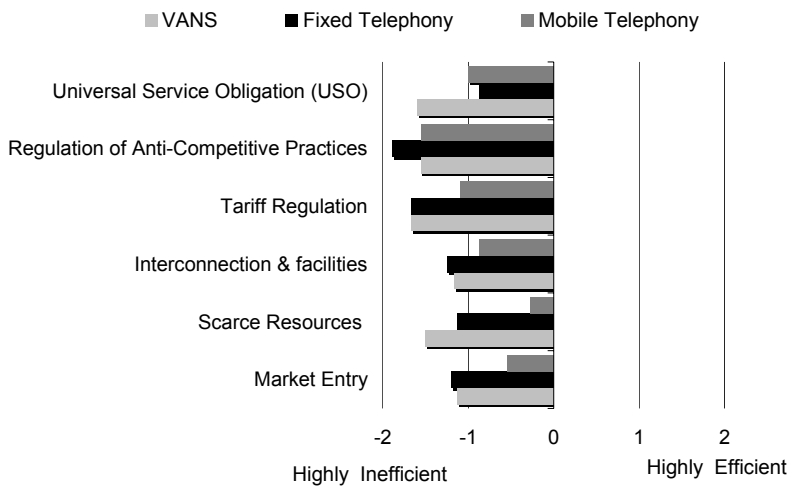

FIGURE 10: Efficiency of Regulatory environment (-2= Highly Ineffective and 2= Highly Effective)

FINANCIAL RATIOS

"VoIP is legal but Telecom might cut you off." (Interviewee is known to the authors)

This section analyses financial statements of telecom operators in Namibia using Return on Equity (RoE) and its determinants. Return on Equity (RoE) equals the net income divided by the shareholders' equity. Its three components are: Profit margin, Asset Turnover and Financial Leverage.

$$RoE = \frac{NI}{SE} = \frac{NI}{S} \times \frac{S}{A} \times \frac{A}{SE}$$

with

RoE = Return on Equity

NI = Net Income after Tax

SE = Shareholders´ Equity

A = Assets

S = Sales

Hence Return on Equity is equal to Profit Margin (Net Income/ Sales) times Asset Turnover (Sales/Total Assets) times Financial Leverage (Assets/Shareholder's Equity).

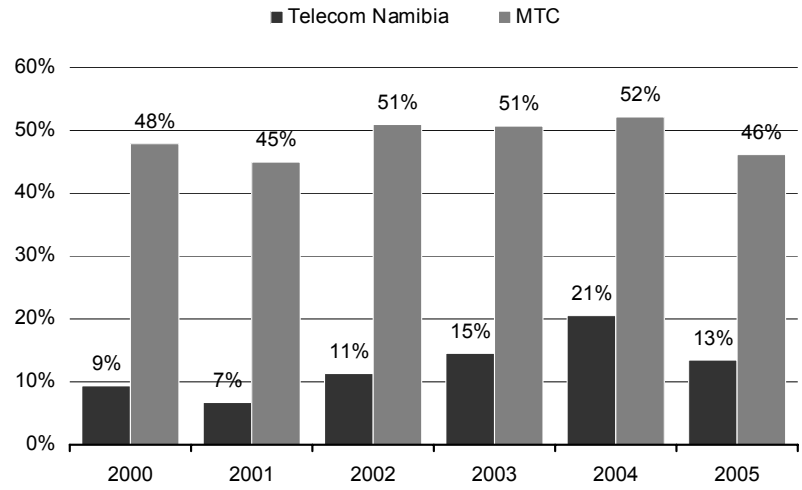

FIGURE 11: Return on Equity compared.

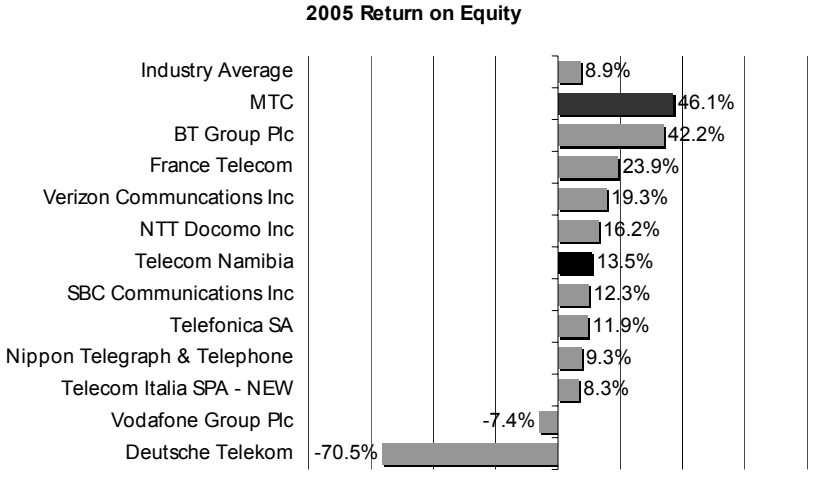

FIGURE 12: Return on Equity Compared: MTC & Telecom Namibia vs Standard & Poor's Top 10 telecommunication companies by sales/revenue

Figure 11 displays MTC's and Telecom Namibia's return on equity. MTC's shareholders received about 50 cents in earnings for every Namibia dollar invested in equity capital for the last 5 years. This is very high in international comparison as Figure 12 shows. MTC's RoE is nearly 5 times higher than the industry average and higher than any of the Standard & Poor's Top 10 telecommunication companies by sales/revenue. Telecom Namibia's RoE is what can be expected from a state monopoly in being higher than industry average but not being excessively high.

MTC has had consistently high profit margins (after tax net income divided by sales).

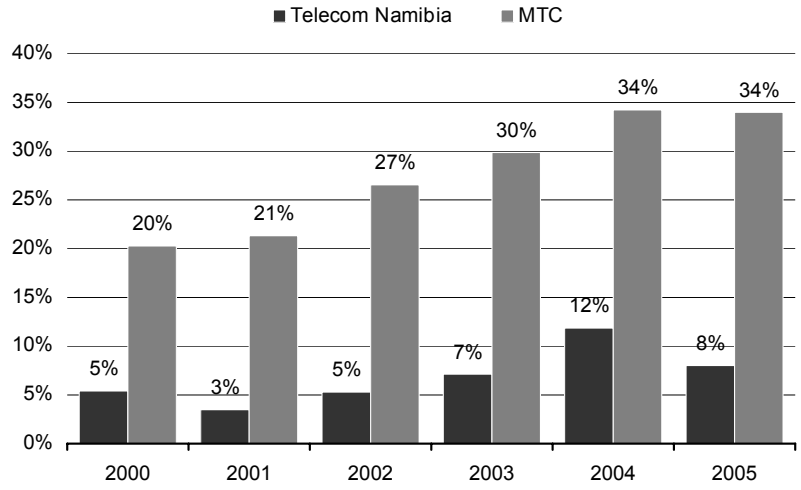

FIGURE 13: Profit Margins compared

Noticeable is a drop in the profit margin of Telecom Namibia from 12% to 8% in 2005. This was caused by a 17% increase in administrative expenses, which rose from N$91,78 million. Telecom Namibia explained this increase with retrenching costs (about N$30 million), the new branding of Telecom Namibia and extensive training programmes. It is worth keeping an eye on administrative expenses. They are likely to remain high if Telecom Namibia continuously wants to transform itself to become a next generation telecom provider. More retrenchments and training might be required in future.

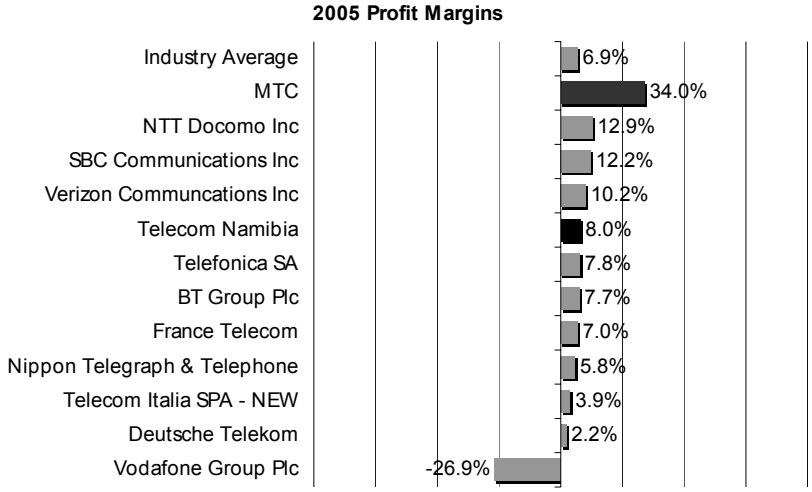

FIGURE 14: Profit Margins Compared: MTC & Telecom Namibia vs Standard & Poor's Top 10 telecommunication companies by sales/ revenue

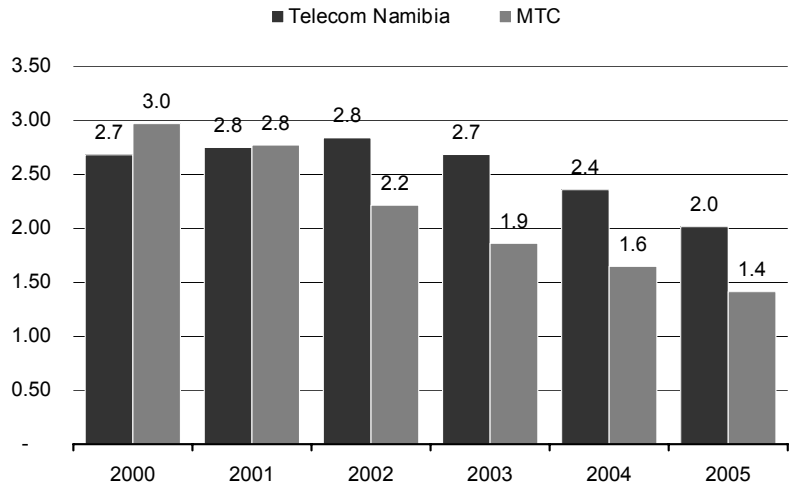

FIGURE 15: Financial Leverage

Telecom Namibia also offset some of its long-term debts with liquid reserves kept in the fixed asset position of investments in 2005. This shortened the balance sheet (both assets and liabilities are down from the previous year) and improved the financial leverage, an improvement of Telecom Namibia's credit profile.

Both Telecom Namibia as well as MTC are in good financial shape with financial leverage coming down the past 5 years. It also means that both can potentially increase their profitability by substituting equity with debt.

TELECOM NAMIBIA'S FIXED-WIRELESS

Telecom Namibia is currently rolling out fixed-wireless based on 800 Mhz CDMA. Fixed-wireless is in principle a mobile technology. Fixed-wireless refers to mobile technologies that do not allow roaming between cells. Cells can be the size of 40 square kilometres and hence cover the whole of Windhoek or any other town in Namibia. In the Namibian context fixed-wireless would already be mobile for most of the population anyway, that only rarely leave town.

Telecom is likely to try to replicate the success of mobiles and offer post-paid and pre-paid solutions simultaneously. Currently it is only offering pre-paid solutions. The post-paid product would target current residential customers and businesses and the pre-paid product current mobile pre-paid subscribers. The post-paid fixed-wireless product would aim at existing fixed-wireline customers and a few new customers.

Fixed-wireless has the advantage that Telecom would no longer be responsible for the cabling to the premises of the customer, the PABX or the telephone, potentially reducing maintenance and service costs. At the same time it is more convenient to the customer due to its mobility.

The main thrust in terms of fixed-wireless adoption would come from pre-paid customers. Namibia currently has close to 500,000 pre-paid mobile subscribers. The adoption of pre-paid fixed-wireless is directly related to the tariff structure. The wider the tariff-gap to pre-paid mobile the faster the adoption rate will be.

Figure 16 and Figure 17 display a comparison for the cost of usage bundles between the cheapest MTC product and the Tango plan on the one hand and Telecom Namibia's two pre-paid fixed-wireless options Switch Easy and Switch Time. The figures show that Telecom's pre-paids are considerably cheaper than any of MTC products for all usage baskets under consideration.

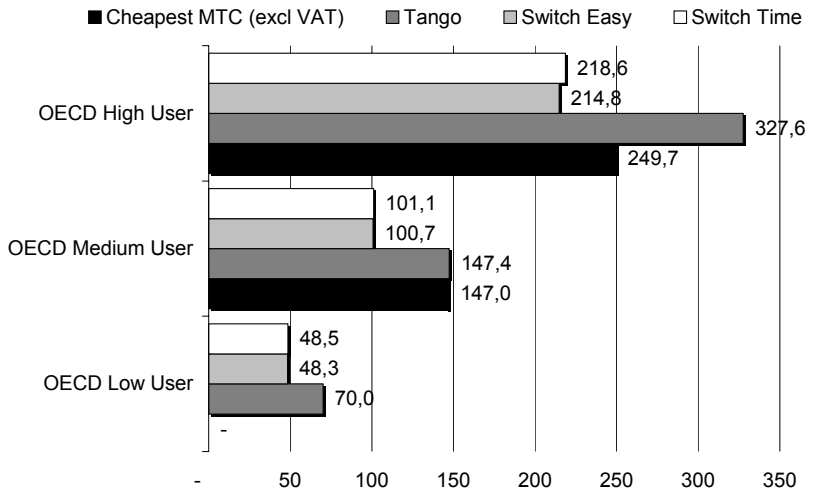

FIGURE 16: OECD User Basket Price comparison in N$

There is one snag in Telecom's strategy though. Telecom Namibia is planning to offer roaming for its fixed-wireless. Roaming between cells makes fixed wireless effectively mobile and hence requires a mobile licence in terms of the draft telecommunications bill. Fixed-wireless on its own can be successful, adding roaming to it would open additional profit potential. However, it also increases the cost of service provision and requires therefore higher call charges. This in turn will negatively impact on the adoption rate. To allow roaming one needs to increase the number of cells dramatically to offer adequate quality of service. An example would be the Ongwediva trade fair. During the year MTC's network manages to cope with their existing infrastructure there. During the trade fair however the network collapsed often due to too many people trying to use their mobile phones at the same time. In Namibia's socio-economic

environment fixed-wireless at lowest possible rates promises to be more successful than one that allows roaming at higher charges.

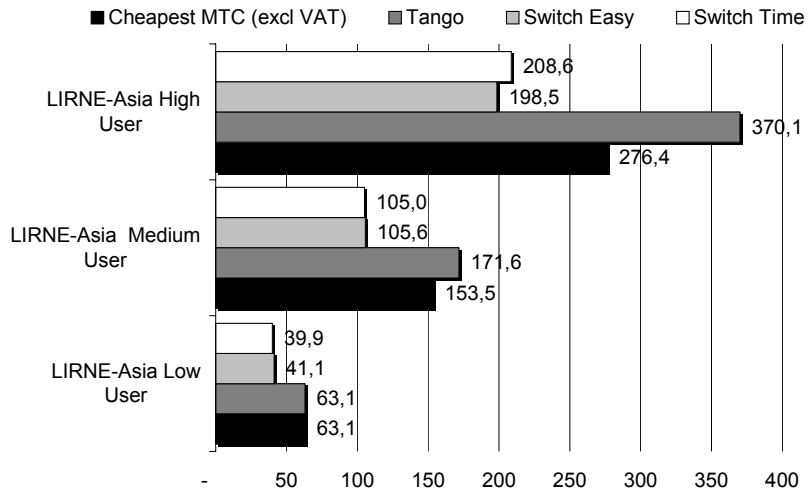

FIGURE 17: LIRNE Asia User Basket Price comparison in N$

THE MARKET DYNAMICS AHEAD

Three operators will be offering telecommunication services at the beginning of 2007, Telecom Namibia, MTC and CellOne. CellOne will need to attract a sizeable amount of customers quickly if it is to succeed in Namibia. It is unlikely to start a price war with MTC since it would stand little chance of winning. MTC has a well established network and solid earnings. Its return on equity has been around 50% for the past few years, which is very high for international standards. This means that MTC can reduce their profit margins considerably before the shareholders become upset. MTC further has a low financial leverage ratio implying that it could increase profitability by substituting equity with debt, or finance any further expansions with debt. MTC's network expansion also has been paid for by profits from previous years, while CellOne needs solid profits in the near future to finance theirs. CellOne is therefore more likely to try to win new customers with the promise of better services and strong branding. From this side little relief in terms of lower retail prices can hence be expected.

IF IT WEREN'T FOR TELECOM NAMIBIA...

Telecom Namibia entering the mobile/ fixed-wireless segment of the market will put pressure on mobile prices. MTC and Cell One will have to react to it or lose market share.

Broadband will finally reach Namibia

Another first to Namibia in 2007 will be the arrival of broadband Internet access. Arriving in Namibia with a delay of several years Telecom Namibia will finally be offering ADSL. MTC and CellOne will offer wireless broadband Internet access using 3G technology. One thing to bear in mind is that a faster access to the Internet Service provider (ISP), in this case Telecom, MTC or CellOne, will not necessarily mean faster connection to the Internet, since this will also depend on Namibia's total bandwidth to it. Namibia will need to increase its international bandwidth and find ways of acquiring that at a cheaper rate than is currently the case. A meaningful regulatory step would be to allow ISPs to have their own international data gateways (which is the case in Botswana and South Africa) and award VSAT licences generously.

The Rules of the Game

The described market dynamics above are to a large extent contingent on the regulatory environment. Namibia needs a strong regulator, which is responsible for the entire sector to safeguard that all participants play fairly. Interconnections might have to be regulated and depending on how the game is played by Telecom, MTC and CellOne, accounting procedures might have to be prescribed to prevent predatory pricing and other anti-competitive practices.

Broadband Internet access might change the way we work and the way our children get taught in school. Broadband Internet access in South Africa has been anything but a success due to too high prices. Namibia needs to adopt policies and strategies to lower the cost of Internet access dramatically to benefit from its economic potential.

Namibia should be seeing price drops of 10-15% across the board during 2007, if government pulls its weight and establishes a reliable and efficient regulatory environment. Teledensity would increase at the same time, closing the gap to Botswana and South Africa. Namibia has enough market potential for Telecom Namibia, MTC and CellOne to operate profitably while allowing the economy to prosper. The key is setting the rules of the game right

CHAPTER 5

Telecom Sector Reform

The main challenges faced in Namibia today are to make information communication technologies cheaper and more accessible. Liberalising Namibia's telecommunication sector, establishing a single competent regulator for the converging telecommunications and broadcasting sectors and actively managing the radio spectrum will open new business opportunities and generate growth and employment. Access to information today is seen as a human right and necessary for the effective participation in society and the economy. The clear link between effective regulation and competition on the one hand and access to information, economic growth and employment on the other hand makes it imperative to act sooner rather than later.

"Three factors contributing to this growth are privatisation, opening of markets to competition and the establishment of telecommunication regulatory authorities at both regional and national levels."[7]

The sequencing of reform measures is critical for an effective transition. Passing the draft telecommunications bill is key for safeguarding a successful liberalisation.

The Ministry of Information and Broadcasting drafted a telecommunications bill in February 1999. The bill has been workshopped in co-operation with civil society organisations and the private sector in 2002. Since then a lot of debate has taken place internationally and a new view of what is best practice has since emerged. The delay in passing the telecommunications bill has the advantage that Namibia can leapfrog the learning curve of other countries and directly implement the so-called "Next Generation Regulations". The proposed telecommunications bill allows the new regulator, Communications Authority of Namibia (CAN), to implement such "Next Generation Regulations". The second mobile licence was awarded to Powercom (CellOne) earlier in 2006. It is therefore paramount to pass the new bill and establish CAN. Without adequate

7. Source: ITU (2006)

regulatory supervision liberalisation might not lead to increased competition, lower telecommunication costs and higher teledensity.

At the same time the new regulatory institution will need more skilled manpower. Namibia's NCC currently has only seven employees compared to the 67 at Botswana's Telecommunication Authority. Liberalising Namibia's telecommunication sector will bring new responsibilities and challenges to the regulator. In particular regulating interconnection agreements and pricing is very labour and skill intensive. The NCC proposed a staff composition of 14 full-time staff members for CAN. It will be important that CAN has the multidisciplinary skills required for effective regulation (specifically economic, legal and engineering skills). CAN will need to hire at least one experienced economist with telecommunications background and someone with regulatory and legal background. Additionally, a budget line for external assistance and research needs to be established. At 14 full-time staff CAN is unlikely to have the capacity to handle all research into interconnections and pricing issues on its own. In the interim a budget could be allocated to fast-track the development of regulatory capacity through training programmes.

The following sections deal with meaningful liberalisation efforts and how they are embedded in the draft Telecommunication Bill suggested by the Ministry of Information and Broadcasting.[8]

SERVICE NEUTRAL LICENCES

Allowing Namibian Operators to apply for service-neutral licences would be likely to have the greatest impact on the competitiveness of Namibia's ICT sector. It allows operators to provide any telecommunication service regardless of the type of service (fixed lines, wireless or fixed wireless, etc.). This enables MTC and CellOne to compete with Telecom Namibia in the fixed line segment of the market. Alternatively, Telecom Namibia could launch its own mobile phone services increasing the choice to three mobile networks in Namibia. Currently Telecom Namibia has a licence for rolling out fixed-wireless solution but not for mobile networks.

Botswana already allows its operators to apply for service-neutral licences. Competition in the fixed-line segment would undoubtedly reduce prices and make Namibia more competitive. Powercom could immediately compete with Telecom Namibia and MTC using its fibre backbone to offer converged fixed-mobile services. Service-neutral licences would allow Telecom Namibia, MTC and CellOne to build

8. The July 2006 draft is being discussed here. Changes might have occurred since then.

triple or quadruple play business models in line with global trends. The draft bill would allow the issuing of service-neutral licences.

> Licences may be issued by the Authority for the following classes of telecommunication services:
>
> a) International telecommunications services;
>
> b) fixed line telecommunications services which entail the conveying of human speech and any other data;
>
> c) telecommunications services where the termination points of the network are mobile;
>
> d) telecommunications services where data other than human speech is conveyed;
>
> e) telecommunications services which entail the routing or other processing of information, but in respect of which the provider of those services uses the facilities of another carrier to transport the information concerned;
>
> f) the use of a network by any person for his or her own purposes where the network concerned is not a private network contemplated in section 43(4);
>
> g) any other category of telecommunications services that the Authority may prescribe after having followed a rule-making procedure.

Text Box 2: §38.1 Draft Telecommunications Bill (Status July 2006)

The concept of increasing competition among existing operators through service neutral licences could be implemented in three ways:

- Include service-neutral licences as one category under §38.1;
- Replace a) to g) of §38.1 with one licence type, i.e. service-neutral licences;
- Keep it as is but implement service-neutral licences by awarding a) to g) to Telecom Namibia, MTC and CellOne.

The first or third approach provides the regulator with the widest choice of options and would therefore be preferable.

ALLOWING ANY OPERATOR TO BUILD OWN INFRASTRUCTURE

§38.8 means that any operator can establish its own network, which ends Telecom Namibia's infrastructure monopoly. Allowing MTC and CellOne as well as any ISP to build their own infrastructure and to establish their own international gateways will increase the competition and lead to a more efficient outcome for Namibia. Currently MTC is required to use the backbone infrastructure of Telecom Namibia even if it is offered at excessive prices. MTC was only allowed for a few exceptions to build their own infrastructure, most recently using VSAT.

> Where the provision of a service requires the establishment of a network, the licence granted for the provision of the service authorises the establishment and operation of the network.

Text Box 3: §38.8 Draft Telecommunications Bill (Status July 2006)

Botswana allowed operators to be self-providing this year. Following this example would mean that MTC would be able to reduce its costs considerably. Being allowed to build its own infrastructure, MTC could then either negotiate lower prices or build its own infrastructure. Powercom might from the start consider establishing its own fixed-line backbone given that Nampower already has an extensive fibre network.

"Competition in international services, particularly the international gateway and leased lines, has been vital in providing low-cost Internet access."[9]

Allowing operators to establish their own international gateways is equally covered by the clause. Currently only Telecom Namibia has an international data gateway licence. It would make sense to liberalise international data access since MTC (and soon CellOne) will increasingly offer Internet content over their mobile network using GPRS+, Edge or 3G technology. With their own international data gateway licences they would be able to do this at a lower cost than currently possible. MTC and Verizon estimate that they could save about 30% if they were allowed to buy their international bandwidth internationally.

The infrastructure constraints on access to the international cable network (SAT3) will need to be examined by the regulator to ensure open access.

NUMBER PORTABILITY

An important competitive measure would be to establish number portability as soon as possible to allow the second mobile operator to compete on a level playing field. The exercise would be much easier compared to establishing number portability in South Africa since Namibia has currently only one operational mobile operator. It would make sense to out-source the number administration to a third independent party or have it administered by CAN. Number portability would need to be established among mobile operators and among fixed-line operators separately.

9. Source: ITU (2006)

Numbering administration

62.(1)The Authority must after having followed a rulemaking procedure prescribe a national numbering plan for use in the provision of telecommunications services.

(2)In preparing the numbering plan, the Authority must take account of existing numbering plans or schemes.

(3)The numbering plan must require local number portability by all carriers within two years from the date of commencement of this Act.

(4)The Authority must allocate to carriers adequate prefixes, numbers and numbering ranges without unreasonable delay, in an objective, non-discriminatory, proportionate and transparent manner, in return for a fee that is no greater than necessary to compensate for the management costs of the numbering plan and the control of its use.

(5)The Authority must ensure that no customer of any carrier is unnecessarily inconvenienced by alterations in the numbering plan, and the allocation of numbers does not confer any competitive advantage to any particular carrier.

(6)The conditions under which prefixes, individual numbers and number ranges may be used must be specified in licences or in a decision allocating numbering resources.

(7)Within two years from the date of commencement of this Act, carriers must include the necessary provisions to meet local number portability obligations and dialling parity in their interconnection agreements.

(8)Except in connection with transfers of subscribers from one carrier to another, numbers may be transferred between carriers only with the prior consent of the Authority.

(9)For the purposes of this section "dialling parity" means the ability to provide telecommunications services in such a manner that users have the ability to route calls automatically through any carrier without having to dial additional digits depending upon the identity of the carrier.

Text Box 4: §62 Draft Telecommunications Bill (Status July 2006)

REGULATE INTERCONNECTIONS & PRESCRIBING COST ACCOUNTING PROCEDURES

§49 stipulates that all operators must allow interconnection to their network from any other operator. Regulating interconnection is crucial for establishing fair competition among operators. The draft telecommunications bill deals with this issue well. It states that interconnection "charges must be limited to the carrier's forward-looking incremental costs of providing such interconnection." (50:2). It implies that a carrier has to offer the same rate to all other operators and sets a ceiling of what can be charged for termination. However, forward-looking incremental costs are very difficult to determine without having COA/CAMs (Chart of accounts and cost allocation manual) in place.

It might take several years for Telecom Namibia, MTC and any other operator to be able to report in this way. Additionally, there are high costs involved in establishing such systems.

49.1 All carriers have the duty to -

a) afford access to its poles, ducts and conduits to competing providers of telecommunications services on rates, terms, and conditions that are consistent with this section;

b) establish reciprocal compensation arrangements for the transport and termination of telecommunications;

c) negotiate in good faith the particular terms and conditions of agreements to fulfil the duties described in this section, section 50, 51 and 52.

Text Box 5: §49 Draft Telecommunications Bill (Status July 2006)

A solution could be to keep the phrase "forward-looking incremental costs" in the bill and use benchmarking studies to determine what forward-looking incremental costs would be for Namibian operators. Benchmarking will never be very accurate and can be subjected to criticism about comparability. However, benchmarking would deliver quicker and fairer results than a non-transparent rough estimate of the incumbent operator.

55.(1) The incumbent and any other carrier designated by the Authority must keep separate accounts for its telecommunications activities, to the extent that would be required if the telecommunications activities in question were carried out by legally independent companies, so as to identify all elements of costs and revenue, with the basis of their calculation and the detailed attribution methods used.

(2) The Authority must prescribe reasonable accounting systems based on current costs and activity-based accounts within two years after the date of commencement of this Act.

(3) Such accounting procedures must be followed and implemented by the incumbent and, where appropriate, other carriers designated by the Authority in terms of subsection (1).

(4) The Authority must verify compliance with such cost accounting systems.

(5) The incumbent and other carriers required to adopt such accounting systems must provide financial information to the Authority promptly on request and at the level of detail required by the Authority.

(6) The Authority may make relevant, complete or summary accounting information available on request to all interested parties subject to considerations of confidentiality of proprietary information.

(7) Where a carrier has the obligation to comply with cost accounting procedures, discount schemes for users, including customers, must be fully transparent and non-discriminatory.

(8) The Authority may require such schemes to be modified or withdrawn if they are prejudicial to the purposes of this Act.

Text Box 6: §55 Draft Telecommunications Bill (Status July 2006)

NEW ENTRANTS

Namibia would not need to make any commitments now regarding new entrants if all current operators can apply for a service-neutral licence. An additional licence could be awarded should the interactions between these three players not lead to a competitive ICT sector. This could be determined by an annual review process.

> 38 (2) The Authority may after having followed a rulemaking procedure, prescribe in consultation with the Minister that only a certain number (which need not be more than one) of licences may be issued in respect of any specific category of telecommunications services.

Text Box 7: §38.2 §Draft Telecommunications Bill (Status July 2006)

UNIVERSAL SERVICE FUND

The draft telecommunications bill contains the establishment of the Universal Service Fund (USF) as well as Universal Service Obligations for carriers.

Mobile telephony has proven to be a much more efficient approach to providing universal access in terms of speed of deployment and cost.

> When issuing licences, the Authority may impose specific obligations and requirements on a licence holder regarding the -
>
> (a) mandatory provision of universal service and such other services as the Authority may think fit;
>
> (b) the transportation of emergency calls or other forms of emergency communications free of charge and under such conditions and subject to such
>
> (c) the use of the radio frequency spectrum, the fees related to this use and to the costs of spectrum management and monitoring when applicable;
>
> (d) the allocation of individual telephone numbers or numbering ranges and the fees required for the management and control of the numbering plan;
>
> (e) the rights and obligations of the operator with regard to interconnection;
>
> (f) the fees payable for the grant, management and control of the licence;
>
> (g) the equitable treatment of, and provision of information to, users, particularly concerning the contractual conditions under which the service is provided and that allow compensation to the customer in case of breach of quality requirements;
>
> (h) the duration of the licence and the conditions and procedures for its withdrawal, renewal and modification of its terms;
>
> (i) relating to any matter that the Authority may consider when issuing a licence as provided in section 39(4); and
>
> (j) other conditions as may be required to achieve the objects of this Act.

Text Box 8: §38.6 Draft Telecommunications Bill (Status July 2006)

Given the human resource limitation of the soon to be established CAN it would be advisable to:

- Require only broad universal service obligations for carrier licences to avoid new entrants from "cherry picking", i.e. to serve only the most profitable segment of a market.

- Use the Universal Service Fund to provide universal access. Subsidies could, for example, be tendered based on providing a community with the most effective sustainable access solution. Any carrier could compete for the subsidy and reverse auctions can be used to award any subsidies.
- The Universal Service Fund might be used to subsidise rural networks by paying a small termination charge for any call terminated in rural areas.
- The USF could further fund rural electrification projects necessary to telecommunication infrastructure role out.

The universal Service Fund could be funded by a levy on the turnover of any carrier. At only 1% the levy would have yielded N$19.2 million in 2005 based on the revenues from MTC and Telecom Namibia.

MAKING VOIP EXPLICITLY LEGAL

Internet telephony (VoIP – Voice over Internet Protocol) turns human voice into digital data, bundles it into packets, and then sends it over the Internet to the receiver where the data is reassembled into voice. VoIP uses the same lines of communication as standard telephones, but uses digital technology that can compress information, thereby allowing more information to be carried over these lines at a lower cost. VoIP allows two computer users to talk and even see each other. It also allows a computer user to call a regular fixed-line or mobile telephone, and vice versa. In simple terms, VoIP means that a phone call or a fax can be partially or completely transmitted via the Internet. "The cost of the call is largely equal to the cost of providing Internet Bandwidth." (Standard & Poors', 2006)

Making VoIP explicitly legal makes sense in Namibia since it reduces the communication costs and makes Namibia more competitive internationally. This will impact traditional revenues from international and long distance traffic. This is inevitable as globally networks become IP based and ultimately this will result in more efficient and cost effective networks for all.

"It is estimated that more than half of all international traffic now takes place outside the accounting rate system."[10]

Is VoIP illegal in Namibia?

Most experts in Namibia believe that according to the current law it is illegal if public services are provided but it is legal for individual use. But is it?

10.Source: ITU (2006)

In terms of Chapter 2, Sections 2 (2) of the Posts and Telecommunications Act, 19 of 1992, no person other than Telecom Namibia Limited shall conduct a telecommunication service, except under the authority of a licence granted by the NCC. This implies that no one else but Telecom Namibia, MTC and now Powercom are allowed to provide telecommunication services.

One might argue that VoIP is not a telecommunication service as defined in the act: "…the business of undertaking or providing telecommunications". Telecommunications are defined as "…any system or method of conveying signs, signals, sounds, communications or other information by means of electricity, magnetism, electromagnetic waves or an agency of a like nature, whether with or without the aid of tangible conductors, from one point to another".

This would not make it illegal for an Internet café to sell VoIP calls, since the Internet café does not do any of the conveying of signs, signals, sounds, communications or other information, which is done by Telecom Namibia. The Internet café just packets the information differently. Contrary to public belief, section 1 and 2 of the Posts and Telecommunications Act, 19 of 1992 does not prohibit any one to supply VoIP services, as long as the traffic is conveyed using Telecom Namibia's infrastructure. However, there is also chapter 4, section 23 (1).

> No person shall use any telecommunications line of the telecommunications company for the purpose of transmitting telephonic communications for the public, except under the authority of the telecommunications company and on such terms and conditions as it may prescribe.

Text Box 9: §23.1 Telecommunications Act (1992

The trouble with this section is that it is not clear on whether it covers VoIP or not. The key phrases are: use, for the purpose and of transmitting. Following the argument above an Internet café providing VoIP services would not do any transmitting, this would still be done by Telecom Namibia. However, this interpretation could be contested in court based on the phrase: for the public.

In conclusion one can say that VoIP is definitely not illegal for individual use and most likely not even for providing public services. The latter issue is one for the courts to decide.

Will VoIP be illegal in future?

According to the draft bill in its version of June 2006 providing public VoIP services would not be illegal but would require a licence from the new regulator called Communications Authority of Namibia (CAN).

> No person may provide a telecommunication service except under and in accordance with a licence issued to that person in terms of this Chapter, unless any other provision of this Act expressly authorises the provision of such service without a licence.

Text Box 10: §37.1 Draft Telecommunications Bill (Status July 2006)

Section 38 (1) states that CAN may issue various classes of telecommunication services, including data licences. The key to understanding how VoIP is addressed in the draft bill lies in the word "routing" in the definition of telecommunication services: "telecommunications services means services whose provision consists wholly or partly in the transmission or routing of information on telecommunications networks by means of telecommunications processes but does not include broadcast services". This would therefore include provision of VoIP services as well. The word "routing" had particularly been included in the definition of telecommunication services to include VoIP services. It still does not impact on individual use of VoIP which remains 100% legal.

Should VoIP service provision be illegal?

Why would anyone want to restrict the use of a technology that helps to save costs and increase efficiency in the first place? To protect the profits of companies that use outdated technology? Imagine if someone had made steam, jet or combustion engines illegal when they were first invented. These inventions changed the way we work and live, brought about industrial revolution and along with them millions of jobs and economic growth. Obviously also jobs were lost in those trades that used outdated technologies. Take the telegraph as an example. When first introduced many horse couriers must have lost their jobs. The wireline telephone itself must have had a negative impact on telegraph companies unless they embraced the new technology.

For VoIP it is not much different. It is unlikely to have as dramatic an effect on society as the steam engine or the telephone. However, banning it would be as wrong as banning steam engines or telephones. VoIP must not be seen as a threat but as an opportunity. Hindering the deployment of technology that leads to cost savings and expands a country's communication capacity cannot be beneficial. Namibia could gain a competitive advantage or fall further behind globally. South Africa realised this and announced on September 2, 2004 that VoIP will be legal as from February 2005. Botswana announced on 21st June 2006 that Internet Service provider (value-added network service providers) can provide VoIP services to the public starting August 2006.

Individuals and companies that want to use VoIP for their own purposes can do so legally now and will be able to do so legally in the future.

Providing VoIP services to the public is currently most likely legal as well, contrary to what the public believes.

Should the new telecommunications bill be passed using the current definition for telecommunication services then a licence would be required for providing public VoIP services. The new regulator should award these licences generously as soon as the new bill is enacted. It would be preferable, however, to remove the word "routing" from the telecommunication services definition or to make providing VoIP service to the public explicitly legal. Namibia cannot afford to be hostile towards new productive technologies, while its neighbours and most of the developed world aren't.

PRIVATISATION

Once a reasonably competitive ICT sector with effective regulatory supervision is established there is no need for the government to control major shares of Telecom Namibia, MTC and Powercom (Government owns 100% of Nampower which is part of the Powercom consortium). The government could gradually sell its shares of Telecom Namibia and MTC on the Namibian Stock Exchange (NSX) or directly dual list both on the Johannesburg Stock Exchange (JSE) and the NSX. The privatisation of Telecom Namibia and MTC would best be a gradual process and might involve offering shares at preferential rates to employees as a BEE component.

FINANCING SECTOR REFORM

The annual budget estimate for the CAN was N$million 6.62. A 0.5% levy on revenues of Telecom Namibia and MTC would have yielded N$million 9.58, enough to cover out-sourced research and international expertise on a consulting basis as well. Additional income can be expected from broadcasting and other licences.

CHAPTER 6

Conclusion

There is a clear window of opportunity for Namibia to rapidly increase ICT penetration. The combination of regional events, such as Botswana liberalising its market, and domestic events, such as the passing of the Telecommunications Bill, provides Namibia with the opportunity to leapfrog other regional countries in becoming an ICT powerhouse. However, for this to be achieved several factors need to be in place: a new telecommunications act; a forward-looking, resourced and independent regulator for the entire ICT sector; and clear policy guidelines for the regulator. With these factors in place, the steps towards achieving a competitive ICT sector in Namibia can be completed. These steps include:

- Lifting the restriction on VoIP;
- Allowing mobile operators to self provide (facilities) including international gateways;
- Allowing for number portability;
- Issuing service and technologically neutral licences;
- Regulating interconnection;
- Annual reviewing of the ICT environment and the possibility of new entrants;
- Establishing a universal service fund.

Namibia sits in the favourable position of being able to learn from its neighbouring countries and having the opportunity not repeat their mistakes. South Africa's example of privatisation first followed by liberalisation has clearly not worked. Namibia can avoid this pitfall by liberalising the market and, only once there is a competitive ICT sector, privatise Telecom Namibia and MTC. By a fortunate confluence of events Namibia has the potential to surpass its neighbours and create a competitive ICT sector, thereby stimulating economic growth, employment creation and social inclusion.

CHAPTER 7

References

- ITU (2004): Trends in Telecommunication Reform 2004/05, Licensing in an Era of Convergence.
- ITU (2004b): African Telecommunication Indicators 2004
- ITU (2006): ICT and Telecommunications in Least Developed Countries, Mid-Term Review for the Decade 2001-2010, ITU.
- Lokanathan, S. and Iqbal, T. (2006): Preliminary Methodology for Comparisons of Mobile Tariffs, Version 2.1 (January 22, 2006), http://www.lirneasia.net.
- OECD (2006): Multiple Play: Pricing and Policy Trends, JT03207142.
- OECD (2006b): Revised OECD Price Benchmarking Baskets 2006, www.oecd.org.
- OECD. (2000): Telecommunications Basket Definitions, June 2000. Retrieved 22 February 2006, from http://www.oecd.org/dataoecd/52/33/1914445.pdf.
- OECD. (2002): Mobile Basket Revisions, DSTI/ICCP/TISP(2002)9, July 2002. Retrieved 22 February 2006, from http://www.olis.oecd.org/olis/2002doc.nsf/0/02842f20bb153c97c1256beb00404cf5/$FILE/JT00129163.PDF.
- Standard & Poor's (2005): Industry Surveys Telecommunications: Wireless, November 2005.
- Standard & Poor's (2006): Industry Surveys Telecommunications: Wireline, August 2006.
- Stork, C. and Esselaar, S. (2006): Towards an African e-Index - SME e-ACCESS AND USAGE, ISBN 100-620-37593-0.
- Stork, C. and Deen-Swarray, M. (2006): ICT Infrastructure-Namibia, in Towards an African e-Index - SME e-ACCESS AND USAGE, edited by Stork, C. and Esselaar, S., ISBN 100-620-37593-0.
- Stork, C. and Esselaar, S. (2006): Telecommunication Sector Reform for Development, NEPRU Policy Brief, Issue 17, ISSN 1860-659X.
- Stork, C. (2005): The costs of Monopolies, Insight Magazine, October 2005, ISSN 1812-9943.