GOVERNMENT OF THE GAMBIA/UNECA
SCAN-ICT COUNTRY REPORT

STATUS OF ICT ACCESS, USAGE AND EXPLOITATION IN THE GAMBIA

FINAL REPORT

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ACRONYMS AND ABBREVIATIONS

ADSL	Asymmetrical Digital Subscriber Lines
ASPs	Applications Service Providers
AU	African Union
BIG	Biometrics International Group
BSC	Base Station Controllers
BTS	Base Transceiver Stations
DoS	Department of State
DoSFEA	Department of State for Finance and Economic Affairs
EA	Enumeration Area
ECA	Economic Commission for Africa
EU	European Union
GAMTEL	Gambia Telecommunications Company
GBA	Greater Banjul Area
GBoS	Gambia Bureau of Statistics
GDA	Gambia Divestitures Agency
GDP	Gross Domestic Product
GPPA	Gambia Public Procurements Authority
GRTS	Gambia Radio and Televisions Services
GSM	Global System for Mobile communication
GTMI	Gambia Telecommunications and Multimedia Institute
GTTI	Gambia Technical Training Institute
HIPC	Highly Indebted Poor Countries
HTC	Highest Teachers' Certificate
ICT	Information and Communication Technologies
IF	Integrated Framework
IMF	International Monetary Funds
IN	Intelligent Network
ISPs	Internet Service Providers
IT	Information Technologies

ITU	International Telecommunications Union
KW	Kilo Waltz
LGA	Local Government Area
MDI	Management Development Institute
MOU	Memorandum of Understanding
NADD	National Alliance for Democracy and Development
NAWEC	National Water and Electricity Company
NICI	National Information and Communication Infrastructure
PDH	Plesiochronous Digital Hierarchy
PKI	Public Key Infrastructure
PRGF	Poverty Reduction and Growth Facilities
PRSP	Poverty Reduction Strategy Programme
PSTN	Public Switched Telephone Network
PTC	Primary Teachers' Certificate
PURA	Public Utilities Regulatory Authority
RVTH	Royal Victoria Teaching Hospital
SDH	Synchronous Digital Hierarchy
SK	Serrekunda
SMP	Staff Monitored Programme
Sq Km	Square Kilometer
ST	Subscriber Terminal
TAWA	Tunisian Advance Wireless Access
TV	Television
UNECA	United Nations Economic Commission for Africa
UTG	University of the Gambia
WAMZ	West African Monetary Zone
WLL	Wireless Local Loop
YBK	Yerro Bell Kunda

FORWARD

The Scan-ICT project for the Gambia marks another milestone in the development of the ICT sector, measuring access, usage and exploitation of ICTs in the Country.

This study was coordinated by The Department of State for Finance and Economic Affairs, The Department of State for Communications and Information and Technology and The Gambia Bureau of Statistics. Henceforth the exercise will be integrated in the regular data collection mechanism of the Statistical Bureau.

The study provides useful data and information for policy formulation and planning in the ICT sector in the Gambia. It is gratifying to note that fixed lines combined with mobile phones constitute total penetration rate 18.35% in 2005 and increased to 21.6% in 2006. This remarkable achievement will further increase with the services of a third mobile operator (COMIUM) which started operations in May 2007.

Conforming with Government's liberalisation policy, Gamtel has been transformed to a partnership corporate entity with a private company. These developments, coupled with the process of formulating a Telecomms Act, constitute key achievements in the ICT sector.

I would like to congratulate the National Technical Committee under the chairmanship of the Statistician General for producing this report under the regional Scan-ICT program of the Economic Commission for Africa (ECA), and through ECA, thank the Government of Finland for providing the resources to ECA to support nine African Countries including The Gambia to undertake Scan-ICT studies.

I look forward to the continued exercise of measuring ICT indicators in the Gambia, which is consistent with the African Information Society Initiative, the Action Plan of World Summit on the Information Society and the Africa Regional Action Plan on the Knowledge Economy.

Hon. Neneh Macdouall-Gaye
Secretary of State for Communications and Information Technology

EXECUTIVE SUMMARY

1. Context and justification

Information and Communication Technologies has emerged as a tool for sustaining economic growth and delivering essential services to the populace in all spheres and sectors of the economy.

It is for these reasons, among others, that today there is a high demand for information and communication technologies and information society statistics to help lay foundation for the monitoring of progress in the aforementioned areas. However, there cannot be a jump into monitoring progress without having a benchmark and a common and standardized framework in place.

Having realized these, the United Nations Economic Commission for Africa (UNECA) closely working with Partners to prepare the ground and lead the process of setting up a mechanism for the establishment of benchmarks and monitoring systems in the area of Information and Communication Technologies (ICT).

This has lead to an international consensus in developing and agreeing of indicators to benchmark and monitor of progress in the area of ICT development, access, usage and exploitation. Not also loosing sight of the need for common and standardized methodologies for comparison purpose.

In the African region, ECA established a project that is helping spearhead the process in the region as a result of which countries like The Gambia benefited to conduct baseline studies in the area of ICT and, to also look into modalities to incorporate the continuous production of ICT statistics within the National Statistics System. The project helped African countries discussed and agreed on sixty-two indicators that all should endeavour to collect the necessary data for their production regularly.

The Scan-ICT Baseline Project is the resultant programme of activities in the African region, the second phase of which is being implemented in nine African countries – including Gambia, geared towards the realization of these objectives in the region.

The implementation of the project in The Gambia is being coordinated by a National Technical Committee under the Department of State for Finance and Economic Affairs (DoSFEA), Department of State for Communications and Information Technology (DOSCIT) and the Central Statistics Department, now Gambia Bureau of Statistics (GBoS). GBoS has taken the lead role in the technical implementation of the project which includes methodological design, coordination of the desk research, design of instruments and implementation, among others.

2. Methodology

After series of preparatory and consultative meetings, Gambia's Scan-ICT baseline study took off with the commencement of desk research in April 2006. This activity involved members of Scan-ICT technical committee who represent the various relevant sectors. The desk research went on for a period of about 3 to 4 weeks during which secondary data was also gathered and where not available the possible source was determined.

This activity then overlapped into the survey design stage when the necessary instruments for the subsequent data collection activities, intended to fill the gaps, were drafted. The survey approach was also proposed - which involved the methodological approach in conducting institutional and household surveys.

The survey was conducted throughout the national territory in institutions representing government and private services. The institutional survey covered those key institutions and employees that Scan-ICT focused on and, household survey targeted households and individuals access to and exploitation of ICT. Final sample of households obtained is 1504 households.

The data collection activity proceeded for a period of twenty-one days during the months of July and August 2006. Both institutions and households were covered during the twenty-one days survey period.

3. ICT Infrastructure

Telecommunication Links

Gambia Telecommunication Company (GAMTEL) has laid a fibre optic cable on the south bank of the river Gambia that run across the country. The country has a fixed line telephone penetration rate of 3.1%. The penetration rate of 6% in urban areas and about 1% in the rural areas. Combined with mobile phones there is a total penetration rate increased from 18.35% in 2005 to 21.6% in 2006.

Telecentres

A number of telecentres existed in both the urban and rural areas making the telephone services accessible to the general populace in almost all parts of the country.

Public Key Infrastructure

The development of a legislative and regulatory framework for the use of ICT in a secured environment is limited..

Communication Links

There is only one public television station and no private television station in the Gambia but satellite and cable viewing is possible. There are also one public radio, five private radio and three community radio stations.

Projects for ICT Development in the Gambia

A number of projects have being designed and implemented by government and public institutions to enhance access and use of ICT equipments and services in the Gambia. Key among these projects are:

- ✓ AU-E-Network;

- ✓ Construction of Technology Park
- ✓ The Biometric project
- ✓ The e-government project
- ✓ ICT for Development (ICT4D) project
- ✓ NICI Policy and Plans Development
- ✓ Telecommunications Bill formulation
- ✓ Crash Programme
- ✓ Alcatel Stage 1 project
- ✓ Airspan project
- ✓ CDMA Pilot project
- ✓ Internet Resource Centres
- ✓ Internet MPLS Backbone
- ✓ Intelligent Network (IN) Platform
- ✓ Gambia Telecommunication and Multimedia Institute (GTMI)

3.3 Personal Equipment for the Use of ICT Services

Equipment for Use in ICT Services at Households

Households mainly access information through the use of radio, mobile telephone and television programme for increased productivity and growth. At national level about 90% of households have access to radio, 40% have access to television and 56% use mobile telephone to send and receive information.

Other ICT equipments and facilities like computers and internet facilities are found in both urban and rural households. The survey results showed that about 2% of individuals in households accessed computers in the last 12 months whilst only 1% of individuals in households have access to internet facilities in the same period.

Equipment for the Use of ICT in the Workplace

The rate of penetration of computers into workplaces is very high; 66.2% of institutions on the average owned/accessed more than one computer whilst 12.0% owned only one computer.

Photocopying machines are normally found and used in most workplaces, on average about 45.8% institutions used photocopying machines but some local government areas reported low usage of copying machines in the workplaces in Mansakonko (11.2%), Kerewan (17.1%) and Janjangbureh (12.5%).

Nationally, the overall availability and usage of other ICT equipments like fax machine and printers in offices is quite high at a rate of 38.5% and 58.7% respectively. The rate of penetration of digital projectors is very low in the offices.

Access to Internet

The internet services that are commonly used in the Gambia are email, web browsing, web hosting, discussion forum and file transfers. Four Internet Service Providers (ISP); Gamtel, QuantumNet, Netpage and Airtip are licensed to operate and to provide dial-up internet access to the public and the institutions. The services provided through dial-up access are cheaper in the Gambia than in many African countries. In fact, dial-up time for unlimited access costs about D200.00 (equivalent to US$8.00) and less than 50 American cents for one hour of access.

With regard to internet connectivity, the survey results revealed that on the average 46.2% of institutions covered have had internet connectivity whilst 22.1% of the workplaces interviewed have their own websites

Fixed Telephony

There has been a significant increase in the number of fixed line subscribers over the three years period despite the fact that rates for fixed telephone local calls during non-busy and busy periods have doubled, i.e. have increased from D0.30 per minute to D0.60 per minute.

The provision of fixed telephone in the different categories of the institutions is sufficient. Generally, the penetration rate on the availability of fixed telephone lines is at 42.0%. With regard to the number of fixed telephone lines in workplaces, the study results shows that on

average only 4.0% of institutions do not have any fixed telephone set in the workplace. On the other hand, on the average, 31.2% and 33.7% of institutions respectively reported to have one and at least two fixed telephone lines in the workplaces.

Mobile Telephony

Two GSM operators are providing the mobile telephone services: GAMCEL and AFRICEL via GSM 800-900 networks with countrywide coverage. There was a rapid increase in the number of mobile subscribers in the Gambia since 2001. The mobile telephone penetration rate has increased from 7.3% in 2003 to 16.9% in 2006.

According to the study results, a higher proportion of households have owned mobile telephones (65.1%) than fixed telephones (20.6%). In the urban areas, 76.5% of households owned a mobile telephone as against 54.8% of households having owned a mobile telephone in the rural areas.

4. Training in the Use of ICT

Status of ICT in Education sector

The importance of information underscores the importance of adopting ICT in the education sector. The availability of computers in the education sector is still very low, on the average and at national level; student-to-computer ratio is 142 students per computer. The availability of computers to students increases with increase in the level of education. In fact, 256 students in Lower Basic School have to share one computer whereas 10 students in tertiary/higher education share a computer. In the urban areas, there are about 29 students per computer in the Senior Secondary schools whilst there are only 11 students per computer in the Vocational schools.

With regard to training received in the use of the ICT, there are disparities according to gender. Our survey results shows that there are only 18 percent of the female students enrolled in tertiary education who are in an ICT dominated field whiles there are about 60 percent of the male students in the same category who are in an ICT dominated field. However, the results concern with Vocational/Technical schools show a higher participation

of female in ICT field than the male students. There were 17 percent of female student in this school category who are in an ICT dominated field as against only 15 percent of male student in the same school category are in an ICT dominate field.

The proportion of students and teachers using internet services is very high. About 98.4% of students and 98.9% of teachers used internet services for email messaging.

5. Limitations to Access to ICT in the Gambia

Education-low literacy levels

To develop the economy and improve the lives of Gambians we therefore need a basic level of education underpinned by developing a learning culture. The ability to use new technology that is ever changing, acquire relevant knowledge and convey information in a manner that empowers individuals to maximize their natural potential perhaps stands out as the most basic prerequisite. In this regard, access to ICTS has to be precluded by training and learning.

Low Skilled Workforce

In The Gambia, the proliferation of ICT training will provide a future base but now it is important we recognize that the relevant knowledge base and therefore skills required to be competitive or have the competitive edge are lacking. Without an appropriately skilled workforce, we have limited access to use ICT services and facilities. Before we even get in to the IT fields or the lack of it in schools, what first comes to mind is the ongoing debate about the atrocious level of English proficiency in schools. Language forms a fundamental part of development and it is through this that the principle of skill acquisition is based on regardless of which skill one needs to acquire.

Awareness and Sensitization on ICTs

"Information is power" to empower and power to act. The completely learning process for us in Africa and The Gambia specifically, is challenged by how quickly we raise the level of awareness of ICTs. At present, the ICT industry in the Gambia is focusing more on selling computers, basic computer training, networking and a few other basic services. The

innovation to demonstrate to people what a simple computer program can do for them or their business that can translate to the need for computers is lacking.

Affordability of ICT Equipments and Services

Universal Access to and affordability of ICTs are inextricably linked. In the Gambia, the cost of computers and the price of accessing the Internet are one of the main issues that influence the spread of ICTs. Purchase of equipment is still far beyond the reach of the average citizen. The high price tags compared to other necessities in life act as a barrier to access to ICT equipments and services.

Gender

The high cost of computers and connectivity keep ICT services far beyond the reach of most women. ICT infrastructure is largely urban-centred. Internet content is overwhelmingly in English. Insufficient attention is given to content in local languages and the use of the Internet for women with low levels of literacy. Gender roles and other cultural factors translates to the fact that women have less time to make use of ICTs.

6. Suggestions and Recommendations

Recommendations are made for the use of the results in ICT development, access, usage and development of ICT database. Please refer to chapter 6 of this report.

INTRODUCTION

The year 2006 will mark a crucial turning point in the development of modern technologies in Gambia because of the conducive environment created to lay down conditions for promoting ICT. With the support of the ECA and the European Union the Scan-ICT initiative was borne, the goal of which is to assist Africa to ensure its transition towards the Information Society through the collection of relevant which is an information, real tools for decision-making. Gambia was thus chosen to be one of the six partner countries of the programme, together with: Cameroon, Ethiopia, Ghana, Tunisia, Rwanda and Mozambique.

The data collected for this survey is also on infrastructure, the educational sector, health sector, production sector, general administration as well as the civil society.
This report is divided into six chapters:

- Chapter 1 : General information on The Gambia;
- Chapter 2 : Presentation of the survey;
- Chapter 3: ICT Infrastructures;
- Chapter 4 : Training in the use of ICT;
- Chapter 5 : Limitations to access to ICT in the Gambia;
- Chapter 6: Suggestions and recommendations gathered from opinions.

CHAPITER 1: GENERAL INFORMATION ON THE COUNTRY

1.1 Geographical situation

The Gambia is a very small country located on the west coast of Africa, surrounded on three sides by Senegal, extending inland at widths varying from 24 to 48 kilometers along the banks of the River Gambia, with a total area of 11,632 square kilometers. The Gambia's geographical location is in the drought threatened sahelian scrub land which means it has very limited natural resources. This has adverse economic and social repercussions. The Agricultural area is only 4,300.00 Sq Km and a wet land area of about 2,077.55 Sq Km. The prevailing climatic pattern favours only a short agrarian production regime (on average three months) which is the main source of employment and food supply for 80% of the population who reside in the rural areas. However, the vegetation is generally Savannah grassland and has a sahelian Climate, typified by a long dry season (December to June), and a wet season (July to November). It has an average rainfall of about 811.5mm and an average temperatures ranging from 18 to 30 degree Celsius during the dry season (December to June) and 23 to 33 degree Celsius during the wet season (July to November). The relative humidity is about 68% along the coast and 41% inland during the dry season and generally about 77% throughout the country during the wet season.

The Gambian economy is mainly agricultural with groundnut production contributing about 15% of the GDP. Other major agricultural produce are rice, maize, cotton, vegetable and fruit which collectively account for about (10%) of the GDP. The current contributions of Agriculture to GDP, shows a declined as compared in the mid-70s which attributed about 40% of the GDP, thus, reflecting the strategies and action plans incorporated in the national sectoral policy framework. In view of the foregoing, government has laid down programmes aim at diversifying agricultural production and to develop other non-farm activities which started to yield gains, particularly, the performance of livestock and fisheries

1.2 Demographic context

The Gambia is a small country in West Africa and is surrounded on three sides by Senegal and boarded on the west by the Atlantic Ocean. The population is estimated at 1.038 million and 1.361 million at the 1993 and 2003 population censuses with population densities of 97 and 127 persons per square kilometer respectively. The population of the Gambia is mainly young with more than half (about 63.55%) is below 25 years. Elderly persons of 65 years and above account for 3.36% of the population. The urbanisation rate increased from 30.8 % in 1983 to 37.1% in 1993. In 2003, this rate is estimated at 50.3%; which means that presently, more than half the population live in urban areas.

The Gambia's social diversity is reflected in the different ethnic groups. The main ethnic groups are the mandinkas (39.5%), Fula (18.8%), Wollof (14.6%), Jola and Karoninka(10.6%) and rest comprises of the minority groups. The majority of the population are Muslims (95%). A small minority are Creoles (1%), most of whom are Christians. Despite this ethnic pluralism, there is a measure of homogeneity in cultural practices. It has also a fairly undeveloped human capital base, with an illiteracy rate of 75 percent and primary school enrolment rate of 56 percent in (2002).

Table 1 : Basic demographic indicators

Indicators	**1983**	**1993**	**2003**	**2006f**
Population				
Total	**687,817**	**1,038,145**	**1,360,681**	**1,509,928**
- Urban	*211,889*	*385,400*	*684,158*	*820,193*
- Rural	*475,928*	*652,745*	*676,523*	*689,735*
Urbanisation rate %	30.80 %	37.12 %	50.28 %	54.32%
Population density per Km^2	64	97	127	138
Annual population growth rate (%)	3.8	4.2	2.7	2.7
Structure of Population per age group %				
- 0 to 14 years	*43.76%*	*43.80%*	*41.98%*	*43.11%*
- 15 to 49 years	*45.12%*	*45.60%*	*48.13%*	*49.43%*
- 50 to 59 years		*3.95%*	*3.94%*	*4.05%*
- 60 years and above	*10.03%*	*4.98%*	*5.05%*	*5.19%*
- (Not Stated)	*1.08%*	*1.68%*	*0.90%*	*0.92%*

Source : Gambia Bureau Of Statistics (GBoS); f = forecast

This population is increasing rapidly; the average annual growth rate estimated at 3.8% in 1983 increased to 4.2% in 1993. This remarkable growth, one of the highest in world, is attributed to high fertility and in-migration. The annual growth rate reduced slightly in 2003

to 2.7%. This population of 1.361 million inhabitants in 2003 is unequally distributed in the eight Local Government Areas (LGA) of the country (see Table 2).

Table 2 : Distribution of population per Local Government Area (LGA)

Local Government Area	1993			2003			2006f		
	Urban	Rural	Total Population	Urban	Rural	Total Population	Urban	Rural	Total Population
Banjul	42,326	0	42,326	35,061	0	35,061	33,131	0	33,131
Kanifing Municipal Council	228,214	0	228,214	322,735	0	322,735	358,133	0	358,133
Brikama	41,761	193,156	234,917	236,446	153,148	389,594	310,590	142,866	453,456
Mansakonko	10,206	54,940	65,146	13,302	58,865	72,167	14,324	60,096	74,420
Kerewan	33,102	123,360	156,462	34,720	138,115	172,835	35,196	142,876	178,072
Kuntaur	5,305	62,469	67,774	5,040	73,451	78,491	4,920	77,108	82,028
Janjangbureh	8,556	79,691	88,247	16,598	90,614	107,212	19,500	94,174	113,674
Basse	15,930	139,129	155,059	23,409	159,177	182,586	44,399	172,615	217,014
Total	**385,400**	**652,745**	**1,038,145**	**687,549**	**678,897**	**1,360,681**	**820,193**	**689,735**	**1,509,928**

Source : Gambia Bureau Of Statistics (GBoS)

1.3 Political and administrative organisation

The Gambia gained her independence from Britain in 1965 and became a Republic in 1971 and was one of the very few multiparty democracy systems in Africa. The Gambia formed a short-lived confederation of Senegambia with Senegal between 1982 and 1989. In 1991 the two neighbouring countries signed a friendship and co-operation treaty.

The Gambia has since independence experienced political stability except during the period of the 1994 peaceful coup followed by a nearly two year-ban of political parties. The 1996 constitution and subsequent parliamentary elections in 1997 have so far maintained stability and have completed a return to constitutional and civilian rule in the country. The country undertook another round of presidential and legislative elections in late 2001 and early 2002. Dr Yahya A.J.J. Jammeh, the leader of the 1994 political change was been elected president in all subsequent elections.

In 2004 the political landscape of the country saw the creation of a political alliance grouping the main opposition parties, NADD (National Alliance for Democracy and Development) and an MOU was signed among all the political parties registered in the country. In October 2006 presidential election President Yahya Jammeh was re-elected a third five-year term of offices.

The Government of the Gambia has, however, made significant strides in improving gender equality, economic and political good governance. Some of the key indicators include the appointment of four Cabinet ministers, one of which is the Vice President, the establishment of the Independent Electoral Commission, the Office of the Ombudsman, the Governance Commission, safeguarding the independence of the Judiciary, Gambia's qualification for the Millennium Challenge Account of the United State, the creation of the Anti-corruption Commission and a number of policy and legal reforms. In additional, the government of the Gambia made crucial policies and legal reforms in the areas of Public Financial Management, Public Procurement, The Judiciary, the Civil Service, Decentralization and Local Government, institutional reorganization of the Central Bank of the Gambia.

1.4 Socio-economic characteristics

The economy of the Gambia is basically agricultural with 67% and 80% of the population in 1993 and 2003 engaged in agricultural activity, e.g. groundnuts farming. The economic situation has been stabilising from 2004 with the overall GDP growth rate of 5.3%, lower than the 2003 growth rate of 7.0% but still improving compared to 2002 where the country experienced negative growth of -3.2%. This was mainly due to a generalised Crop failure as a result of the exceptionally low rainfall experienced in 2002. The growth rate in 2004 was underpinned by the strong recovery of the agricultural sector in terms of better harvests and also inflows attributed to private remittances and investments from Gambians in the Diaspora. This was a relatively slight improvement since the external current account deficit – including official transfers – deteriorated from 5% of GDP in 2003 to 12% in 2004, partly reflecting the worsening in the balance of trade, as strong import growth was driven by the recovery in output, and other donor-financed capital expenditures. Gross international reserves rose by more than US$ 22 million that is by over 30% in 2004 as increased foreign

inflows and a stabilising exchange rate allowed the Central Bank of the Gambia (CBG) to increase its purchases in the inter-bank market.

The IMF in 2005 entered into another SMP with the Government (October 2005 – March 2006) with a view to getting a fresh PRGF.

As regard the trade regime, the Gambian economy is open, liberal and the location of the country and its relatively efficient port facilities make it attractive as a gateway to the West African region. The external sector is dominated by re-exports. The Gambia has been part of the exchange rate mechanism of the West African Monetary Zone (WAMZ) since April 2002, and ratified both the West African Central Bank statutes and WAMZ Agreement in August 2004. Imports are subject to a maximum tariff of 18%. Export taxes are restricted to fish and fish products (10%).

Under the old Integrated Framework (IF) programme of the EU a comprehensive study was undertaken on the country's export potential, including an analysis of its export trade and the identification of potential "winner" products. A request for assistance from the new Integrated Framework was introduced with the objective of integrating the country into the global trading system, and to mainstream trade in its national development plan, particularly the PRSP

Regarding the social aspects, the rural population is being depleted by rural-urban migration and by the scourge of HIV/AIDS. However, the country still has a relatively low prevalence rate, estimated at 1.1% and 0.6% for HIV-1 and HIV-2 respectively (2005 HIV Sentinel Surveillance Report). These, coupled with the high incidence of poverty, unemployment, poor infrastructure and high dependence on a narrow agricultural commodity base, groundnuts in particular, make for a very precarious existence for individuals and families, and for the country, a tenuous national development challenge.

Basic social indicators show that poverty is pervasive and increasing from 34% in 1994 to 69% of the population in 1998 (Household Poverty Report). Poverty is predominantly a rural

phenomenon. Within the five rural Divisions, more than 62% of population are described as 'very poor' (i.e. an income below 75% of the food basket). In contrast, the same figure for the urban area is 19%. Average incomes in the Greater Banjul Area is almost triple that of the rural divisions. However, urban poverty has also risen with the increased rural-urban migration, narrow employment base and the associated low wages and salaries.

The primary goal of the government under the PRSP in the health sector is still to improve access to health services and ensure country-wide provision of an essential healthcare package. The Gambia has achieved substantial progress in health during the past fifteen years. Performance in the sector is relatively good when compared with other Sub Saharan African countries. Equally, there has been substantial improvement in education and access to water supply. The gender disparity in the social sectors has reduced drastically over the years. However, constraints and challenges still persist in these social sectors.

CHAPITER 2: PRESENTATION OF THE SURVEY

2.1 Context and Justification

Information has emerged as an essential tool in the development process, leading to an implicit creation of what is today called “the information society”. However, the development of our economies and societies relying on information and cannot progress with out use information communication technology.

It is for these reasons, among others, that today there is a high demand for information and communication technologies and information society statistics to help lay foundation for the monitoring of progress in the aforementioned areas. However, there cannot be a jump into monitoring progress in the information society

Having realized this, the United Nations Economic Commission for Africa (UNECA) closely working with her International Partner Institutions, took it upon themselves to prepare the ground and lead the process of setting up a mechanism for the establishment of benchmarks and monitoring systems in the area of Information and Communication Technologies (ICT). This has lead to an international consensus in developing and agreeing of indicators to help establish benchmark and to monitor progress in the area of ICT development, access, usage and exploitation. Not also loosing sight of the need for having common and standardized methodologies for comparison purpose.

In the African region, ECA established a project that is helping spearhead the process in the region as a result of which countries like The Gambia benefited to conduct baseline studies in the area of ICT and, to also look into modalities to incorporate the continuous production of ICT statistics within the National Statistics System. The project helped African countries discussed and agreed on sixty-two indicators that all should endeavour to collect the necessary data for their production regularly. The Scan-ICT Baseline Project is the resultant programme of activities in the African region, the second phase of which is being

implemented in nine African countries – including Gambia, geared towards the realization of these objectives in the region.

The implementation of the project in The Gambia is being coordinated by a National Technical Committee under the Department of State for Finance and Economic Affairs (DoSFEA) and, technically spearheaded by the Gambia Bureau of Statistics (GBoS) formally Central Statistics Department, has taken the lead role in the technical implementation of the project which includes methodological design, coordination of the desk research, design of instruments and implementation, among others.

2.2 Objectives

2.2.1 Main Objectives

The main objective of the baseline surveys on ICT is:

- To assess the status of ICT facilities and usage sectoral level in the country
- Produce the relevant agreed Scan-ICT indicators that would feed into the Scan-ICT Baseline Study Country Report for The Gambia.

2.2.2 Specific Objectives

However, specific objectives, among others are to:

- To conduct surveys to help produce the necessary data for the calculation of the indicators;
- To produce relevant households and individual ICT-related data;
- To produce relevant ICT-related data on ICT-Sector;
- To produce relevant ICT-related data on Businesses;
- To produce relevant ICT-related data on Government Sector;
- To produce relevant ICT-related data on Health Sector;
- To produce relevant ICT-related data on Education Sector;
- Conduct surveys with a view to assessing the methodological approaches and ground for future or subsequent surveys on ICT; and,
- Build capacity within GBoS for production of ICT statistics.

2.3 Methodology

2.3.1 Survey Preparation and Approach

After a series of preparatory and consultative meetings, The Gambia's Scan-ICT baseline study took off with the commencement of desk research in April 2006. This activity involved members of Scan-ICT technical committee representing the various stakeholders. The desk research lasted about 4 weeks during which secondary data was gathered and where not available the possible source was detailed.

This activity continued through the design stage of the survey when the necessary instruments for the subsequent data collection activities, intended to fill the gaps, were drafted. A survey methodological targeting both institutional and household was agreed.

The institutional survey covered those key institutions and employees that Scan-ICT focused on and, household survey targeted households and individuals access to and exploitation of ICT.

2.3.2 Sampling

A preliminary review of the pattern of infrastructural development and expansion in the Gambia suggest there is some kind of relationship between areas in terms of access to certain ICT infrastructure and facilities. As a result, stratification was done accordingly using both the population data and preliminary figures on electricity availability in households from the 2003 Population and Housing Census. Four strata were created:

- Stratum 1 comprises of Banjul and Kanifing;
- Stratum 2 combined Brikama urban and Kombo North;
- Stratum 3 constitute of all Other Urban and
- Stratum 4 consisted of all the Rural areas.

The two-stage sampling involved the selection of 2003 updated Enumeration Areas (EAs) as the primary (first stage) sampling units (PSU) and, the final selection of households as the secondary (second stage) sampling units, after the listing exercise of households in an EA.

Seventy-six enumeration areas were selected as the primary sampling units and twenty households selected in each EA. Final sample of households obtained is 1504 households.

Box 1: Scope of Survey

The survey collected information from 201 institutions and 1504 households through out the country to meet the stated objectives of the baseline study. The institutions were grouped into six major categories: Government; Parastatal; Non Governmental Organizations (NGO); ICT sector; Private Business and Health sector.

There are two sources of data: primary data sources and secondary data sources. Primary data sources come from direct collection of data from institutions (201) and households (1504) persons (1428) representing individuals in households, employees(440), students(477) and teachers (227) in the education sector, that is a total of 4277 sample units. The distribution of the sample is presented in the following

Table 3: Distribution of samples per Local Government Area

Local Government Area	Government	Health sector	Education sector	ICT sector	Business sector	Households
Banjul	8	1	1	2	19	80
Kanifing	6	1	36	9	29	395
Brikama	3	3	2	1	0	399
Mansakonko	3	1	14	0	0	80
Kerewan	6	2	26	0	0	193
Kuntaur	2	0	5	0	0	80
Janjangbureh	2	1	13	0	0	118
Basse	2	1	0	0	0	159
The Gambia	**32**	**10**	**97**	**12**	**48**	**1504**

Source: SCAN –ICT Baseline Survey 2006, The Gambia

This survey had the double preoccupation of collecting data not only concerning institutions but also that concerning households and individuals. Secondary data sources are existing statistics from international organizations, public and private administrations, etc.

2.3.3 Questionnaire and training of personnel

There are nine types of questionnaires (see annex) used: the Government/Parastatals/NGO questionnaire, Private Business questionnaire, ICT sector questionnaire, Employees' questionnaire, Household questionnaire and Individual questionnaire, educational institutions, students and teachers questionnaire. After the instruments were discussed and finalized by the Technical Committee through series of meetings, the baseline study moved into survey stage. It started with training of data collectors for duration of two days after which data collectors were sent out into the field to administer the questionnaires. The objective of the training was to introduce the data collectors to the instruments and discuss the technical questions. It also helped the data collectors to know how to administer instruments.

2.3.4 Deployment of enumerators in the field

Teams of data collectors were composed and assigned to collect information from sampled institutions and households throughout the country. Each team of data collectors consisted of a supervisor and enumerators and were assigned number of selected enumeration areas in a geographical settings to cover. A vehicle was provided to each team.

2.3.5 Estimating Model for household and individual survey

After a through review of our sampling design and, the need for an appropriate estimator among competing estimators, we at last found a model estimator for our producing of reliable national and domain estimates which also enables us to compute variances for our proposed estimates.

The model estimator so obtained is based on our Stratified two-stage sampling design and, is as follows:

$$\hat{P}_{st} = \frac{\sum_{h=1}^{L} N_h M_h p_h}{\sum_{h=1}^{L} N_h M_h} = \sum_{h=1}^{L} W_h p_h$$

Where, $W_h = N_h M_h / \sum_{h=1}^{L} N_h M_h$ is the weight or relative size of stratum h in terms of second-stage units and $\hat{p}_h$ is the estimated proportion in stratum h.

So, an unbiased estimator of the variance of the estimated proportion is:

$$\hat{V}(\hat{p}_{st}) = \sum_{h=1}^{L} W_h{}^2 \left[\frac{1 - f_{1h}}{n_h} s_{1h}{}^2 + \frac{f_{1h}(1 - f_{2h})}{n_h m_h} s_{2h}{}^2 \right]$$

Where, $f_{1h} = n_h / N_h, f_{2h} = m_h / M_h$ are the respective sampling fractions;

and, $s_{1h}{}^2 = \frac{\sum_{i=1}^{n} (p_{i-} \overline{p})^2}{n-1}$, $s_{2h}{}^2 = \frac{m}{n(m-1)} \sum_{i=1}^{n} p_i q_i$ are the respective sample variances;

and, $p_i = y_{ij} / m$, $\overline{p} = \sum_{i=1}^{n} p_i / n$

Our Standard Error and Confidence Interval (CI) for the estimate respectively, will be:

$StdErr(\hat{p}_{st}) = \sqrt{\hat{V}(\hat{p}_{st})}$, and, $CI = \hat{p}_{st} \pm StdErr(\hat{p}_{st}) \times t_{df,\alpha/2}$ (d.f.=no. of EAs minus no. of strata in the design)

Now, let's define the notations as follows:

- h = 1,2,….,L is the stratum number, with a total of L strata,
- i = 1,2,…., n_h is the EA number within stratum h, with a total of n_h EAs,
- j = 1,2,…., m_{hi} is the number of units within EA i of stratum h, with a total of m_{hi} units
- n = $\sum_{h=1}^{L} \sum_{i=1}^{n_h} m_{hi}$ is the total number of observations in the sample
- y_{hij} is the observed value of the analysis variable for observation j in EA i of stratum h, for both the values of numerical variables and the values of indicator variables for levels of categorical variables.

2.3.6 Collection of data

The data collection activity for both institutions and households lasted for twenty-one days during the months of July and August 2006.

2.3.7 Data Processing and Cleaning

After the instruments were finalized, ten data entry screens were designed using CSPro Version 3.1 and commissioned. These covered institutional, household and individual questionnaires - employees and household individuals. The screens were designed

Following the completion of field activity, the batches of completed questionnaires were scrutinized in the office by a team of coders, followed by editing and coding exercise. Having edited and coded the batches, the data entry activity was carried out by a team of data entry operators over a period of two weeks.

The entered data was then checked for errors or wrong entries which involved the generation of frequency tables. Editing was done where necessary and the cleaned data was then imported into SPSS for analysis. At this stage the data-set were put in a form according to the thematic areas of Scan-ICT. Statistical tables were produced from the datasets forming the basis of analysis, estimates and the production of the report.

2.4 Difficulties and Constraints

As data or indicators are used to help formulate policies, programmes, projects, among others, or monitor their progress, it is a norm that statisticians provide accompanying cautionary notes to alert users of their data about limitation of the data. This helps users to factor in allowances in the cause of using that data. In the light of foregoing, one would hasten to state that results of these surveys are not exceptions. The results should be used with care as it is the first of its kind to undertake surveys to assess ICT access, usage and exploitation in the Gambia. With the exception of household survey, the other sector surveys have shortcomings as a result of several factors which included, among others:

- The frame problem,
- Lack of cooperation on the part of institutions to respond and to give reliable information,
- The would-be respondents didn't spare some time to sit with the data collectors so that some of those technical questions be explained further and
- Tight budget which constraint frequent movement of data collectors between survey units and
- Short duration of the surveys. This later issue even affected the household survey as the sample size could not be large enough knowing that in this survey we were likely to encounter rare cases.

Although data collection took place under very difficult conditions due to limited funds, the survey team did their best to collect reliable information during the data collection.

2.5 Profile of sample entities

2.5.1 Geographical distribution of respondents

During the survey, the country was divided into eight administrative areas called Local Government Area (LGA), namely: Banjul, Kanifing, Brikama, Mansakonko, Kerewan, Kuntaur, Janjanbureh, and Basse.

Table 4: Distribution of Respondents by Sex and Place of Residences (in %)

Local Government Area	Male	Female
Banjul	58.53	41.47
Kanifing	59.82	40.18
Brikama	64.52	35.48
Mansakonko	68.18	31.82
Kerewan	65.89	34.11
Kuntaur	60.00	40.00
Janjangbureh	66.67	33.33
Basse	68.42	31.58
The Gambia	**62.12**	**37.88**

Source: SCAN –ICT Baseline Survey 2006, The Gambia

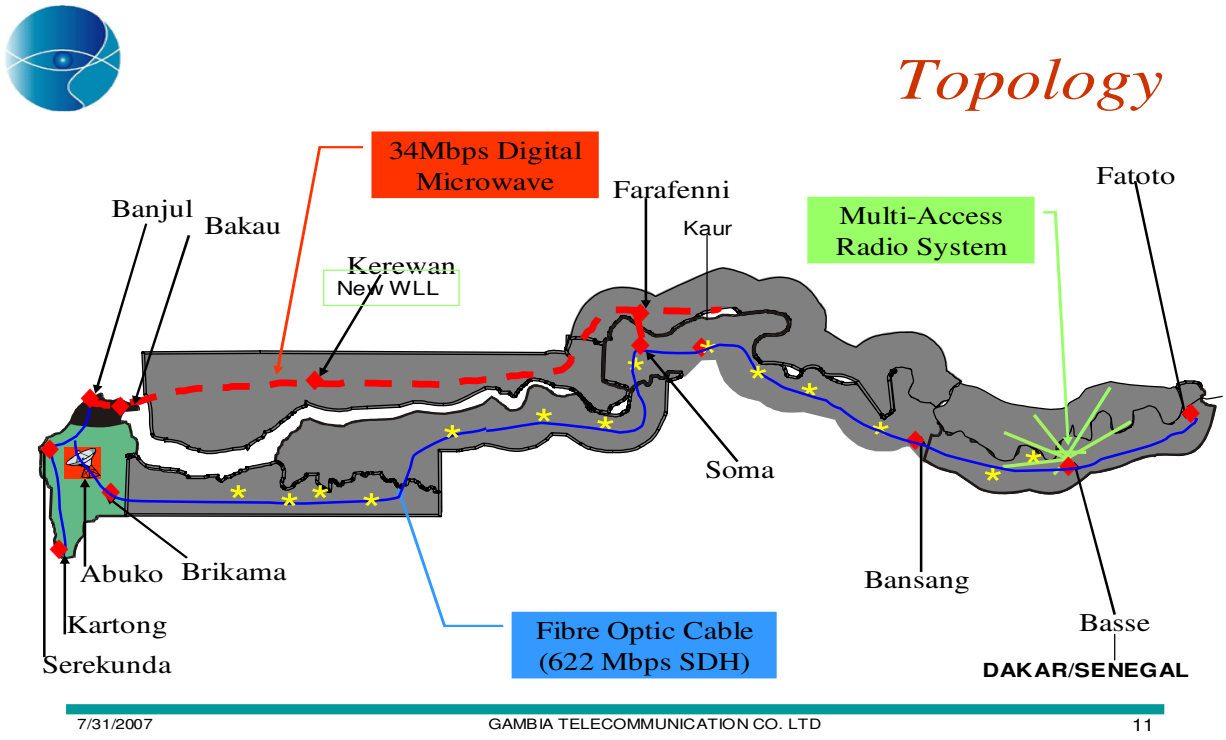
CHAPITER 3 : ICT INFRASTRUCTURES

3.1 Production Infrastructure: National communication & Telecommunications link

3.1.1 Telecommunications link

The country has a fixed line telephone penetration rate of 3.1%. The penetration rate of 6% in urban areas and about 1% in the rural areas. Combined with mobile phones there is a total penetration rate increased from 18.35% in 2005 to 21.6% in 2006. Gambia Telecommunication Company (GAMTEL) has laid a fibre optic cable on the south bank of the river Gambia that run across the country.

Figure 1: Topology of Telecommunication Links



In the mobile phone area there are two mobile phone operators in the Gambia – GAMCEL and AFRICEL – with a total customer base 430,000 (2006). In mobile phone sector new expansion were also in plan.

3.1.2 Telecentres

Public telephone access like telecentres is very much wide spread in Banjul, Kanifing municipality and parts of the western region. A number of similar Telecentres exist in the rural areas making telephone service accessible to the general public in almost all parts of the country, which is consistent with ITU guideline.

3.1.3 Public Key Infrastructure (PKI)

There is a need setting up in the Gambia a public key infrastructure the extension of the network and the creation of a National Certification Authority. Also proposed, was the establishing of State services on-line and the development of a legislative and regulatory framework required for the use of ICT within a secured environment. The PKI is a framework of policies for the management of services and software using a public key cryptography and digital signatures for electronic transactions and exchange of information to enhance confidentiality and security.

3.1.4 Communication link

Although ICTs may be meeting the needs of individuals and households in products or services delivered to them, for most individuals and households, even in most developed countries, the direct application of ICT is still relatively limited. There is only one public television station in The Gambia and no private TV stations. Alternative satellite and cable television viewing are also available. There are also 5 private radio stations and one public and three community radio station. Households can take advantage of the available information through radio and television programmes, to increase agricultural productivity, marketing facilities, trading opportunities and thereby reduce on household poverty.

3.2 Projects for ICT Development in The Gambia

3.2.1 AU-E-Network Project

This project is financed by Government of India through the African Union Commission with the objectives of linking the referral hospital (RVTH and Bansang hospitals) with

medical centres in India and it also aimed at linking the University of the Gambia (UTG) with the Indian Universities.

The above objectives could be achieved through the provision of online medical and educational services, access to advance education and medical services abroad and to provide the facilities and linkages for broadband video conferencing.

3.2.2 Construction of Technology Park

The construction of Technology Park, a major component of Silicon Valley Initiative, is aimed at attracting multinational ICT businesses into the country and to develop other ICT related initiative. This project is being funded and supported by governments of Egypt and Taiwan. Apart from the signing of an MOU with the government of Egypt, the government was able locate a project sites and now in the process carrying a feasibility study.

3.2.3 The Biometric Project

This involves electronic processing of National ID, Passports and personal registration documents and authentication by upgrading those documents for better security and efficient service delivery. The initiative is to be contracted to Biometrics International Group (BIG) which intends to build, operate and later transfer the project. Great achievement was made in the finalization of agreement and preparation of a cabinet paper requesting approval to sign contract with BIGs initiative.

3.2.4 The e-Government Project

E-Government strategy formulation and implementation supported by ECA is mainly aimed at providing effective and efficient public service delivery system for the civil servants and the general public. The implementation of the e-Government strategy by 2005 called for the establishment of an e-Government Directorate that will be responsible for the overseeing the e-Government programmes, creation of government websites in all the Department of State (DoS) and the implementation of e-Government pilot project by end of December 2010. Process has been made in the identification of focal points, hosting of DNS by GAMTEL under .gov.gm domain and the piloting of government email services e.g. @doscit.gov.gm.

However, constraints in funding and lack of adequate equipment are major bottle net implementation of the project. Government have made advance efforts in introduce biometric-electronic processing of national ID, passport and other national document ect.

3.2.5 ICT4D Project

This is an ECA supported initiatives aimed at increasing awareness and understanding of the knowledge of ICT as a tool for development focusing on the e-Government and NICI frameworks. ICT development campaign is been done through broadcasting electronic and print media.

3.2.6 NICI Policy and Plans Development

The development and the formulation of NICI Policy and Plans was mainly aimed at recognising the areas where ICT would contribute to the attainment of the overall objectives of the Vision 2020 and the PRSP document under four strategic issues as thus:

(a) Enhancing the Productive Capacity of the Poor;

(b) Enhancing Access to and the Performance of Social Services;

(c) Local Level Capacity Building and;

(d) Promoting Participatory Communications Processes.

The NICI policy formulation and development process was carried out in two phases:

- Phase 1 calls for consultative meetings of NICI Core Group, IT business houses to record their view on NICI policy; academia group such as University of the Gambia, Management Development Institute (MDI); Gambia Technical Training Institute (GTTI), etc. ; regulatory bodies such as The Gambia Divestiture Agency (GDA) and the Public Utilities Regulatory Authority (PURA) ; other Government Parastatal; civil society organizations, youth organization; media houses; local government representatives.
- Phase 2 involves series of validation of the proposed NICI pillars; sectoral objectives; ICT mediated specific goals and challenges. The NICI implementation is now at an advance stage developing plan base on the action plan.

3.2.7 Telecommunication Bill

A draft Telecommunication bill has been formulated. The purpose of the bill is to create a legal and enabling environment to improve the quality and service delivery of telecommunication services. The bill when it becomes law will clearly delineate the complementary rolls of various stakeholders.

A draft copy of the bill was circulated for review and comments. Final comment would be incorporated by the Legal Drafts person at the Attorney General's Chambers and Telecoms Bill would be tabled in parliament for enactment in December 2007.

3.2.8 GAMTEL's ICT Development Projects; 2005-2006

Gamtel has, over the years, pursued policies that have allowed it to provide relevant and affordable services to the people of Gambia whilst at the same time grow revenue. By carefully balancing these two major objectives, Gamtel has been able to undertake projects with enormous socio-economic benefits to our people throughout the country without jeopardising its sustainability. Gamtel's current global expansion strategy aims to rehabilitate, expand and consolidate its existing copper-based urban networks as well as explore recent break-through in wireless technologies to bring communications facilities to over 70% of The Gambian population, most of whom are rural folks engaged in subsistence farming. These are similar strategies that have been successfully used in Asia to improve office and business efficiency as well as give rural schools access to other learning centres and resources, facilitate hospital referrals for rural health centres as well as give farmers access to relevant market information and best agricultural practices. In the light of the above considerations, Gamtel between 2003 and now, embarked on the following projects:

3.2.8.1 Crash Programme

The main objective of this project is to secure Gamtel's networks located within the Greater Banjul Area (GBA) through the deployment of a self-healing fibre-optic cable ring network and connecting the main catchment areas from SK exchange through 5K market, Bundung exchange, Abuko Earth Station, Yundum Exchange, Banjul International Airport, Yaram Bamba Estate, Nemasu, Wellingara, Brussubi, Kotu and back to Serekunda. In addition to

this, two CNE5 of 512 line capacity each were to be deployed in Brufut and Garawol respectively; and a 3,500 line copper network created around the Serekunda market and Senegambia areas.

3.2.8.2 Alcatel Stage 1 Project

The main objective of this project is to expand the switching, control and transmission matrix of Banjul and Serekunda exchanges which had been exhausted. The inter-exchange links to cater for increased inter-exchange traffic needed to be increased to cater for increased rural and mobile traffic. The V5.2 interfaces at both Banjul and Serekunda exchanges needed upgrading and new software loaded to enable them to connect 5,000 rural wireless customers each. Switching capacity of both exchanges needed expanding to allow for the connection of up to 25,000 new customers. A 256 concentrator was to be deployed to provide communication services to Samba Kunda and YBK. Project successfully implemented and working.

3.2.8.3 Airspan Project

The main objective of the Airspan project was to replace a similar, but obsolete, wireless local loop system, the IRT 2000, as well as prevent the imminent collapse of the entire rural telephone network In the North Bank Division due to the obsolescence of the radio network in the area. The scope of the project was later increased to provide telephone services to about 800 villages throughout the country.

The Airspan project was successfully deployed and all the vulnerable networks in more than 36 villages that had obsolete radio equipment were successfully transferred onto it without much of a problem. Its expansion into other parts of the country is to bridge the access gap between the urban and rural areas of the country. Thus far, about 266 villages are now connected to the Airspan network and the recent receipt of 200 Subscriber Terminal (ST) kits that are being distributed to the different Regional Managers would allow the connection of another 200 villages

3.2.8.4 CDMA Pilot Project

The main objective of this pilot project was to see how best it would help in reducing the ever increasing demand for telephones through the use of wireless access technologies. The project consisted of a 10,000-line switch and four access Base Transceiver Stations (BTS). The project was to provide both voice and high speed data access in deployed areas.

The project was successfully implemented and commissioned according to plan. Initially the four BTS5 were deployed in Abuko, Brikama, Soma and Basse. Thus far, the system has performed beyond all expectations and a decision taken to expand it by about 100,000 lines with new broadband features. Its coverage was also to be extended to other parts of the country, with at least one BTS deployed in each of the administrative divisions.

3.2.8.5 Internet Resource Centre

The main objective of this project was to replace the obsolete management system of the Internet to be able to offer such services as e-commerce, e-Health, e Education, e-Government etc, provide whole sale of Internet services, server hosting and co-location, encourage private content providers, Application Service Providers (ASPs) and virtual (non-facility based) Internet Service Providers (ISPs) the platform to viably set up and operate their businesses in a more secured environment with minimum investment on their part.

3.2.8.6 Internet MPLS Backbone

The main objective of this project is to replace Gamtel's old, obsolete and un upgradeable backbone to enable it to provide a fully secure, upgradeable and redundant Internet Network as well as provide the necessary infrastructure that would allow for the cost effective setting up of call centres for Gamtel and private sector use. It will provide for a better management and control of Internet bandwidth usage, enable the support of Internet services such as e-education, e commerce, e-government, e-health etc.

3.2.8.7 Intelligent Network (IN) platform

The main objective of this project is to replace the existing obsolete pre-paid service node with a convergent IN platform with more up to date features such as pre-paid telephony,

advance free phone services and to create more business opportunities for re-sellers. This system, for use by both Gamtel and Gamcel, would offer the management of pre-paid cards, pre-paid telephony, number portability, mass calling, tele-voting etc, thereby significantly improving our finances.

3.2.8.9 Gambia Telecommunications and Multimedia Institute (GTMI)

The main objective of this project is to construct a Building for class room blocks, offices, labs, cafeteria etc, provide tools for jointing and testing of copper cables, fibre optic cables and PC repairs. Although already a Cisco-approved Regional Academy, with responsibility for Sierra Leone and The Gambia, this approval is a carry-on program and involves regular reviews and renewals. Another objective is acquire a Cisco lab bundle to enable it offer PC repairs, networking, web designing etc. and offering automatic upgrades of hardware and software through annual subscriptions to CISCO or its recognized partners. The GTMI is already offering courses locally through e-learning with certification by a number of universities. It is planned that such collaboration would be extended to the point that it can even run some technology-related courses for the University of The Gambia while at the same time offering it access to some of its facilities.

3.3 Equipment for Use of ICT Services

Given the capacity of ICTs to access, transfer and apply knowledge and information to almost every aspect of human engagement, they are increasingly being recognized in facilitating the attainment of household and national development at large. The continuous development of new technologies and their application to economic, political and social processes is creating new opportunities that could enhance the quality of life. This will depend on the type of technology and how it is used, which will ultimately depend on peoples' values and better understanding through improved data. In fact there is very little hard data at the moment to make judgments. One of the problems is that most of these developments rely on complex global networks whether they are the internet, WAP, GSM, or other networks and there is little understanding of how they impact the environment and change social behaviour. Therefore, to establish the current status of the national ICT

infrastructure of the Gambia, this survey was conducted to identify indicators that capture the country's status on and trends in information and communication technology. Certain levels of basic infrastructure as well as organisational activities are generally required for the direct benefits of the information society to be realized.

3.3.1 Access and Use of ICT Equipment in Households

Although ICT may be meeting the needs of individuals and households in products or services delivered to them, for most individuals and households, even in most developed countries, the direct application of ICT is still relatively limited. However, households can mainly access the available information through the use of communication and telecommunication tools via radio and television programmes, to increase agricultural productivity, marketing facilities, trading opportunities and thereby reduce on household poverty. The types of tools commonly used are the radio, GSM mobile and televisions.

At national level in table 5 below, about 90% of households in the Gambia, have "access to radio", whilst about 40% have access to "Television". Also, the consequence of the fantastic growth of cellular telephone with 56 percent of national households that have it, has seemingly overshadow fixed lines which shows only 14.27 percent of households in the country that has this access either from their own landline or neighbours.

Table 5: National estimate of households with access to ICT

Types of ICT facilities	% of Gambian Households accessing ICT Facilities
Radio	89.98
Television	39.82
Landline (Fixed line)	14.27
Wireless Jamano phone	4.23
WLL/ Airspan	1.03
GSM Mobile	55.97
Computer/ PC	2.25
Internet	1.10
Internet Connection Type (Analogue/Dial-up)	0.47

Source: SCAN –ICT Baseline Survey 2006, The Gambia

Mobile telephones covered nearly three times as much people as fixed telephone. Moreover, the mobile telephone has become a very useful object used today in cities as well as in rural areas among almost all the levels of the society, including policy makers, traders in the

informal sector, artisans, students and even taxi drivers who have made of it a working instrument that has considerably facilitated the development of their public relations activities.

Besides landline (fixed line) telephone, access to "wireless" which is a more recent telephone facility accounted for about 4% whilst access to "wireless local loop – WLL/Airspan" accounted for just about 1%. Again from the survey data we are able to estimate that about 2% of households have access to "computer" and, about 1% have access to internet (see Table 5). However, in the same figure, only about 0.47% of households in The Gambia connecting to the internet are using "Analogue modem/Dial-up" type. Furthermore, households were asked about their main source of energy and the results shows that, about 14% of the households in The Gambia have access to "NAWEC Electricity Supply"

As could be seen in table 6, stratum-wise indicators reflected a scenario which showed that our stratification strategy succeeded in having together a more homogeneous households in each of the strata. The strata are: (1) Banjul and Kanifing, (2) Brikama Urban and Kombo North, (3) Other Urban and (4) Rural. The stratification was employed based on the fact that the units in each stratum will have about equal probability of accessing ICT facility. Whilst about 93% of households in Banjul and Kanifing, as one stratum, have access to radio, Brikama Urban and Kombo North has about 97% of the households with access to radio. Other Urban and Rural accessing radio accounted for about 93 percent and 89 percent percentages respectively (see table 6 below).

Access to television manifested a downward pattern towards the rural. It could be seen in table 6 that whilst about 84% of households in Banjul and Kanifing have access to television, Other Urban and Rural combined accounted for about 36 and 29 percentages respectively. However, Brikama Urban and Kombo North were estimated to have about 75% of the households that have access to television.

Access to landline telephone showed a pattern with Other Urban stratum having about 39% of its households with access to it, above that of Briakama Urban and Kombo North that has about 18% of households (see table 6).

Table 6: Estimated percentage of households in The Gambia with access to ICT by Stratum

Type of ICT Facilities	Banjul & Kanifing	Brikama Urban & Kombo North	Other Urban	Other Rural
Radio	92.83	97.14	93.06	89.12
Television	83.88	75.26	35.63	29.37
Landphone	38.19	18.29	39.38	9.01
Wireless JAMANO Phone	5.92	2.50	15.00	3.88
Wireless Local Loop/Airspan	3.19	0.71	2.14	0.59
GSM Mobile	82.15	78.26	63.24	49.67
Computer	7.72	6.68	0.66	0.95
Internet	5.07	3.93	0.00	0.18
Electricity	71.54	21.07	9.38	1.37

Source: 2005 Scan-ICT Baseline Survey of Households, The Gambia. :Based on 1504 households

Access to landline telephone according to the survey results in table 6 above, other urban has the highest percentage, showing 39 percent accessing landphone. There are 38 percent households in Banjul and Kanifing and 18 percent households in Brikama Urban and Kombo North accessing landphone. This might be the effect of inclusion of Kombo North in the stratum, which in the recent years has emerged as a highly concentrated area in terms of population but with little or yet to benefit from infrastructural development or installations such as ICT infrastructure. The least accessing landphone is other rural accounting for only 9 percent households. The recently introduced ICT technologies such as wireless telephone and the wireless local loop (WLL/Airspan) was captured in the survey and the estimates at least show some households having access to them.

The survey estimated substantial percentages of households in all the strata having access to GSM mobile services. By virtue of this, the survey estimates are evidence of the reality on the ground. The survey further revealed an interesting pattern with estimates showing Banjul and Kanifing stratum having about 8% of households with access to computer in their homes whilst Brikama and Kombo North combined stratum has about 7% of households. In table 6,

we have seen that the first two strata have at least some households having access to internet in their homes.

The radio set is the equipment which is widely used in The Gambia; it is owned by 90.0% of households. The difference by place of residence is relatively low when compared with the other items (respectively 93.1% of urban households) and 89.3% of rural households. The television set, telephone, mobile, computer and internet facility are found in the Gambian households in both urban and rural. These ICT equipments are owned by urban and rural as clearly shown in table 7 below. These proportions reveal disparities according to the place of residence.

Table 7 : Estimated percentage of households in The Gambia with access to ICT equipments by Area

Households Access to:	Urban	Rural
Radio	93.05	89.31
Television	82.13	30.57
Land phone(fixed)	37.23	9.26
Wireless JAMANO Phone	5.96	3.85
Wireless Local Loop/Airspan	3.03	0.60
GSM Mobile	81.83	50.32
Computer	7.71	1.06
Internet	5.01	0.24
Electricity	68.43	1.75

Source: Scan-ICT Baseline Survey 2006, The Gambia. Based on 1504 households

Generally, the rates of penetration of the ICT equipment like the radio, television, fixed telephone and mobile telephone in the households remain high although large disparities exists between different local government areas (see table 8 below) for each type of equipment. The radio and GSM Mobile telephone sets are the most widely used communication tools at the level of the home by the Gambian households. Other ICT equipments like computers and internet facilities are only present in the homes of households located in Banjul, Kanifing and Brikama.

Table 8: Estimated percentage of households in The Gambia with access to ICT by LGA (in %)

Households Access to:	Local Government Area (LGA)							
	Banjul	Kanifing	Brikama	Mansakonko	Kerewan	Kuntaur	Janjangbureh	Basse
Radio	90.00	93.40	92.41	78.43	89.37	91.25	88.53	90.80%
Television	81.25	84.40	57.89	5.12	40.11	15.07	5.59	29.14
Landphone	46.25	36.58	7.74	0.17	17.45	0.00	4.04	16.67
Wireless JAMANO Phone	5.00	6.11	2.50	0.00	0.25	0.00	0.07	16.82
Wireless Local Loop/Airspan	0.00	3.83	0.11	0.00	0.00	0.00	0.07	2.93
GSM Mobile	75.99	83.39	65.35	28.37	54.19	48.62	37.23	51.07
Computer	7.57	7.76	3.16	0.00	1.90	0.00	0.00	0.00
Internet	10.00	4.08	1.34	0.00	0.00	0.00	0.00	0.00
Electricity	86.25	68.60	7.56	0.06	0.05	0.00	1.41	0.84

Source: Scan-ICT Baseline Survey 2006, The Gambia.: Based on 1504 households

3.3.2 ICT Equipment at the Workplace

The rate of penetration of computers into institutions is very high, 54.17 % of institutions on the average own two or more computers whilst 11.98% own one. The level of penetration of the computer at the workplace is 66.15 %. This figure also reveals disparities between the local government areas. The Kuntaur LGA is the only area where workers reported having zero computers in their place of work. Other LGAs reported a fair rate of usage of computers in the offices in Janjanbureh LGA with 20 percent; Mansakonko with 29.41 percent and in Kerewan with 39.43 percent. Usage of computer in the workplaces is very high for offices located in Banjul (83.88%), Kanifing (92.31%) and Basse (100.00%) local governments areas.

Table 9: Availability of Computers in the Offices per Local Government Area (in %)

Local Government Area (LGA)	No Computer	One Computer	At least two Computers
Banjul	12.90	3.23	80.65
Kanifing	7.69	16.67	75.64
Brikama	11.11	11.11	44.44
Mansakonko	64.71	17.65	11.76
Kerewan	61.76	5.88	32.35
Kuntaur	100.00	0.00	0.00
Janjangbureh	80.00	13.33	6.67
Basse	0.00	33.33	66.67
TOTAL	**31.25**	**11.98**	**54.17**

Source: Scan-ICT Baseline Survey 2006, The Gambia

The photocopying machine is the most used equipment at the workplace (45.77%) but remain low in the local government areas of Mansakonko (11.16%), Kerewan (17.14%) and Janjangbureh (12.50%). The low level of penetration in this local government may result from lack of support facilities like electricity and maintenance services.

Table 10: Availability of Photocopying machine in the Offices per Local Government Area (in %)

Local Government Area (LGA)	No photocopy machine	One photocopy machine	Two and more photocopy machine
Banjul	19.35	41.94	38.71
Kanifing	15.66	38.55	19.28
Brikama	44.44	22.22	33.33
Mansakonko	5.56	5.56	5.56
Kerewan	8.82	5.88	11.76
Kuntaur	0.00	14.29	14.29
Janjangbureh	0.00	0.00	12.50
Basse	0.00	0.00	66.67
TOTAL	**13.43**	**25.37**	**20.40**

Source: Scan-ICT Baseline Survey 2006, The Gambia

Nationally the overall penetration rates in the usage and availability of fax machine, printer and digital projector in offices is quite high at a rate of 38.31%, 58.71% and 13.93% respectively, see table 11. Printers are widely used in most offices in both urban and rural, whilst digital projectors are hardly used.

Table 11: Level of equipment for the use of ICT services at the workplace per Local Government Area (in %)

Local Government Area (LGA)	Fax machines	Printers	Digital projector
Banjul	90.32	83.87	16.13
Kanifing	51.81	77.11	20.48
Brikama	33.33	88.89	33.33
Mansakonko	0.00	22.22	0.00
Kerewan	2.94	26.47	5.88
Kuntaur	14.29	28.57	0.00
Janjangbureh	6.25	18.75	6.25
Basse	0.00	66.67	0.00
TOTAL	**38.31**	**58.71**	**13.93**

Source: Scan-ICT Baseline Survey 2006, The Gambia

Analysing the results by types of institutions reveals that the government, the business and the ICT sectors have a high penetration in the use of photocopying machines with respective rates of 71.88 percent, 64.59 percent and 58.33 percent. Health and the education sectors have also registered a significant availability of photocopying machines in their offices showing that copiers are widely in most sector of the economy, see table 12 below.

Table 12: Availability of Photocopying Machine in Workplace in the sector of Activity (in %)

Type of institution	No Photocopying Machine	1 – 3 Photocopying Machines	4 – 10 Photocopying Machines
Government	6.25	71.88	0.00
Health Sector	40.00	40.00	0.00
Education Sector	9.28	24.74	3.09
ICT Sector	25.00	58.33	0.00
Business Sector	18.75	60.42	4.17
TOTAL	**13.57**	**43.72**	**2.51**

Source: Scan-ICT Baseline Survey 2006, The Gambia

3.3.3 Access to Internet

Since the inception of internet services in 1998, Gambia has experienced sustained growth of the Internet market. Internet services that are common in the market are: email, web browsing, web hosting, discussion forums and file transfers. The survey reveals a regular increase in the number of institutional subscribers while the number of individual subscribers showed a downward trend. Investments aimed at modernising the network of the traditional operator can justify the increase in the number of professional subscribers.

The major advantage of the Gambia in Internet access is the presence of four ISPs – Gamtel, QuantumNet, Netpage and Airtip – who are licensed to operate in the country. Because of the competitive environment that prevailed among ISPs, the Dial-up Internet services are comparatively cheaper than many African countries. In fact, at an average of 200 Dalasis equivalent to 8 US$ per month for unlimited access and less than 50 cents per hour for phone/dial up time, this therefore justifies the affordability of dial-up internet services in the Gambia.

Most of the access to Internet in The Gambia is through dial up because leased lines or direct access is expensive for the individual subscribers. Consequently the Internet access is quite slow for large amount of data transfer. Users of Internet have indicated that the speed of current dial-up internet services is very slow resulting in high dial up time cost and less reliable information exchange where large volumes of data/file transfers are concerned.

However, despite the presence of four ISPs and impressive Internet spread in the Greater Banjul area, the general Internet penetration rate remains very low in rural areas, as the actual numbers of institutions connected to the Internet in remote areas are very few. Availability of Internet access in government offices, particularly in service departments and local government offices in provinces will go a long way to provide Gambians with information, and services essential for any successful e-government.

Prominent government offices are to be provided with dedicated connection to Internet so that more web-based services can be initiated with adequate information security. ISPs are to be encouraged to increase their bandwidth with a corresponding increase in international gateway bandwidth.

The study results showed that in all the public and private institutions, there are relatively more institutions that were connected to Internet (46.23%) as compared to those institutions who reported having a Websites (22.11%) in their workplace. Institutions in the ICT sector, 91.67% and 58.33% have respectively reported having an internet connection and a website at their workplace. Institutions in the business and the government sectors reported a high proportion of internet connectivity and website ownership in their offices, see table 13.

Table 13: Availability of Internet Connection and Ownership of Website at Workplace (in %)

Type of institution	Connected to Internet at Workplace	Institution has a Website
Government	62.50	15.63
Health Sector	30.00	20.00
Education Sector	20.62	10.31
ICT Sector	91.67	58.33
Business Sector	79.17	41.67
TOTAL	**46.23**	**22.11**

Source: Scan-ICT Baseline Survey 2006, The Gambia

3.3.4 Teledensity

3.3.4.1 Fixed telephony

There has been a significant increase in the number of fixed telephone subscribers during the past three years. From 2004 to 2006, rates for a fixed telephone local call for non-busy hours as well as for busy hours have doubled. On the other hand, during the same period, charges for telephone installation remained constant for residential lines and for business lines.

Table 14: Number of Fixed Telephone Subscribers; 2004 to 2006

Subscribers	2004	2005	2006
Number of Fixed Telephone Subscribers	42, 000	44,000	53,000

Source: Facts & Figures; 2005 & 2006; PURA

The provision of lines is sufficient in the different categories of institutions. For example, institutions with 1 to 3 telephone lines account for 45.73% of all telephone lines. Generally, 15.58% of institutions on the average have more than four fixed telephone lines. This is reasonably adequate to meet the communication needs in the structures. Generally, in each sector of institutions the penetration rate on availability of fixed telephone line is at least 42%, see table 15.

Table 15: Average Number of Fixed Telephone Lines in Workplaces (in %)

Type of Institution	Fixed Telephone Line			
	No line	1 to 3 lines	4 to 10 lines	11 to 20 lines
Government	0.00	18.75	21.88	3.13
Health Sector	0.00	70.00	30.00	0.00
Education Sector	2.06	47.42	1.03	1.03
ICT Sector	0.00	50.00	33.33	8.33
Business Sector	10.42	54.17	22.92	4.17
TOTAL	**3.52**	**45.73**	**13.07**	**2.51**

Source: Scan-ICT Baseline Survey 2006, The Gambia

With respect to the number of fixed telephone line in the workplace in the local government areas, the survey revealed that on average only 4.02% of sample institutions do not have any fixed telephone set in the office. Generally, 31.16% and 33.67% of institutions respectively

reported having one and at least two telephone lines in the offices as shown in table 16. The availability of fixed telephone lines in offices in each local government area appears to be same.

Table 16: Fixed Telephone sets in the Offices per Local Government Area (in %)

Local Government Area (LGA)	Fixed telephone lines		
	No set	One set	At least two sets
Banjul	6.45	25.81	32.26
Kanifing	6.02	42.17	44.58
Brikama	0.00	44.44	55.56
Mansakonko	0.00	22.22	22.22
Kerewan	2.94	29.03	14.71
Kuntaur	0.00	0.00	14.29
Janjangbureh	0.00	6.25	18.75
Basse	0.00	33.33	66.67
TOTAL	**4.02**	**31.16**	**33.67**

Source: Scan-ICT Baseline Survey 2006, The Gambia

3.3.4.2 Mobile telephony

The mobile telephony service is provided by GAMCEL and AFRICELL through GSM 800/900 networks with country wide coverage. The mobile telephony experienced a rapid increase in the Gambia in 2001 with a large number of Gambians owning mobile sets. The penetration rate increased from 7.33% in 2003 to 16.87% in 2006, see table 17.

Table 17: level of fixed and mobile telephone expressed as the number of lines per 100 inhabitants

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fixed	2.15	2.39	2.65	2.71	2.66	2.81	2.99	3.05	4.72
Mobile	.42	.43	0.45	4.26	7.53	7.33	12.47	15.35	16.87
Total	**2.58**	**2.82**	**3.09**	**6.97**	**10.19**	**10.14**	**15.47**	**18.40**	**21.59**

Source: Annual Report 2006, PURA

The proportion of households owning a mobile telephone is by far greater than those households that own fixed telephone lines, see table 18. The analysis of the study results showed that about 65.09 percent of responding households do have a mobile telephone.

There is not much disparity in proportion of households in the urban (76.58%) and rural (54.75%) that own a mobile telephone.

Table 18: Distribution of households equipped with individual telephone by Area of Residence (in %)

Type of facility Available	Urban	Rural	The Gambia
Access to Electricity	63.22	18.75	39.89
Fixed telephone owned	32.17	10.27	20.64
Mobile telephone owned	76.58	54.75	65.09

Source: Scan-ICT Baseline Survey 2006, The Gambia

Moreover, it should be noted that this level of mobile telephone equipment on the ground is fairly distributed in the local government areas. In both local government areas of Banjul and Kanifing, which are exclusively urban, the cell phones were used by more than 75 percent of households. There are still great regional disparities notably because of limited telephone network coverage in the North Bank of the river Gambia.

Table 19: Estimated percentage of households in The Gambia with access to ICT by LGA (in %)

Households Access	Local Government Area (LGA)							
	Banjul	Kanifing	Brikama	Mansakonko	Kerewan	Kuntaur	Janjangbureh	Basse
Fixed telephone	46.25	36.58	7.74	0.17	17.45	0.00	4.04	16.67
Mobile telephone	75.99	83.39	65.35	28.37	54.19	48.62	37.23	51.07
Electricity	86.25	68.60	7.56	0.06	0.05	0.00	1.41	0.84

Source: Scan-ICT Baseline Survey 2006, The Gambia .: Based on 1504 households

The proportion of households having access to electricity in urban area is more than three folds of the rural households.

CHAPITER 4: TRAINING ON THE USE OF INFORMATION & COMMUNICATIONS TECHNOLOGIES

4.1 Status of ICT in Education Sector

The quality of human resources is a major factor of success for all nations in the new millennium. The move towards globalisation requires a fundamental shift in thinking about the methodology of education. The importance of information, underscores the importance of adopting ICT in the education sector. Most important, transformation in education and learning requires a shift from the traditional methods where one confronts many learners with a textbook to a system where students learn through the use of various multimedia facilities such as computers, internet, etc.

ICT indicators related to education can help to assess certain aspects of universal access to education at all levels as well as the use of ICTs to achieve some of the national goals for education and development. Data on ICT in schools can help policy makers take informed policy decisions on investing in ICT for education or implementing measures to improve learning outcomes through the use of ICT. The ongoing international debate on ICT indicators has identified specific core indicators related to education; hence in that vain, our survey has also addressed the question of ICT use for educational purposes. Core indicators measure the student-to-computer ratio in primary and secondary schools, the proportion of schools having Internet access for students, or the proportion of students enrolled in tertiary education in an ICT field.

The availability of computers in the education sector is still very low; the national student to computer ratio is 142 students per computer. Results in table 21 indicate that on average the student computer ratio was 1: 286 in the Lower Basic schools, which is too high for students to learn anything. The utilization of ICT should improve to ensure that the student to computer ratio in schools to allow teachers teach the skills students need in using computers to their educational advantage.

The national estimate of student to PC Ratio shows that every single computer is shared by about 110 students in Middle/Upper Basic schools, whilst only 29 students share computers in that of Senior Secondary Schools. The least ratio per computer is in Tertiary/Higher Education which shows about 10 students per computer (see table 20).

Table 20: Estimate of enrolled student to PC Ratio by area and educational category

Category of Educational institution	Urban Student/ PC Ratio	Rural Student/PC Ratio	The Gambia Student/PC Ratio
Lower Basic School	363.9	146.8	286.3
Middle/Upper Basic	93.6	179.3	110.2
Senior Secondary	28.8	0.0	28.8
Vocational/Technical	11.3	6.0	11.2
Tertiary/Higher Education	9.6	23.0	9.6
The Gambia			**142.1**

Source: Scan-ICT Baseline Survey 2006, The Gambia

Our survey indicates that in the lower basic schools the ratio is very high in both the urban and the rural area, specifically in the urban. In the urban there are 364 students per computer whiles in the rural area there are about 147 students per computer. The attributes to this high number in the urban area, is because of the concentration of students in the urban area where almost all the schools are over crowded.

However, the ratio is found to be lesser in the Middle schools showing only 94 students per computer in the urban area and larger in the rural area with a ratio of 179 students per computer. The senior secondary and the Vocational or tertiary schools are mostly found in the urban and this has been demonstrated by the survey results.

In the urban area, for both the educational categories, there are about 29 students per computer in the senior secondary whilst there are only 11 students per computer in vocational schools. In comparison with the rural, for the same educational categories, there are zero ratios for senior secondary meaning there are no such schools. However, there are only 6 students per computer in the rural vocational schools.

Table 21: Percent estimate of students enrolled in tertiary/higher and Vocational/ Technical education in an ICT field by gender

Category of institution	Male	Female
Tertiary/Higher Education	59.7	17.8
Vocational/Technical	14.6	17.2

Source: Scan-ICT Baseline Survey 2006, The Gambia

Questions about women's technical education and their participation in ICT professions are important ones for national sustainable development. Our survey results in table 21 above shows that there are only 18 percent of the female students enrolled in tertiary education who are in an ICT dominated field whilst there are about 60 percent of the male students in the same category who are in an ICT dominated field. However, the results concern with Vocational/Technical schools show a higher participation of female in ICT field than the male students. There were 17 percent of female student in this school category who are in an ICT dominated field whilst only 15 percent of male student in the same school category are in an ICT dominated field.

The survey results in table 22 below showed that a smaller percentage, 2.4%, of teachers in Lower Basic Schools ICT qualified followed by proportion, 4.2% of teachers in the Middle/Upper Basic schools who are ICT qualified.

Table 22: Percent estimate of the total teachers who are ICT –qualified by institutional category

Category of institution	% of ICT qualified teachers
Lower Basic School	2.4
Middle/Upper Basic	4.2
Senior Secondary	15.8
Vocational/technical	38.5
Tertiary/higher Education	13.9
Total	**4.9**

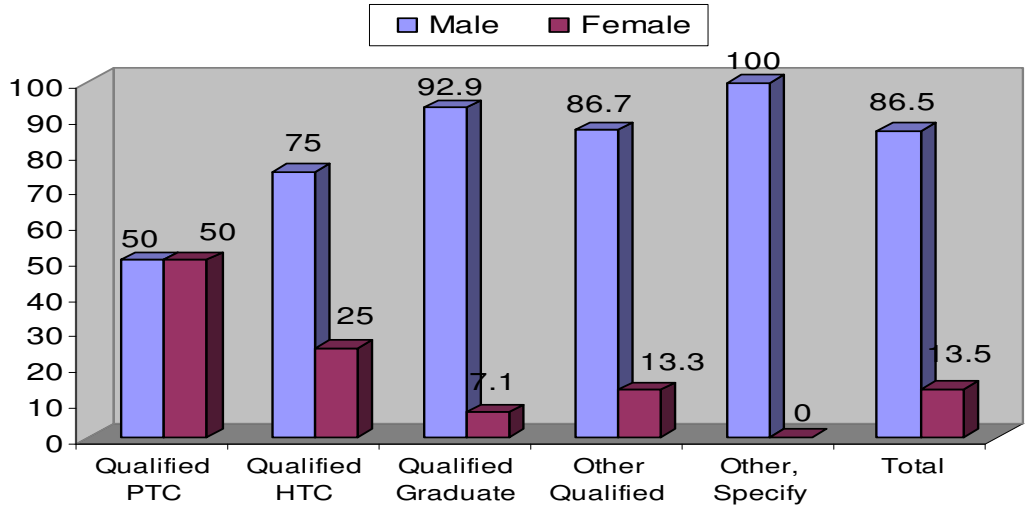
Source: Scan-ICT Baseline Survey 2006, The Gambia

Table 23: Percentage of ICT –qualified teachers by category of Qualification and by gender

Qualification	Male	Female	Total
Qualified PTC	50.0	50.0	100
Qualified HTC	75.0	25.0	100
Qualified Graduate	92.9	7.1	100
Other Qualified	86.7	13.3	100
Other, Specify	100.0	0.0	100
Total	86.5	13.5	100

Source: Scan-ICT Baseline Survey 2006, The Gambia

Figure 2: ICT –qualified teachers by category of qualification and by gender



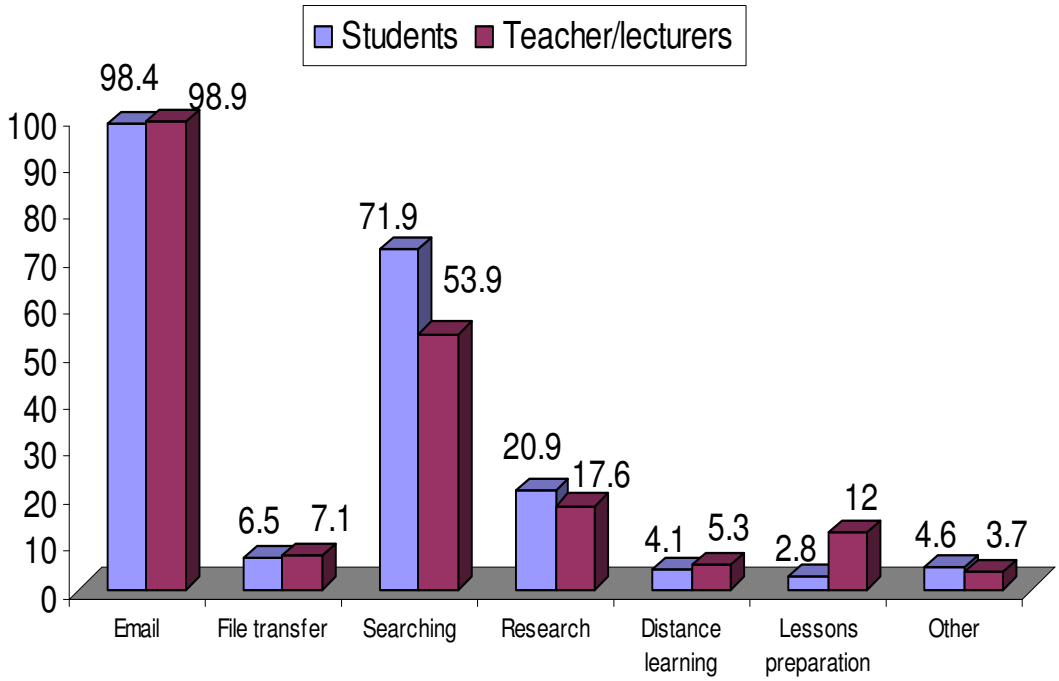
The use of Internet by both students and teachers is growing rapidly. Our survey in table 24 below indicates that 98 percent of student interviewed uses internet for Email whilst 99 percent of teachers uses internet for Email. Searching is also one of the purposes for using internet and is gaining popularity amongst both students and teachers. About 72 percent of students reported using it for research, whilst 54 percent of teachers use it for the same purpose. The least used is distance learning. In table 24 only 4 percent of students use it distance learning whilst 5 percent of teachers use it for this purpose.

Table 24: Percentage distribution of students and teachers/lecturers by purpose of internet use

Purpose of internet use	Students	Teacher/lecturers
Email	98.4	98.9
File transfer	6.5	7.1
Searching	71.9	53.9
Research	20.9	17.6
Distance learning	4.1	5.3
Lessons preparation	2.8	12.0
Other	4.6	3.7

Source: Scan-ICT Baseline Survey 2006, The Gambia

Figure 3: Students and teachers/lecturers by purpose of internet use



Summary of the findings

The path towards information society is the main theme of this report. The status of the infrastructure of ICTs in the economy and on society can only be felt if their availability, accessibility and use in the country are adequately understood. The answer lies in understanding the impact of the growth of ICTs and also in understanding their potential as enablers for service provision in several areas including education, health care, commerce, industry and so on.

In relation to the above, the major findings of the pilot phase of the Scan ICT survey can be divided into three different categories:

- Human Resources Development
- Infrastructure and
- Policy

Human Resources Development

Human capacity is a crucial factor for the development of any society. The study has demonstrated that the lack of people with ICT skills in The Gambia results mainly from the fact, that there are very few schools that have ICT incorporated in their curricula and the number of professional training institutes or basic computer training centres is also insignificant. The other important aspect to be considered is the need for formal introduction of ICT. This should include computer-based teaching and learning in education, starting from the tertiary education level and gradually extended to the lower levels. At the same time, the Government should invite the private sector to participate in research and development programs. Applied research should be encouraged, not only to address some of the country's most pressing problems, but also to build a critical mass towards the creation of a national ICT industry.

Infrastructure

As referred in previous sections, the national ICT infrastructure is poorly developed. The telecommunications network is almost limited to the urban and semi-urban areas. In the rural

areas the citizens have to face not only the scarcity of access points to basic telecommunications services, but also the poor quality and the high costs of such services. In our opinion, the Government should combine the different initiatives and build partnerships with the private sector and international funding agencies, aimed at reducing the gap between rural and urban areas with regard to ICT infrastructure. Taking into consideration that the Gambia is financially a developing country, it will be very important to choose the right solutions both technically and economically. In that regard, small projects such as the telecentres and the internet cafés could certainly have a bigger impact for the development of the community than any mega-projects, because of the cost implications for the beneficiaries and sustainability of the processes.

Policy

In relation to Policy issues, the Government has put a lot of efforts into creating an enabling environment for ICT development, by establishing an ICT Information Policy and the respective Implementation Strategy, as well as introducing reforms in the telecommunications sector. However, the dynamics of the national economy requires more substantial changes to satisfy the needs and expectations of the ICT market. In our opinion, the Government must undertake the necessary steps immediately, in order to accommodate the present and future ICT needs and related initiatives in the country, taking into account the Regional and International development trends in the ICT sector. Affordable and reliable sources of energy are a big hindrance to ICT development in the country and therefore, demands a high investment.

CHAPTER 5: LIMITATIONS TO ACCESS TO ICT IN THE GAMBIA

Access: the opportunity to make use of ICTS (technology, knowledge, information)

Access to ICTs is a critical factor in development particularly in the fight to eliminate poverty and to achieve economic growth. In the Gambia, to improve and deliver access, Education, Affordability, Gender Issues, Health, Connectivity, Human Resources, Geographic locations are relevant areas to address and focus on.

5.1 Education

There is an urgent need to address the issue of education and knowledge as well as its transfer rapidly. First and foremost, the common message has to be very clear that ICT has no boundaries and the sweep of digital technologies and the transformation to a global knowledge-based economy have created robust demand for workers highly skilled in the use of information technology. To develop our economy rapidly and therefore improve the lives of Gambians we therefore need a basic level of education underpinned by developing a learning culture. The ability to use new technology that is ever changing, acquire relevant knowledge and convey information in a manner that empowers individuals to maximize their natural potential perhaps stands out as the most basic prerequisite. In this regard access to ICTS has to be precluded by training and learning.

5.2 Skilled Workforce

In The Gambia the proliferation of ICT training will provide a future base but at this point in time it is important we recognize that the relevant knowledge base and therefore skills

required to be competitive or have the competitive edge are lacking. Without an appropriately skilled workforce we have no chance.

Before we even get in to the IT fields or the lack of it in schools, what first comes to mind is the ongoing debate about the atrocious level of English proficiency in schools. Language forms a fundamental part of development and it is through this that the principle of skill acquisition is based on regardless of which skill one needs to acquire. Imagine trying to study computing without a basic understanding of English, French or some other language that the course is based on. It becomes increasingly difficult to generate a skilled workforce if this most basic of fundamentals is non-existent.

The basic understanding of mathematics, languages and the sciences are certainly prerequisites and it is high time that a lot of thought is put into revitalizing this part of the education system as way of pushing access issues forward.

Educating the non-educated people in benefits of ICT is a solution to access at another level. It is no point taking a computer to a village community centre and telling them that they have access to the Internet, which can help solve their problems. The solution is to first analyse the problems maybe they have in getting the right prices for their crops. It is at this point that ICT solutions that help in this area can be discussed. Eventually the solution is to put in place mechnisms allowing the villagers to have access to latest market prices before selling their goods and thus eliminating the middle man to maximize profits.

In a nutshell access to technology must mean more than just computers and connections: (bridges.org's 12 Real Access criteria)

Providing access to technology is critical, but it must be about more than just physical access. Computers and connections are insufficient if the technology is not used effectively because it is not affordable; if people do not understand how to put it to use or if they are discouraged from using it; or if the local economy cannot sustain its use. The following issues are the determining factors in whether or not people have Real Access to ICT -- access that goes beyond just physical access and makes it possible for people to use technology effectively to improve their lives.

5.3 Awareness

"Information is power" as has been well noted time and time again. Power to empower and power to act. The whole learning process for us in Africa and The Gambia specifically is challenged by how quickly we raise the level of awareness of ICTS. There is no doubt that IT is still a luxury to a greater degree than not. This means that spending money to browse the Internet, buy computers, keep up with technological advances is challenging and a fine balancing act alongside providing the proverbial "daily bread".

At present, the ICT industry in the Gambia is more focused on selling computers, basic computer training, networking and a few other basic services. The innovation is certainly lacking. It is through this way that PC sales can actually increase because you are actually demonstrating to people what a simple computer program can do for them or their business which can translate to the need for computers.

5.4 Affordability

Universal Access to and affordability of ICTS are inextricably linked. Until ICTS become more affordable in the Gambia, the objective of building masses IT literate population cannot be achieved. In the Gambia, the cost of computers and the price of accessing the Internet are one of the main issues that impact on the spread of ICTS. Purchase of equipment is still far beyond the reach of the average citizen. The high price tags compared to other basic necessities in life act as a barrier to access and becomes prohibitive. In The Gambia, the introduction of a zero-tariff on computer equipment brought in a glimmer of hope. However the effect and benefit of this action is yet to be gained as the dream of cheap computers has just remained a dream.

For Internet access, the prices in the Gambia are still a lot cheaper than other African countries but for the masses to be able to access the Internet on a more frequent basis, the price has to surely come down more." It is also envisaged that with the liberalization of

Gamtel and effective administration of the Universal Service Fund by PURA both service providers and consumers will benefit in terms of cost reduction.

5.5 Gender

Women's access to and control of ICTs has featured prominently in both the theory and practice of the gender digital divide. Women's access to and control of ICTs is dependent on factors such as gender discrimination in jobs and education, social class, illiteracy and geographic location that mean that the great majority of Gambian women have no access to ICTs. Despite the emphasis of the information society on getting women connected, civil society actors have argued that the issues of access and control are more complex than just connectivity. The high cost of computers and connectivity keep ICT services far beyond the reach of most women. ICT infrastructure is largely urban-centred. Internet content is overwhelmingly in English. Insufficient attention is paid to content in local languages and the use of the Internet for women with low levels of literacy and gender roles and other cultural factors translates to the fact that women have less time to make use of ICTs

5.6 General

One of the limitations that has accompanied the information revolution and the rise of ICTS is the digital divide: the gap between those who have and those who do not have **real access to information** in a wide sense. The Internet as we all know is one of the most well-used and influential examples of ICT. The Internet has worldwide broadcasting capability, mechanisms for information dissemination, and acts as a medium for collaboration and interaction between individuals within and without. The main access gaps highlighted in the chapter are mainly in access to infrastructure, hardware, software and skills needed for using ICTs. Proliferating access will therefore significantly narrow the Digital divide at all levels in the Gambia.

CHAPTER 6: SUGGESTIONS AND RECOMMENDATIONS GATHERED FROM OPINIONS

6.1 Recommendations

The findings of this report and other related issues has led us to the following recommendations for the use of the results in subsequent preparation and finalization of country report on ICT development, access, usage and exploitation in The Gambia and also the creation of good database for future updates. The following are recommended, among others:

- One of the major concerns we faced during the Scan-ICT survey was the lack of Statistics in most of the institutions visited. The little information that was available was often not systemised. Therefore, we would like to recommend that government be assisted on creating institutional awareness on the importance of ICT statistics in public institutions.

- In general we found many indicators that could not be measured, due to either lack of reliable data, or no data available at all in some areas. In such cases, we had to rely on our own knowledge to provide generic evaluations. The next ICT survey should consider the possibility of revisiting those cases to consolidate the evaluation made during the pilot phase. Subsequent ICT surveys will be conducted by Gambia Bureau of Statistics with a view to establishing consistent methodology for data production relating to ICTs.

- Due to time limitations, the project was unable to consolidate a formal national ICT network for regular update of the ICT Database. Therefore, a frame for the different sectors need to be developed and put in place and, be updated regularly to help both in the design and analysis of ICT surveys.

- Administrative sources can also be exploited which would rely on the cooperation of sector coordinating agencies and their subordinate institutions. Appropriate forms could be designed for each sector which should be completed by institutions at certain time interval and for a specific reference period and then submitted to GBoS for processing.

- It will be also important to assess the need for specific information in relation to ICT by different sectors in the country and the level of use and dissemination of the existing information sources including the ICT Database. Create a dynamic ICT Database instead of the current static version. This task could not be accomplished during the pilot phase due to time constraints.

To achieve the above goals and for successful policy formulation, the GBoS should therefore have within its bureau personnel to coordinate the necessary working arrangements.

6.2 Conclusion

In conclusion, results from the different surveys on different sectors – from household sector to public and private sectors – points to the fact that it is feasible to conduct these surveys and be able to obtain reliable estimates. However, there should be commitment and cooperation on the part of all the sectors so that both the data collection mechanisms and design approach are as relevant, cost-effective and consistent as possible.

ICT statistics is a new area on which there is on-going research on common methods of measurement and survey approaches. Therefore, GBoS needs support in terms of building it's capacity to undertake well designed survey and general administration of data collection, analysis and reporting on ICT surveys.

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ANNEX

ANNEX 1 : SCAN-ICT National Technical Committee

Sr. #	Name	Organization
1	Abdou Touray	Department of State for Finance and Economic Affairs (DoSFEA)
2	Alieu S.M Ndow	Gambia Bureau of Statistics (GBoS) (Chairperson)
3	Ebrima D. Jobe	Department of State for Communication and Information Technologies (DOSCIT) (National Coordinator)
4	Ousman Dibba	Gambia Bureau of Statistics (GBoS)
5	Lamin Fatty	Gambia Bureau of Statistics (GBoS)
6	Abou Camara	Gambia Bureau of Statistics (GBoS)
7	Fatou Darboe	Gambia Bureau of Statistics (GBoS)
8	Lamin Camara	Department of State for Communication and Information Technologies (DOSCIT)
9	Yankuba Touray	Department of State for Communication and Information Technologies (DOSCIT)
10	KatiM Touray	Gambia Telecommunications Company (GAMTEL)
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13	Papa Yusupha Njie	Unique Solutions
14	George Christensen	Radio 1 FM
15	Dembo Touray	Consultant
16	Kajali Sonko	Women's Bureau
17	Lamin Fatajo	Agriculture
18	Sheikh Omar Touray	Department of Health Services
19	Ebrima D. Kah	Education Department
20	Alex Dacosta	Public Utilities Regulatory Authority (PURA)
21	Baboucarr Jobe	Department of State for Finance and Economic Affairs (DoSFEA)